EXHIBIT 2

LITIGATION SERVICES HANDBOOK

Fifth Edition

The Role of the Financial Expert

Roman L. Weil
Daniel G. Lentz
David P. Hoffman

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Edited by
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CONTENTS

PART V: CIVIL LITIGATION

CHAPTER 2

SERVING AS A FINANCIAL EXPERT IN LITIGATION*

Stephen L. Buffo
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CONTENTS

2.1 INTRODUCTION

(a) Financial Expert Services Provided by CPAs and Others. Disputing parties and their legal counsel frequently engage experts to provide assistance in evaluating the financial and related business aspects of the issues in dispute. The financial expert has a responsibility to explore the facts and to reach an opinion on the financial and related business matters at hand, and to communicate that opinion to the trier of fact. The manner in which financial experts conduct their work and the way this process plays out depends on a number of variables including, most notably, the dispute resolution venue and its rules and procedures governing expert witnesses. For many years, the most common venues for civil litigation in

* The authors acknowledge Peter Frank, Michael Wagner, and Christian Hughes for their work in creating earlier versions of this chapter that appeared in previous editions of the *Litigation Services Handbook*.

the United States have been the federal and state court systems. This chapter will discuss financial expert services in the context of civil courts; however, many of the principles and frameworks outlined herein apply as well in other venues.

An expert opinion undergoes intense scrutiny and cross-examination by an opposing party, its counsel and experts, and the trier of fact. The processes, principles, and professional and legal standards discussed in this chapter and throughout this handbook ensure that financial experts deliver services in a professional manner that gives all parties an opportunity to test, challenge, support, or controvert the opinion(s) presented. Experts must have qualifications pertinent to the situation at hand and they must present conclusions consistent with the facts while employing defensible assumptions and appropriate methods.

(b) Defining Financial Expert Services. The American Institute of Certified Public Accountants (AICPA) guidelines consider financial expert services as consulting services (see Section 2.4), providing a definition of forensic accounting services (which one can apply to financial expert services) as follows:

> Forensic accounting services generally involve the application of specialized knowledge and investigative skills possessed by CPAs to collect, analyze, and evaluate evidential matter and to interpret and communicate findings in the courtroom, boardroom, or other legal or administrative venue. More simply, in a litigation context, the term forensic means to be suitable for use by a court of law.
>
> Forensic accounting services include dispute resolution, litigation support, bankruptcy support, and fraud and special investigations, among many other services. Forensic accounting services utilize the practitioner's specialized accounting, auditing, economic, tax, and other skills to perform a number of consulting activities. The provision of forensic accounting services often requires the practitioner to serve as an expert or fact witness, depending on the assignment.
>
> Dispute resolution services assist parties with the settlement or determination of a dispute. Litigation services involve pending or potential legal or regulatory proceedings before a trier of fact in connection with the resolution of a dispute between parties. A trier of fact may be a judge, a jury, a tribunal, a regulatory body or government authority and their agents, an arbitrator, a mediator, a special master, a referee, or another party with authority to decide the outcome of a dispute. Bankruptcy support services assist debtors, creditors, other interested parties, and the courts with pending or potential formal legal bankruptcy proceedings. Fraud and special investigations typically involve the investigation of known or suspected bad acts or events using recognized forensic techniques.[1]

While financial experts do not always deliver their services in a litigation context, most services provided by financial experts fall under the same forensic classification and are subject to the same rubric.

This chapter describes the skills, roles, and professional guidelines for a financial expert when providing such forensic services, most often in the form of an expert opinion, and in communicating the opinion to the trier of fact. The chapters in Part II of this handbook will discuss the various types of damages analyses performed by financial experts.

2.2 FINANCIAL EXPERT SERVICES

(a) Typical Roles of the Financial Expert

(i) Expert Witness. An expert witness renders an expert opinion at trial. The financial expert's opinion usually relates to business issues in which the expert has

special skill, knowledge, education, work experience, or training. The trier of fact commonly lacks this knowledge or expertise, so the financial expert's opinion will help it reach a decision. Federal courts and many state courts require that an expert witness submit a written report setting forth the opinions and the bases for those opinions that the expert will present at trial. Federal courts also require under Rule 26 of the U.S. Federal Rules of Civil Procedure that the expert's report include the following:

- A complete statement of all the expert's opinions, and the basis and reasons for them;
- The data or other information the expert considered in reaching opinions;
- The expert's qualifications, including publications authored by the expert in the prior ten years;
- A listing of cases in which the expert testified in the prior four years; and
- Compensation of the expert.

Changes to Rule 26 that took effect on December 1, 2010 no longer allow the discovery of draft reports and limit discovery of attorney–expert communications. Some state courts follow the Federal Rules. In other venues, such as an alternative dispute resolution (ADR) occurring in the United States or internationally, or in certain regulatory proceedings, other rules will dictate the disclosure of an expert's opinions and related files; therefore, the expert should obtain an understanding from counsel about the specific rules for disclosure in the venue for each case.

(ii) Consultant. Sometimes an attorney hires a financial expert as a consultant to advise the disputing party and its legal team about the facts, issues, and strategy of the case. The consultant does not testify at trial. The attorney work-product doctrine protects the consultant's opinion, discussions, work papers, and impressions from discovery by the opposition. Consequently, the opposition often never knows of the financial expert serving as a consultant. However, if a financial expert progresses from confidential consultant to expert witness, the expert's work product, writings, work papers, and even notes likely will become discoverable. For large cases, attorneys often have one financial expert as a consultant and designate another to provide expert testimony. Coordinating their roles without exposing to discovery the consultant's work demands close communication with counsel and, usually, separate retention agreements.

The work of a consultant usually includes analyzing and advising on how best to discredit the opposing expert's work. Sometimes the consultant also examines the strengths and weaknesses of the client's case and how best to represent these facts at trial.

Attorneys retain consultants on occasion to evaluate the effects of particularly troublesome facts not shared with the testifying expert. Philosophies vary on the advisability of this practice. If the opposing side knows the troublesome information, it could surprise the unprepared expert at deposition or, worse, at trial.

(iii) Other. Financial experts often perform roles other than that of expert or consultant for one party in a dispute. For example, a court can appoint the financial expert as a special master who will decide certain facts in a dispute. The financial

expert then acts in this function as the judge and jury. The special master becomes useful when a case has difficult or highly technical accounting or financial issues that only a CPA or economist can understand. On rare occasions, the judge retains the expert to advise the judge in deciding these issues.[2] Sometimes the parties want to agree on an individual to make these decisions in an effort to get an informed decision, or accelerate the process, or save expenses. (Financial experts also serve as arbitrators or mediators in ADR settings, as Chapter 1 discusses.)

(b) Financial Expert Services in the Litigation Environment

(i) Discovery Assistance. Business litigation often depends on documents to prove or disprove an issue at trial. As a result, the parties undertake voluminous document discovery and production, which has become weighted toward electronic records and information, involving both structured data (such as accounting or business systems information) and unstructured data (such as text documents or other user files, and emails). Business records become crucial to a number of issues in most cases. Financial experts can assist in finding, understanding, and explaining the information from these documents. To assist with the magnitude and complexity of electronic information, forensic technology specialists have become commonplace members of the financial expert's team (*see* Chapter 14).

Lawyers need to know the types of documents that exist in managing a business so they can formulate precise discovery requests. This knowledge also helps the lawyer to assess the responsiveness of particular document productions and to understand what other documents might exist, as discussed in Chapter 14.

Depositions of financial and management personnel often relate to technical business issues. Attorneys need help in understanding the real issues and in formulating effective questions. Because technical people will often answer questions in jargon that has a special meaning in a particular industry or business discipline, attorneys often need assistance in understanding the answers and developing follow-up questions. Financial experts can assist in this area.

Lawyers need information regarding the opposing expert's work to effectively cross-examine and rebut the opposing expert's opinion. When the expertise involves business matters, financial experts can assist lawyers in analyzing the expert's work and the strengths and weaknesses of its support.

(ii) Proof of Business Facts. In commercial litigation, factual evidence—except that derived from testimony—comes principally from the business records of the parties or from industry and market sources. Financial experts can help lawyers obtain, understand, authenticate, organize, and explain this information.

Experts can base opinion testimony on either facts or assumptions. They usually base assumptions on facts or presumptions from facts. In either case, the expert must lay a proper foundation as to the source of the information. Financial experts can help to develop these facts by collecting the relevant business or industry data to support their own or other experts' opinions. Rule 702 of the U.S. Federal Rules of Evidence requires that experts reliably apply their methods to the facts of the case. Accordingly, even when testifying based on hypothetical premises, the expert must have confidence in the plausibility of those premises. The expert who accepts implausible assumptions is fishing with his reputation for bait.

(iii) Computation of Damages. Financial experts often calculate damages in commercial litigation, and this topic dominates much of the remainder of this book. Numerous types of damages occur—such as actual losses of cash or equivalents, or other property, or expected profits—and practitioners have developed methods to compute them. The type of damages that the expert must compute can be a question of fact or opinion, and may also be a function of what the law permits, such as statutory rates of interest. The law may also limit recovery of certain types of damages in certain causes of action.

The financial expert should communicate with the attorney to agree on the type of damages to calculate and an appropriate method of computation. Otherwise, the court can rule a calculation inadmissible as inappropriate to the circumstances.

Actual loss incurred defines one type of damages recovery. Experts compute this form of restitution, which applies in many fraud cases, as the difference between what the plaintiff paid for something and the actual value received or as the value of something once but no longer possessed.

The expected profits from a proposed contract or deal represent another common type of recovery. Practitioners often refer to this as the benefit-of-the-bargain approach of computing damages in contract disputes. Plaintiffs often claim lost profits in business litigation, measured as the amount by which the plaintiff's actual earnings fall short of the earnings that would have occurred but for the defendant's illegal actions. Practitioners most often state this formula as the difference between but-for profits (i.e., those that the plaintiff would have earned but for the defendant's improper act) and actual profits. Disgorgement of a wrongdoer's ill-gotten gains or profits is often an alternative to a plaintiff's lost profits. More generally, most damages analyses require the use of assumptions and projections about what would have happened if the defendant had behaved differently.

Examples of other types of damages claims include reasonable royalty analyses in patent infringement, actual cash value computations under business property insurance policies, and monetary cost to restore the plaintiff back to the starting point under equitable rescission theories in some contract cases. Chapter 4 describes many of these alternative types of damages in the context of a framework for developing a damages claim; subsequent chapters discuss specific types of damages in more detail.

(iv) Development of Strategy. Financial experts who serve as litigation consultants can suggest approaches to the business issues in a case. Even the best trial lawyers sometimes lack the business experience and insights that such financial experts have learned from their business consulting, experience, training, and education.

Lawyers need independent analysis of the positions they believe they must prove to win the case. Financial experts can help lawyers identify errors, flaws, and weaknesses; they can also devise alternative approaches, perhaps using different assumptions.

(v) Document Management. Financial expert services firms frequently have expertise in information technology (IT), computer systems, and other forms of business records. Such experts can help attorneys collect, organize, and summarize the large volume of hard-copy and electronic documents that often arises in a business case. They usually use IT systems to manage the large databases of documents, images, and other electronic information produced for the case. Chapter 14 discusses techniques involved in such document management and data management issues.

(c) Opinion Testimony

(i) Expert Opinion. Expert opinion is testimony by a person qualified to speak authoritatively because of some combination of special training, skill, study, experience, observation, practice, and familiarity with the subject matter. Expert knowledge is knowledge not possessed by laymen or inexperienced persons. State or federal rules of evidence define the scope and nature of admissible expert opinion testimony.

The courts consider CPAs and other practitioners with appropriate experience and training as experts on accounting matters. Many financial experts also have expertise in the application of economic, financial, statistical, and econometric techniques (which could include CPAs, economists, or others with appropriate education, training, and experience). Financial experts frequently possess industry expertise as well. We encourage experts to objectively weigh their qualifications for any opinion they are asked to give and to do so early in the case lest they find themselves and their clients harmed by a successful *Daubert* challenge (*see* Section 1.1(b) of Chapter 1).

(ii) GAAP / GAAS Rules and Compliance. Practitioners need to understand the distinction between accountants' opinions and expert opinions. Generally accepted accounting principles (GAAP) and generally accepted auditing standards (GAAS) relate to the preparation and examination of a company's financial statements. An accountant's opinion as a result of an audit, review, or compilation engagement addresses whether—in the opinion of the accountant—the financial statements fairly present the results of the company in all material respects. An expert opinion expressed by a financial expert, on the other hand, while invariably rooted in the books and records of the disputing party or parties, is not an accountant's opinion on financial statements and is therefore exempt from GAAP and GAAS.

There are some specific situations, however, where GAAP and GAAS are the subject matter of the litigation. Such issues arise when a party questions the accuracy of financial statements or the care with which they have been audited. Some CPAs have the qualifications to render expert opinions on GAAP and GAAS.

GAAP and GAAS issues arise when a plaintiff sues an accounting firm for violating these standards, alleging harm because it relied on the accuracy of the financial statements. Chapter 30 discusses accountants' liability.

GAAP issues also arise when a dispute relates to the purchase or sale of a business and one party questions the accuracy of the prior financial statements or those on which a postclosing working capital adjustment is based. GAAP issues can also arise in damages computations that rely on financial statements.

(iii) Attest and Audit Opinions. Experts develop their own findings, conclusions, and opinions. In an attest engagement, which requires a CPA's expertise, the CPA

expresses a conclusion about the reliability of a written assertion that another party—the asserter—has produced. In a litigation context, CPAs should not undertake an Agreed-Upon Procedures report—an attest function wherein a CPA issues a conclusion about specific and narrowly defined results based on inputs and scope as provided by the client. Litigation services engagements rarely require an attest opinion, and the financial expert should consider the facts and circumstances before deciding whether to issue an attest report in a litigation matter. Although an audit opinion is a form of expert opinion, it differs from an expert witness opinion given at trial.

Sometimes the opposing lawyer tries to confuse the trier of fact by muddling audit opinions with expert opinions. The lawyer might ask whether the CPA performed an audit and can render an audit opinion. When the CPA answers no, the attorney might suggest incorrectly that the CPA with no audit opinion can have no expert opinion.

2.3 QUALIFICATIONS OF FINANCIAL EXPERTS

(a) Skills Commonly Required of Financial Experts. Rule 702 of the Federal Rules of Evidence provides the basis for evaluating the merit and relevance of a financial expert's testimony (*see* Section 1.1(b) of Chapter 1): "If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education may testify thereto in the form of an opinion or otherwise." The services provided by a financial expert should be governed by these criteria for the expert's qualifications.

As Section 2.2 of this chapter describes, financial experts can provide many services throughout the litigation process. The discussion that follows lists the special skills such experts need to competently perform such work. Of course, crossover can occur where an accountant has education, training, or experience in other related financial, economic, and business areas, or when an economist or finance professional understands accounting principles.

(i) Accounting and Auditing. Damages analyses in litigation use the books and records of the disputing parties, making accounting skills fundamental to financial expert services. When assessing damages, experts often need to understand financial statements, financial systems, journals, and ledgers; interpret the results of business segments, product lines, and facilities; and follow the dynamics of balance sheet, income statement, and cash flow items. Litigation services engagements frequently use the skeptical attitude, investigative skills, and accounting knowledge required by the audit function. Examples include investigation of fraudulent transactions and reconstruction of financial statements.

(ii) Cost Accounting. The calculation of damages often requires cost accounting skills. For example, cases in which the plaintiff is a multiline product manufacturer or service provider require allocation of common costs to each product line affected by the defendant's actions.

(iii) Financial Analysis. Development and analysis of financial ratios and relations often aid in understanding the causes and symptoms of a litigant's business

problems. The financial expert can also modify ratio analysis to derive assumptions as to what would have happened but for the alleged unlawful action. The financial expert can apply financial analysis skills such as forecasting and discounting to perform present value or prejudgment interest analyses, capital market theory applications, and business valuations.

(iv) Economic Analysis. Economists and accountants perform both macro- and microeconomic analyses in a litigation services engagement. Development of elasticity functions, analyzing market structure and market or pricing behavior, or assessing barriers to entry can prove important in claims for antitrust damages or for price erosion claims in a patent infringement matter.

(v) Market Analysis. Much market analysis focuses on the collection of quantitative data about supply and demand, buyers and sellers, competitors and other participants in a particular marketplace. Financial experts can help collect and assess the required data. Examples include the number or concentration of competitors in a particular market or computation of the market share of each participant, and trends driving changes to such market data.

(vi) Statistics. Economists and many accountants understand statistical techniques such as sampling and regression analysis. An expert uses sampling when analysis of an entire population is too time-consuming or expensive for the case (Chapter 6 discusses sampling). Regression analysis can help to project sales or suggest cost relations. (*See* Chapters 7 and 8 for discussion on regression analysis.)

(vii) Other Relevant Knowledge. Disputes often center on particular business practices or processes, many of which apply to a particular industry or sector. In addition to the functional skills described above, financial experts often have such business or industry skills and knowledge to apply in their analyses.

2.4 PROFESSIONAL GUIDANCE AND STANDARDS

(a) Guidelines for a Financial Expert. The AICPA, through its standards and Code of Professional Conduct, has set criteria for its members to help maintain the integrity of the profession and its members. We discuss many of these here as prudent guidelines for *all* financial experts providing litigation services.

(i) Competency. Experts should "undertake only those professional services that the member or the member's firm can reasonably expect to complete with professional competence."[3] Experts embarking on their first litigation engagement can find themselves ill-equipped, ill-prepared, and lacking foundation for some of their opinions. The attorney retaining the expert frequently cannot evaluate the expert's abilities. An expert uncertain of competence for the engagement should not accept it.

(ii) Confidentiality. Experts bring to the courtroom all their prior experience and knowledge of clients and their practices, operations, and trade secrets. The expert should not disclose information obtained during other professional engagements except with the client's consent or pursuant to an appropriate order of the court. Experience in similar cases enables someone to render expert opinions but the

expert must protect confidential information obtained in previous engagements. Often the expert will not need to disclose any confidential information but must recognize the dual responsibility of truthfulness and honesty while preserving past and present clients' confidential information.

If experts rely on specific information obtained in an unrelated client engagement and use that information as a basis for their opinion, a judge can require them to disclose the information's source. If the expert refuses, the judge can preclude use of the testimony because the opposing counsel could not take discovery on the information providing the basis of the expert's opinion.

(iii) Objectivity. Financial experts should avoid taking any position that might impair their objectivity. Although experts can resolve doubt in favor of their client—as long as they can support the position—they must not become blind to objectivity in an effort to please their client. Such a lack of objectivity can become apparent, thus damaging the client's case and the expert's own reputation.

Any opinions and positions an expert has taken in previous cases can become a matter of inquiry. For example, the expert should not testify in a matter involving an accounting or financial principle from a position inconsistent with one previously taken with similar facts unless the expert can reconcile the apparent inconsistency. Opposing counsel can quickly cast doubt on the expert's objectivity and credibility.

(iv) Conflicts of Interest. Conflicts of interest arise from the expert's ethical obligation to preserve client confidences or from other relations that can affect the expert's ability to present a client's position.

The financial expert must investigate possible conflicts of interest before accepting a litigation engagement and must check whether any adverse party in the litigation, including counsel, is a current or past client of the expert or the expert's firm. This in itself does not create a conflict, but the expert should consider the implications and discuss this with counsel. Although certain professions and professional organizations often impose ethical guidance differing by the expert's discipline, the existence of a legal conflict of interest is rare.[4]

Even when no direct conflict of interest exists, the expert should consider whether to accept an engagement that could prove contrary to the interests of another existing client. For example, civil complaints often identify many persons and entities as defendants. Experts should be wary when asked to work for one defendant when another defendant in the same case is a client. A problem can arise if the plaintiff proves joint damages, because then the defendants will lose the unity forged when trying to defeat the plaintiff and will instead dispute the portion that each owes. The defendants often file cross-complaints against each other in an attempt to escape the ultimate payment of damages. At this point, experts could find themselves opposing a current client.

When a litigation engagement involves a former client as the opposing party, the expert must resolve the question of a conflict on a case-by-case basis. Factors to consider include the length of time since the party was a client, the confidential information the expert possesses that could become an issue in the litigation, and the issues of the case.

The financial expert should consider disclosing all current and former relationships with all parties to the litigation to the inquiring lawyer, even though the expert has concluded that no conflict of interest exists. On occasion, duties of confidentiality to a present or former client will not permit that disclosure, and seeking permission to disclose from that client might violate the confidentiality owed to the prospective attorney-client. There is no tidy exit from this box.

- **Avoiding conflicts of interest—disclosure of confidential information.** When a prospective client approaches an expert regarding a litigation engagement, the client or attorney often gives the expert sufficient information regarding the case to help identify the parties and opposing counsel as well as the key issues in dispute. In describing the matter, the potential client will sometimes communicate confidential information to the expert. Assume that this prospective client does not retain the expert, but the client's opposition subsequently approaches the expert. Should the expert decline the subsequent offer of an engagement to protect the confidential information received previously?

  Although the implication of a conflict of interest seems readily apparent, a California appellate court decision, *Shadow Traffic Network et al. v. The Superior Court of Los Angeles County*,[5] highlights the importance of full disclosure and analysis of any potential conflict of interest in a litigation service environment. In *Shadow Traffic Network*, the plaintiff's law firm interviewed a prospective CPA expert and then decided not to retain the CPA for trial purposes. Subsequently, opposing counsel retained the same CPA to assist in the same litigation even though the CPA expert had informed the new counsel of previous discussions with plaintiff's counsel. When plaintiff's counsel learned that defendant's counsel had retained the rejected CPA firm in the matter, the law firm moved to disqualify the defendant's law firm from further representation of its client because the firm had retained the CPA to whom it had disclosed confidential information. The trial court disqualified the law firm. On review, the appellate court decision upheld the trial court's decision.

  The *Shadow Traffic Network* ruling provides aggressive lawyers with an opportunity to foreclose the participation of potential experts by contacting them and disclosing minor bits of confidential information. Most jurisdictions discourage this practice; in some jurisdictions, such behavior can expose counsel to sanctions or other disciplinary action by the state bar association. To avoid the problem, experts should limit the information they receive from lawyers before committing to an engagement and inform the inquiring lawyers that they have adopted this approach. Practitioners should be careful about all communications with attorneys on a matter and assure that they are under retainer and have cleared conflicts before any substantive conversation about a case occurs.

- **Simultaneous consultations.** Particularly with multinational accounting and consulting firms and national law firms, a law firm might engage different experts from the same firm to work simultaneously for and against the law firm's clients in different cases.

  This question of conflicts presents more of a problem for counsel than an ethical question for the expert witness. The expert, however, should know the potential for problems in such circumstances and should, given confidentiality constraints, fully disclose such relations to counsel before accepting an engagement or, when this is not possible, alert counsel to the possibility of such an eventuality.

(v) Considerations for CPAs. CPAs offering litigation services must comply with the Statement on Standards for Consulting Services No. 1 and general standards of the profession contained in the AICPA Code of Professional Conduct. CPAs should also meet the legal standards appropriate to the expert's role, applicable state board of accountancy rules, or other professional organizations to which the CPA belongs.

The AICPA has stated that litigation services do not meet the definition of an attestation engagement (and therefore the attestation standards do not apply),[6] except for the rare occasions when a CPA must give an attest opinion during a litigation or when others will receive the written work of the accountant and, under the rules of the proceeding, do not have the opportunity to analyze and challenge the accountant's work. The AICPA recognizes that in a litigation engagement, the opposition and trier of fact will scrutinize the information and conclusions reached by a CPA. CPAs must understand that their opinions will receive the close attention of counsel and, in most instances, an opposing expert or consultant. CPAs must ensure that anyone using their reports or work papers understands why the CPA prepared them or has the right to depose or cross-examine with respect to them. A CPA should take reasonable steps to prevent a third party who does not know of the litigation from relying on the reports; such a person could not challenge or fully understand the underlying assumptions.

While a CPA is generally exempt from following the AICPA's attestation standards, they must follow the general AICPA professional standards for the accounting profession. The following standards[7] pertain when a CPA provides litigation services:

1. Rule 102, Integrity and Objectivity
2. Rule 201, General Standards
3. Rule 202, Compliance with Standards
4. Rule 301, Confidential Client Information
5. Rule 302, Contingent Fees
6. Rule 501, Acts Discreditable

As stated previously, all financial experts—particularly CPAs—should consider the standards of Rule 201, listed below:

(A) **Professional Competence.** Undertake only those engagements the CPA can reasonably expect to complete with professional competence.
(B) **Due Professional Care.** Exercise due professional care in any performance of professional services.
(C) **Planning and Supervision.** Adequately plan and supervise the performance of professional services.
(D) **Sufficient Relevant Data.** Obtain sufficient relevant data to afford a reasonable basis for conclusion or recommendations in relation to any professional services performed.[8]

Rule 101 of the AICPA's professional standards will have relevance if a dispute involves a CPA's attest client. Rule 101-3 states that providing expert services to a non–Securities and Exchange Commission (SEC) client will impair a CPA's independence but permits consulting services for non-SEC registrants. The Sarbanes-Oxley Act of 2002 transformed the litigation services arena for CPAs whose firms audit companies subject to regulation by the SEC. Such audit clients cannot employ partners or staff of their audit firms in this capacity.[9]

The AICPA's Forensic and Valuation Services (FVS) Section provides guidance to CPAs who provide litigation services. We urge all practitioners to remain current on publications issued by this section of the AICPA, particularly the current text and any updates or modifications to *AICPA FVS Practice Aid 10-1*, "Serving as an Expert Witness or Consultant." In addition to *Practice Aid 10-1*, the AICPA has produced a number of other publications dealing with litigation services, including the following:

- *AICPA Consulting Services Special Report 03-1*, "Litigation Services and Applicable Professional Standards";
- *AICPA FVS Section Special Report 08-1*, "Independence and Integrity and Objectivity in Performing Forensic and Valuation Services";
- *AICPA FVS Section Special Report 09-1*, "Introduction to Civil Litigation Services";
- *AICPA Business Valuation and Litigation Services Practice Aid 04-1*, "Engagement Letters for Litigation Services";
- *AICPA FVS Section Practice Aid 07-1*, "Forensic Accounting–Fraud Investigations";
- *AICPA FVS Section Practice Aid 06-1*, "Calculating Intellectual Property Infringement Damages";
- *AICPA FVS Section Practice Aid 96-3*, "Communicating in Litigation Services: Reports"; and
- *AICPA FVS Section Practice Aid 98-2*, "Calculations of Damages from Personal Injury, Wrongful Death, and Employment Discrimination."

The AICPA's website contains a comprehensive listing of resources that it publishes or makes available (including this book); the list above simply identifies the most immediately relevant.

(b) Professional Standards and Malpractice Concerns. In a California case, *Mattco Forge, Inc. v. Arthur Young and Co.*, an appellate court ruled that experts cannot assert a statutory litigation privilege against their own clients. (A statutory litigation privilege denies a party the right to sue an opposing expert for anything the expert witness says at deposition or trial. This privilege protects the work of persons assisting in litigation who may otherwise fear that an aggressive adversary will sue them later for their work.) Thus, the opposing litigant cannot sue the CPA; however, the court can review the performance of the CPA on behalf of the CPA's only client in light of the applicable professional standards. The appellate court stated:

> Applying the privilege in this circumstance does not encourage witnesses to testify truthfully; indeed, by shielding a negligent witness from liability, it has the opposite

> effect. Applying the privilege where the underlying suit never reached the trial stage would also mean that the party hiring the expert witness would have to bear the penalty for the expert witness's negligence. That result would scarcely encourage the future presentation of truthful testimony by the witness to the trier of fact.[10]

The above example, while uncommon, demonstrates that CPAs who provide expert witness services could face some exposure to the parties employing them as experts. The professional standards of the accounting profession will likely help the expert decide the appropriate standard of care. Others find similar standards of their professions invoked against them in similar circumstances. Following the relevant applicable standards and professional guidelines is the best way for a financial expert to avoid such issues.

2.5 LOGISTICS

(a) Fee Arrangements and Engagement Letters. Practitioners bill most litigation services engagements as they do other consulting engagements, with fees based on hours extended by hourly rates, plus expenses. The expert can also perform work for a fixed fee, although the unpredictable course of litigation can make this a risky proposition for all but the most narrowly focused topics of testimony.

Some lawyers want the attorney work-product doctrine to apply and yet do not want the responsibility of paying the experts' fees. Such lawyers will ask the expert to send bills directly to the party and often ask the expert to sign a retainer agreement expressly disclaiming any recourse against the lawyer for payment of the expert's bills. The lawyer needs to contemplate and understand the risk to the applicable attorney work-product protection arising from this type of arrangement.

The expert could consider both the lawyer and the litigant as clients. Most experts recognize that the litigant ultimately pays their fees and that lawyers engage the expert as an agent for their clients. Some experts insist on holding the lawyer equally or solely responsible for fees, even at the risk of losing the engagement.

(i) Who Is the Client? The expert retained to perform a litigation services engagement has two potential clients: the law firm and the party to the lawsuit. Most attorneys believe that to protect a nontestifying expert consultant's work from discovery, the expert must work for the lawyer. If the disputant hires the expert, the attorney work-product doctrine likely will not apply, nor will the attorney–client privilege, which protects communications only between a client and its attorney. Commercial considerations can enter into the discussion when an attorney has concerns over the client's ability or willingness to pay and prefers to stay out of the contracting loop.

(ii) Engagement Letter. The financial expert should consider whether to use an engagement letter in a litigation engagement, and the authors strongly encourage this practice. An engagement letter benefits both the expert and the attorney, setting forth an agreement on the engagement's terms and each party's responsibilities. The expert's insurance carrier or professional standards often require one. Some experts believe that an engagement letter unnecessarily restricts and limits the areas of testimony; however, this argument lacks merit. In fact, the contrary

holds true: most attorneys prefer that the engagement letter be inexplicit as to the nature and content of the opinions they hope the expert will develop. We suggest that an expert require both counsel and the litigant to acknowledge the terms of the engagement letter.

Most engagement letters describe the engagement's scope and limit the use of data or reports that the financial expert prepares to the litigation (e.g., the client cannot use a valuation opinion developed for a litigation to subsequently market the company for sale). The scope should identify the nature of the services and state whether such services include an audit or review (for CPAs). The letter should restrict use of the expert's work product to the case and prohibit distribution to others. Most engagement letters specify hourly rates and fees and call for reimbursement of expenses. Some letters provide for a retainer that will apply against the final billing. The letter can also specify that the client will reimburse any costs that the expert's firm incurs for related and necessary legal counsel during or after the case. The engagement letter might also address the possibility that the client could change attorneys, give the expert the option to withdraw, provide for the return of original documents, and state that the expert implies no warranty or prediction of results.

(iii) Retainers. Financial experts require a retainer in some litigation services engagements. A retainer will protect the expert's billing only if the expert holds it as security for payment of the final bill. Experience shows that unfavorable outcomes can lead to unpaid bills.

An expert should investigate the client's financial ability to pay if the litigation proves unsuccessful. If the client cannot pay in this situation, the financial expert should consider obtaining a retainer against the full anticipated final bill. We recommend this practice regardless of the client's ability to pay. Otherwise, the judge and jury could view the expert as working effectively on a contingent fee basis.

The final outcome of marital dissolution actions usually makes both parties unhappy. Paying spouses feel that they have lost too much, and receiving spouses feel that they have obtained too little. Many financial experts who practice in the marital dissolution field require a sizable retainer.

(iv) Contingent Fees. The American Bar Association and many state bars make it an ethical violation for a lawyer to proffer testimony from an expert witness who receives contingent compensation.

The financial expert should avoid contingent fee arrangements in any testifying role. An expert witness working on a contingency basis loses independence and objectivity. Opposing counsel likely will effectively impugn the testimony of an expert whose compensation depends on the outcome. Experts working as consultants rather than witnesses need to decide on the wisdom of accepting contingent arrangements.

(b) Work Papers. A financial expert in a litigation engagement will generate work papers or analyses that develop and document opinions. The work papers and analyses do not follow a prescribed format. As Section 1.1(b) of Chapter 1 explains, the Federal Rules of Civil Procedure require the witness to identify the bases and underlying data supporting the opinion (Rule 26(b)(2)), and the Federal

Rules of Evidence require the witness to disclose, if asked, the facts or data underlying the opinion (Rule 705).

Opposing counsel will likely gain access to materials that the testifying expert prepared: notes, calculations, and materials to which an expert witness refers. For an expert serving as a consultant, the attorney probably can assert a work-product privilege, and opposing counsel likely will never discover and analyze such work papers. Nonetheless, we suggest that consulting experts maintain their files free of superseded drafts, completed to-do lists not otherwise needed, and other such extraneous materials. Recent changes to Rule 26 preclude the discovery of draft expert reports and communications between counsel and the testifying expert. In state courts that do not follow Rule 26, once the lawyer and expert agree on the expert's role, the expert should understand that notes of meetings can include preliminary opinions, draft schedules, and reports. Many attorneys in these jurisdictions negotiate agreements with opposing counsel to waive the right to discover these items. After preparing final versions, the expert will usually find it unnecessary and even inadvisable to retain the preliminary work product so long as the expert can trace the final conclusions and opinions back to source documents.

As a matter of professional principle, lawyers will generally not instruct an expert to destroy notes, files, and outdated work, regardless of venue. More often, they will inquire as to the expert's normal practice and suggest that the expert follow that practice. Most experienced experts keep lean files, retaining only current versions. This procedure reduces the problems caused in comprehensive discovery but can cause the witness extra work to become familiar again with items once learned and since forgotten or to recreate discarded work later deemed useful. Such extra work can generate extra costs for the client, but most lawyers prefer that procedure. The expert who maintains lean files should notify the lawyer of the practice to give the lawyer an opportunity to provide any differing guidance, rather than wait for the lawyer to suggest such a policy.

2.6 CONCLUSION

This chapter provides an overview of the skills, roles, professional guidelines, and context for a financial expert when providing expert services in litigation.

Preparing a complex commercial litigation for trial requires financial experts to accomplish many tasks. They can bring training and expertise to an adversarial proceeding that will challenge and scrutinize their conclusions. The balance of this book discusses the specific types of cases and approaches that the financial expert will face and employ.

NOTES

1. *AICPA Practice Aid 10-1*, Sections 1.3 1.5, p. 6.
2. This practice is more common in foreign venues, where custom and practice more commonly involve retention of experts by the trier of fact rather than by the parties.
3. AICPA Code of Professional Conduct, Rule 201.
4. One example of a situation in which a legal conflict can occur is when an expert is appointed to a role working for the debtor in a bankruptcy proceeding. The

Bankruptcy Code contains a quite restrictive concept of "disinterested person" with which experts must comply lest they see their fees and reputation evaporate.

5. *Shadow Traffic Network et al. v. The Superior Court of Los Angeles County*, 22 Cal. App. 4th 853 (1994).
6. The AICPA excludes consulting and thus litigation services from its three general categories of AICPA technical standards: Statements on Auditing Standards (SASs), Statements on Standards for Attestation Engagements (SSAEs), and Statements on Standards for Accounting and Review Services (SSARSs)
7. AICPA Code of Professional Conduct.
8. AICPA Code of Professional Conduct, Rule 201.
9. Section 201(a) of the Sarbanes-Oxley Act amends the Securities Exchange Act of 1934 by listing at the latter's Section 10A (g)(8) as a prohibited activity "legal services and expert services unrelated to the audit."
10. *Mattco Forge, Inc. v. Arthur Young and Co.*, 5 Cal. App. 4th 392 (1994).

PART II

DEVELOPING A DAMAGES ANALYSIS

CHAPTER 4

DEVELOPING DAMAGES THEORIES AND MODELS

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CONTENTS

4.1 INTRODUCTION

This book describes approaches, issues, and nuances associated with damages claims of many types—intellectual property, antitrust, government contracts, and accountant liability, to name a few—and provides guidance to practitioners involved in those types of cases. To set the context for a deeper understanding of these areas, this chapter provides a general framework for selecting a damages theory and developing a model to calculate damages. This chapter contains an overview of the various standards under which U.S. courts assess damages claims, summarizes the most commonly accepted damages theories and models, and describes accepted methods and damage elements that practitioners use in measuring damages claims.

Accepted damages theories and elements can differ widely between state and federal court systems, in different jurisdictions, and for various types of matters. We cannot cover all potential differences in this chapter. Practitioners should discuss the appropriate standards and elements of damages with counsel before investing time and effort on a wrong approach. Accordingly, this chapter provides a general framework to prepare an effective analysis and will help practitioners identify the right questions when they begin to assess damages.

Historically, based on the English court system, two types of civil courts existed in the United States: courts of law and courts of equity. Courts of law made their judgments in accordance with federal or state law and awarded monetary damages as their remedy. Courts of equity, on the other hand, used a set of principles based on fairness, equality, moral rights, and natural law, rather than a strict interpretation of the law. In a court of equity, relief came in the form of an action, rather than the payment of money.[1] The wide variety of equitable remedies includes the following:[2]

- **Rescission:** undoing (or reversing) the actions taken under a contract;
- **Reformation (or rectification):** restructuring the terms of a contract to prevent an inequitable outcome;
- **Specific performance:** requiring performance of the contract according to its terms;
- **Injunction:** requiring a party to refrain from certain acts;
- **Subrogation:** providing that one party can assume the rights of another;
- **Account of profits:** determining profits improperly gained by a fiduciary that breached its duty; and
- **Declaratory relief:** seeking a preemptive court ruling as a common mechanism of relief in divorce and certain contract matters. For example, in insurance coverage disputes, a party can preemptively seek the court's decision as to whether an insurance policy provides coverage for certain types of losses.

In the United States, most states have merged their law and equity courts. As a result, courts now administer both legal and equitable remedies and often consider a combination of the two depending on the matter at hand. While this chapter focuses on the legal remedy of damages, it will address several equitable remedies because they commonly involve expert services and often relate to damages claims.

Whether the remedy sought is legal, equitable, or contains elements of both, legal standards exist that affect the veracity of a claim before one considers a remedy. Section 4.2 addresses these standards.

4.2 LEGAL STANDARDS

The judge or jury should award damages in cases where the harm

1. Will occur with reasonable certainty;
2. Can be measured by the appropriate contract or tort (referred to as *economic loss doctrine*) standard;
3. Is the proximate cause of the damage and
4. Was foreseeable; in addition,
5. The harmed party has taken reasonable efforts to mitigate the damages.

This section explains these five legal concepts.

(a) Reasonable Certainty. Section 352 of the *Restatement (Second) of Contracts* (1981) states, "Damages are not recoverable for loss beyond an amount that the evidence permits to be established with reasonable certainty."[3] Yet while all courts require reasonable certainty for the award of damages, no single measure of reasonable certainty exists. Individual states and federal courts have all issued their own opinions as to the nature of reasonable certainty.[4]

Most cases concur on certain points:[5]

- The court must be certain that some injury to the plaintiff occurred.
- The defendant must not benefit from its wrongful actions and courts generally resolve doubts in favor of the plaintiff.
- Intentional or willful action by the defendant can result in a court requiring a lesser degree of certainty from the plaintiff.
- The plaintiff can estimate the amount of damages, but the court should have confidence in the accuracy of the estimate.
- For a well-established business, past performance reasonably predicts the future.
- For a new or speculative business, parties can establish the measure of damages with reasonable certainty by the use of expert testimony, business records, economic and financial data, and other verifiable data.
- The plaintiff must use the best available evidence.

Most important, the court must balance its judgment: it cannot favor the defendants to a contract by requiring too high level of proof that would encourage unscrupulous actions on the their part, nor should the court favor the plaintiff by requiring too little proof, which would encourage the parties to undertake costly actions to avoid loss to plaintiffs who might file a lawsuit in the future.

(b) Economic Loss Doctrine. The economic loss doctrine sets out the extent of loss that the plaintiff can recover in a tort case. When the facts of a case could result in either a damages award under a contract or under a tort, practitioners should know the distinctions between the two. We will first discuss the basic difference between contract and tort law in order to set the place for a discussion of their differing damages measures.

Under the common law of contracts, the seller and buyer decide between themselves the nature of their respective rights and duties. If the buyer believes that the seller has breached his duty or responsibilities under the contract, the buyer can bring suit against the seller. Similarly, the seller can sue the buyer for the breach of the buyer's duties under the contract. In addition, one can find another source of contract law in the Uniform Commercial Code (UCC), which discusses the rights and responsibilities of parties to a contract among its nine articles.[6] This chapter refers to both of these sources as *contract law.*

A tort involves the breach of a civil duty (not a contractual duty). Some define a tort as a personal injury. Torts include (but are not limited to) such wrongs as assault, battery, false imprisonment, defamation of character, interference with business, unfair competition, interference with contract, trespass, and negligence. Under tort law, an injured party can bring a civil lawsuit to seek compensation for a wrong done to the party or to the party's property.[7]

In many cases, the line between a contract issue and a tort problem appears nebulous. Judge Richard Posner, of the Seventh Circuit Court of Appeals, notes that "almost any tort problem can be solved as a contract problem, by asking what the people involved in an accident would have agreed on in advance with regards to safety measures if transaction costs had not been prohibitive."[8] He goes on to say, "Equally, almost any contract problem can be solved as a tort problem by asking what sanction is necessary to prevent the performing or paying party from engaging in socially wasteful conduct, such as taking advantage of the vulnerability of a party who performs his side of the bargain first."[9]

For a breach of contract that is also a tortious injury, what amount of damages should the injured party claim? Suppose a buyer in a contract receives and uses a defective machine, resulting in nonsalable goods, but none of the buyer's other machines or property receives harm due to the use of the defective machine. Should the buyer bring a product liability suit (tort) or bring a lawsuit for breach of contract? Most states and federal jurisdictions hold that a party cannot recover in tort for economic loss damages when physical property damage did not occur. Where the harm causes damage only to the product itself (the defective machine in our example), the buyer should have protected itself under contract law. We refer to this majority view as the *economic loss doctrine.*[10] On the other hand, a minority of states and federal jurisdictions hold that a party can recover additional losses related to negligence without the presence of damage to other physical property. *See*, for example, *Sharon Steel Corp. v. Lakeshore, Inc.*[11] An intermediate position has also evolved where courts permit a products liability action under certain circumstances even when the product harms only itself. The Supreme Court in *East River v. Transamerican DeLaval Inc.*[12] summarizes the intermediate position, as well as the majority and minority views.[13]

While the attorney will choose whether to bring suit under the contract or in tort, the practitioner should understand the distinctions of each and ensure that the damages analysis matches the type of lawsuit filed.

(c) Proximate Cause. Even though the plaintiff's harm would not have occurred but for the defendant's actions, courts nonetheless limit the plaintiff's ability to recover under the concept of proximate cause. That is, recoverable harm from the chain of events caused by the defendant's actions does not continue indefinitely.

At the point in which the court finds that the actions of the defendant did not proximately cause harm to the plaintiff, damages cease. Section 3.2 of Chapter 3 focuses on the two components of causation: actual (but-for) cause and proximate (or legal) cause and discusses proximate cause in greater detail. Courts decide proximate cause on a case-by-case basis.

(d) Foreseeability. One can test for proximate causation in several ways, but the most basic test involves foreseeability. If one cannot reasonably foresee the consequences resulting from the defendant's actions, the plaintiff cannot recover for the harm related to those actions. For example, if the defendant throws a rock at Person A, but hits Person B standing next to Person A, a court would find that the harm to Person B was reasonably foreseeable. Hence, the defendant by throwing the rock proximately caused the harm to Person B, even if the defendant did not intend to hit Person B.

As with proximate cause, courts decide whether one can reasonably foresee the consequences of an action on a case-by-case basis. Section 3.2 of Chapter 3 further illuminates this concept.

(e) Duty to Mitigate. A victim to a breach of contract has a duty to mitigate the actions caused by the other party's harm. That is, the plaintiff must take reasonable actions to avoid or reduce the damages. For example, assume that the defendant signed a contract for the purchase of 1,000 widgets from the plaintiff. The defendant breaches the contract and informs the plaintiff of the contract's termination before the plaintiff obtains a source for the material needed to manufacture these 1,000 widgets. The plaintiff should sue for the loss of the profits on the breached contract, but should not sue for the cost of the material that it has not yet obtained at the time the defendant terminated the contract. The cost of the material is an avoidable cost. Alternatively, assume that the defendant breaches the contract after the plaintiff manufactures the widgets. If reasonably possible, the plaintiff must sell the widgets to another party; by selling the widgets to another party, the plaintiff can reduce the damages to the difference between the defendant's price and the new party's price plus the additional costs required to find the new purchaser.[14]

4.3 DAMAGES THEORY

Parties to a lawsuit employ various theories of damage and related models in the legal remedy of damages, depending on the court and the nature of the case. This section describes damages theories that underlie models used to calculate damages. Exhibit 4-1 defines some categories of damages.

These categorizations are often interrelated. For instance, courts often remedy actual and consequential damages with compensatory or restitution payments from the defendant to the plaintiff. Courts may award punitive damages in addition to compensatory or restitution damages. In addition, statutes and case law often specify the type of damages attached to specific offenses or actions. We discuss these measures in more detail further on.

1. Measures related to the extent of damages
    - **Actual (but-for) damages:** caused directly by the defendant's improper actions
    - **Consequential damages:** a natural and foreseeable, but indirect, consequence of the improper actions
2. Damages measures focused on plaintiff
    - **Compensatory damages:** either expectation damages or reliance damages
        - **Expectation damages:** the difference between the amount which the plaintiff reasonably expected to receive and the actual amount received
        - **Reliance damages:** an amount the plaintiff lost because it relied on false representations from the defendant
3. Damages measure focused on defendant
    - **Restitution (or disgorgement) damages:** the amount that the defendant foreseeably gained at the plaintiff's expense
4. Other damages measures
    - **Punitive damages:** intended to punish or dissuade the objectionable behavior; not directly tied to the plaintiff's loss or defendant's gains

Exhibit 4-1. Damages Categories

(a) Compensatory (Expectation and Reliance) and Restitution Damages. Compensatory damages involve either expectation damages or reliance damages.

Expectation damages, as the term connotes, compensate an aggrieved party for the loss of the bargain for which it negotiated.[15] Courts sometimes refer to expectation damages as "benefit of the bargain" (BOB) damages. Expectation damages seek to make a plaintiff whole as if the defendant had performed the contract in full.[16]

Reliance damages seek to compensate the plaintiff for losses resulting from its reliance on the contract.[17] Under reliance damages (RD) the plaintiff would receive only the amount it invested plus any out-of-pocket expenses as a damages award, less any benefits received if there was partial performance. Thus, an RD remedy would essentially unwind the transaction, rather than awarding what the nonbreaching party expected to realize had the transaction been completed as planned. As a result, RD are usually less than BOB damages because RD do not include any lost profits from the breached contract. Many courts award RD only when the court cannot measure BOB (expectation) damages.[18]

In contrast, where the nonbreaching party has not only acted in reliance upon the contract, but that action also conferred a benefit on the breaching party, courts sometimes award a remedy of restitution (RR).[19] Accordingly, RR measures damages based on the defendant's ill-gotten gains rather than the plaintiff's loss and seeks to return the benefit conferred. For example, assume that the buyer made a down payment on the purchase of widgets and the seller used that down payment to make a profit by depositing the money in the bank and earning interest on the down payment. If the seller then breached the contract, its profits from interest on the buyer's down payment would be the RR. RR requires the offending party to give up the profits it earned through its misdeeds and turn them over to the aggrieved party. Many jurisdictions consider losses suffered as a result of misrepresentations made by the defendant, or on the contract itself, a part of the RR damages measure. Although RR sometimes equals BOB or RD, RR will often be smaller because it does not include the plaintiff's lost profits (BOB) and it does not include the plaintiff's expenditures made in reliance on the contract (RD).[20] On the other hand, ill-gotten gains made by the defendant (RR) may exceed profits made by the plaintiff (BOB) if the defendant enjoyed certain manufacture or distribution efficiencies that the plaintiff did not have. Some courts hold that RR damages are not limited by the extent of BOB damages, as are RD damages by many courts.[21] (*See* Section 3.2 of Chapter 3 for more discussion.)

Using an analysis suggested by Professor Eyal Zamir,[22] we summarize these concepts in the following table.

	Damages Measured by Effect on Injured Party	**Damages Measured by Effect on Party in Breach**	**Undoes the Effect of the**
Backward Looking	Reliance	Restitution	Contract
Forward Looking	BOB (Expectation)	Disgorgement	Breach

We compare damages measurements from these concepts later in this chapter. While damages can derive from a wide range of actions under statutory, tort, and contract law, the remainder of this chapter will focus on damages related to contract law.

We next describe some subsets of the compensatory and restitution damages remedies.

(i) Out-of-Pocket Damages. Expectation, reliance, and restitution damages can overlap with each other to the extent that the damaged party incurred costs in connection with a breached contract. For example, if the nonbreaching party contracts with another to purchase a product and pays advance or tooling costs, or incurs marketing and promotional costs, or undertakes other efforts requiring monetary or nonmonetary outlay, the court can award the buyer compensatory or restitution damages for these various costs.

In addition, the remedy of rescission can also involve out-of-pocket damages claims and recoveries. In all instances, the courts will see that the defendant makes whole the plaintiff for costs incurred as a direct result of the breached contract.

(ii) Repair Costs. To return a defective product or do without the product or services due under the contract is not always feasible or practical, even where the deliverable provided represented a breach. Accordingly, the buyer that elects to repair or mitigate the deficiencies will incur costs associated with this effort. Costs incurred to remedy the breach can be the subject of a compensatory damages claim. These claims can include legal, technical, and financial cost elements. Repair cost damages affirm the underlying transaction but compensate the aggrieved party for the cost of setting things right owing to the defendant's (or nonperforming party's) failures.

(iii) Operating Losses and Expenses. A breach of contract can have serious deleterious effects on the nonbreaching party, including reduced operating performance,

higher expenses, and loss of revenue. Even where a company has a history of operating losses, the breach can cause relatively higher expenses or result in unabsorbed fixed expenses. The practitioner, however, must recognize that operating losses that would have been incurred regardless of the defendant's actions should be offset against potential lost profit damages in other periods. For example, if the plaintiff would have an operating profit in year three, but operating losses in years one and two, the plaintiff should add all three years together, assuming that the plaintiff would not have profits in year three without operating the business in years one and two also. Similarly, future expenses that the plaintiff avoids because of the breach represent cost savings that the analysis should discount to present values as an offset to potential damages. Careful analysis of expense patterns can identify inefficiencies that result from a breach, causing the plaintiff to experience higher levels of expense than normal; a compensatory damages claim should include these excess expenses.

(iv) Lost Profits. Definitions for the various types of damages measures run for more than three full pages in *Black's Law Dictionary*, eighth edition, and many of them fall within the realm of compensatory damages (e.g., benefit of the bargain, continuing damages, discretionary damages, expectation damages, hedonic damages, and liquidated damages). In breach of contract cases, however, the most commonly sought damages measure relates to lost profits. Lost profits represent the difference between the profits that the plaintiff would have realized but for the defendant's actions and the plaintiff's actual profits. A thorough discussion of this type of damages follows in Section 4.4 of this chapter.

(v) Consequential Damages. In addition to the direct damages owed to the plaintiff, consequential (or special) damages can also occur. As connoted by the name, courts award consequential damages to compensate a plaintiff in a civil action for a harm that is not a direct result of an illegal act, but instead a consequence to that act. In a breach of contract case, the parties can reasonably foresee or contemplate consequential damages at the time they entered into the contract.[23]

- **Example 1.** Consider a builder of a hotel that completed construction on time but turned over the property with plumbing issues that the owner had to correct before opening. Direct damages equal repair costs to rectify the plumbing issues, while consequential damages equal the lost revenue less saved costs related to the delay in opening the hotel.
- **Example 2.** Suppose a buyer breaches a contract to purchase Product A, which is jointly produced with Product B, and the breach thereby causes the plaintiff to alter its production of both products. In this case, the breach could also cause consequential damages related to Product B.
- **Example 3.** Consequential damages can also arise when a breach affecting the sales of a complicated machine also affects the subsequent sales of replacement parts or maintenance service for the machine.

If damages awards purport to restore the plaintiff to the position it would have been in but for the defendant's actions, the damages claim must encompass every phase of the plaintiff's business affected by the defendant's actions. To ascertain whether consequential damages have occurred whenever the plaintiff has an integrated facility may require that the practitioner or other consultant conduct a market definition and market structure analysis not only for any primary product but also for the joint or co-products. The presence of joint or co-products in the analysis will also have implications for mitigation. Minimizing the losses for one product and minimizing a division's losses can result in two different sets of actions.

(vi) Liquidated Damages. In certain types of contracts, particularly in the construction industry, the parties sometimes agree to *liquidated* damages as a term of the contract. In these cases, the parties agree to the amount of compensatory damages associated with particular types of breaches (such as delays in performance) and make them a part of the contract itself.

(vii) Return of Price. Sometimes restitution awards can include the return of the price (consideration) paid by the buyer. Some contracts, particularly in specialized manufacturing or research and development, require significant advance payments by the buyer in order for the seller to begin work under the contract. Assume that the seller fails to perform on the contract owing to the emergence of a more immediate and profitable opportunity with another customer. As a result, the buyer procures the required goods or services through an alternative provider at a higher cost. This breach could result in a restitution damages award that would cover the return of the advance payments made, as well as compensatory claims for the additional cost of the alternative contract. The restitution damages relate to the payments made under the contract for which the buyer received no value. The price could include costs of delivery, handling, freight, warehousing costs, fees, taxes, insurances, and any other costs associated with the purchase of the product.

(viii) Disgorgement. Disgorgement requires the surrender of profits earned by the breaching party through illegal or unethical means. Courts can order wrongdoers to turn over such profits to the aggrieved party, with interest, to prevent unjust enrichment. Disgorgement is analogous to the equitable remedies of specific performance and injunctive relief.[24] Courts can award disgorgement in addition to compensatory and other damages, but only to the extent that the disgorgement does not duplicate other damages measures. Disgorgement damages depend on the facts of the case, as well as the jurisdiction. For example, disgorgement is a frequent remedy in intellectual property cases because of the nature of the harm caused. Courts have recently awarded disgorgement in areas such as antitrust, where the defendant remitted disgorged profits to the U.S. Treasury.[25] Damages in copyright, trademark, and trade secret cases permit disgorgement of the infringer's profit to the extent that the lost profits calculation does not include this amount. (*See* Chapter 18.)

(b) Comparing Benefit of the Bargain, Reliance, and Restitution Approaches. This section presents a hypothetical fact situation and the damages computations associated with the benefit of the bargain (BOB), reliance (RD), and restitution (RR) damages measures.

Hypothetical facts:

- Buyer purchased ePad Co. for $800 million and expected to earn a 12.5 percent annual return.

- Buyer expected to sell ePad Co. after five years for \$1.5 billion.
- ePad's weighted average cost of capital (WACC) is 20 percent. (As a result, the first year's cash flow will have a present value factor of 0.83 (= 1/1.20).[26]
- Seller fraudulently induced buyer to enter into a deal by representing that no one else had ePad technology even though the seller secretly helped a friend introduce a competing product in year two.
- Buyer achieved expected cash flows of \$100 million in its first year of ownership.
- The new competing project came into the market in the beginning of year two. Buyer closed ePad Co. at the end of year two to mitigate ongoing losses, suffering \$100 million of losses and costs of shutdown during year two; the company was deemed worthless at that time.

Exhibit 4-2 represents the relevant cash flows from the ePad example.

Calculations of damages:

- **Benefit-of-the-bargain damages (BOB):** Based on the assumptions and cash flows enumerated above, BOB damages would provide the plaintiff with the return it expected from the deal had the seller's representations been true. Thus, the difference between but-for versus actual cash flows from the time of purchase ($t = 0$) to the time of expected sale ($t = 5$) provides the appropriate measure of BOB damages. As calculated in Exhibit 4-2, discounting future cash flows to $t = 0$ at the weighted average cost of capital of 20 percent equals BOB damages of \$884 million.
- **Reliance damages (RD):** RD-based undiscounted damages would consist of the \$800 million initial investment, less the \$100 million return in year one, plus the \$100 million loss in year two. Applying the appropriate present value factors (PVFs) to adjust for the time value of the cash flows, RD-based damages would equal \$786 million (= \$800 − \$83 + \$69).
- **Remedy of restitution damages (RR):** For restitution damages, the practitioner must look at this situation from the viewpoint of the defendant and calculate its ill-gotten gains. Assuming the seller joined the competing company that benefited by this breach and they were codefendants, the damages would include the profits earned by the defendant using the competing technology. In calculating RR damages, due consideration of the buyer's plans to sell the company in year five may affect RR calculations. For example, if the seller continued to operate the business beyond the fifth year, the buyer may have difficulty establishing harm beyond the year that he planned to sell the business in any event and an appropriate terminal value would be required. In this case, RR damages would normally be substantially less than either RD or BOB damages, unless the defendant enjoyed various efficiencies in manufacture or distribution that the plaintiff did not possess.

  When courts allow more than one method of computing damages, practitioners have many considerations that affect the choice among BOB, RD, and RR. One can decide based on case-specific, jurisdictional, and governing law factors. Other factors that lead to a particular choice relate to the difficulty of measurement, including the following situations:

t =	0	1	2	3	4	5
But-for Cash Flows	$(800M)	+ $100M	+ $ 100M	+ $100M	+ $100M	+ $100M+$ 1.5B
PVF	1	0.83	0.69	0.58	0.48	0.40
NPV of But-for Cash Flows	$(800M)	+ $ 83M	+ $ 69M	+ $ 58M	+ $ 48M	+ $640M
But-for Investment NPV	+ $98M					
Actual Cash Flows	$(800M)	+ $100M	$(100M)	0	0	0
PVF	1	0.83	0.69	0.58	0.48	0.40
NPV of Actual Cash Flows	$(800M)	+ $ 83M	$ (69M)	0	0	0
Actual Investment NPV	$(786M)					
Difference in Cash Flows	0	0	+ $ 200M	+ $100M	+ $100M	+ $100M+$ 1.5B
PVF			0.69	0.58	0.48	0.40
NPV - Lost Investment	+ $ 884M	0	+ $ 138M	+ $ 58M	+ $ 48M	+ $640M

Legend:
PVF = Present value factor
NPV = Net present value

Exhibit 4-2. Cash Flows

- Negative NPV venture
- Complex estimations:
  - New business with no operating history
  - Business in volatile industry
  - Few guideline companies
  - Complex business model
- Potential changes in market conditions, such as Porter's Five Forces:[27]
  1. Increased bargaining power of buyers
  2. Increased bargaining power of suppliers
  3. Reduced barriers to entry
  4. Increased competition
  5. Increased threat of substitutes

As noted previously, practitioners should obtain from counsel the form(s) of damages that the law prescribes. They should then evaluate and build their analysis with an eye to which available measure best fits the facts of the case and captures all of the damages consistent with applicable law.

(c) Punitive Damages. *Punitive* damages (also called *exemplary*, *vindictive*, *presumptive*, and *added* damages) are special damages awarded in addition to actual damages. They function to penalize the wrongdoer or deter others from engaging in similar wrongful acts. Courts often award them when the defendant exhibited malicious, deceitful, or particularly reckless or reprehensible conduct. Courts do not award punitive damages in breach of contract matters.[28]

The court decides on the amount of punitive damages pursuant to Supreme Court guidance. (Chapter 16 discusses the reasons for awarding punitive damages and the reasonableness of amounts awarded.) In some litigation, including willful patent infringement or antitrust violations, the court can award treble damages under statute as a particular type of punitive damages. Judge Posner suggests that one should consider the difficulty of concealment when awarding punitive damages. For example, if the probability of discovery of a tort equals 10 percent and the optimal damages award equals \$60, the amount of punitive damages should equal \$600 (= \$60/.10).[29] Where liquidated damages provided in a contract exceed the actual damages likely to be caused by a breach, the court has discretion to treat some of the damages as punitive damages.

(d) Rescission or Rectification (or Reformation). Certain equitable remedies under the law give rise to damages claims. *Rescission* of a contract means that the contract should be undone, the agreement unwound, and the parties returned to their pre-contract position.[30] *Rectification* (or *reformation*) of a contract involves modifying its terms to reflect what the parties intended to say or "should have said" or to avoid an egregious inequity in the outcome.[31] Neither rescission nor rectification are themselves damages theories, but both commonly set the stage for damages claims.

Reasons for undoing or reforming the terms of a contract include (1) poorly drafted contracts and (2) fraud. First, sometimes the complexity of a transaction results in a poorly or inadequately written contract. That is, the drafted contract fails to reflect the bargain contemplated by the parties. Second, when one of the parties to a contract alleges fraud, that party often seeks rescission. For example, suppose false information in an insurance policy application induces an insurer to write a policy that it would not have issued under its underwriting standards had the policyholder provided all of the accurate facts. Thus, the policyholder induced the insurer to contract with the policyholder under false pretenses. When the insurer establishes this fact situation, the court often awards rescission of the insurance contract, relieving the insurer from any obligations under the contract. Parties to the case retain forensic accountants to help establish the facts or veracity of information in the contracting process, or to show financial harm to a party that relied on the fraudulent information used to induce agreement to the contract. This in turn can form the basis for a damages claim in addition to the equitable remedy of rescission.

(e) Other Considerations

(i) Anticipatory Breach. Anticipatory breach occurs when either the buyer or seller to a contract informs the other party that it will not perform its duties under the contract. Either the breaching party informs the nonbreaching party or the nonbreaching party assumes that a breach has occurred because of the behavior of the breaching party. The nonbreaching party can sue when the anticipatory breach occurs; it does not need to wait until the time when the breaching party would have performed its duties under the contract.[32]

An anticipatory breach can result in an efficient result. Assume that Seller A and Buyer B have contracted for 1,000 widgets at 10 cents per widget (or $100). Seller A expects a profit of 2 cents per widget (or $20). Buyer B finds Seller C who will sell it the widgets for 6 cents (or $60). Buyer B is better off with an anticipatory breach with Seller A and completing the contract with Seller B. Instead of paying Seller A $100, Buyer B pays Seller A his lost profits of $20 and pays Seller C $60 for the performance of the contract, for a total of $80. Buyer B is $20 better off because of its anticipatory breach. On the other hand, we knew in our example Seller A's lost profits beforehand. Because Seller A's lost profits must meet the reasonable certainty standard, complications can ensue where the contract in question is long-term and the market for the product in question is thin.[33]

(ii) Effects of Competitive Markets. The competitiveness of the market involved in the litigation determines whether actual sales during the period of breach represented additional sales that would have occurred anyway or replaced the lost sales attributable to the breach. For example, with a perfectly competitive market for the plaintiff, the expert should assume that the plaintiff sells at the level justified by cost considerations and capacity. (Even plaintiffs who could sell more would not unless they were willing to use higher cost capacity or to invest in extra capacity, a consideration we ignore for now.) In other words, the seller can find all the customers it wants. Now a customer breaches the contract. In a perfectly competitive market, the expert should assume that the seller could find another customer to take the breaching buyer's amount. The only compensation owed the plaintiff would equal the difference in the two buyers' prices, if any such difference existed.[34]

On the other hand, assume that the market has long-term contracts and few buyers and the seller has extra capacity. Now one of the plaintiff's buyers breaches, and subsequently the plaintiff makes sales to a new buyer (or additional sales to a present buyer). Here one can argue that the new sales do not replace the breached amount and that the court should consider the full amount of the breached contract as lost sales.[35] Thus, experts who do not first analyze the plaintiff's market and capacity can find their conclusions vulnerable to close scrutiny.

Suppose a buyer breaches the contract before, or shortly after, the seller has begun performance. Should the seller receive its expected lost profits (expectation damages) or only the costs it incurred in reliance on the buyer's performance (reliance damages)? The answer depends on the situation. A contract formed in a competitive market with symmetrical information between the buyer and seller can call for expectation damages. Otherwise one may find that although expectation damages present a solution to the problem of inefficient breach (i.e., when the costs related to the breach exceed its benefits), reliance damages present a solution to inefficient purchase (i.e., when high-cost customers buy more than the efficient quantity and low-cost customers buy less than the efficient quantity).[36]

(iii) Ex Ante versus Ex Post. As noted above, a damages award should restore the plaintiff to the position it would have been in but for the defendant's actions. But complications can occur when one considers the goal of deterrence and the passage of time. What if the plaintiff's economic damages are less than the defendant's ill-gotten gains? For example, suppose the defendant steals a $1 lottery ticket that has the possibility of paying out $20 million. One week later the holder of that lottery ticket wins and receives $20 million. Are the damages of the theft $1 (the value of the lottery ticket at the time of the theft) or $20 million (the value of the lottery ticket later in time)?

Ex ante damages describe the compensation that the plaintiff should receive to place it in the position it would have been in before the defendant's actions. *Ex ante* damages use only information known or knowable before the date of the action in question and ignore what happens afterwards. One computes damages as of the date of the act in question. *Ex ante* damages would equal $1 in the case of the lottery ticket. *Ex post* damages instead would use all available information and would measure damages as of the time of the analysis. *Ex post* damages would equal $20 million for the stolen lottery ticket. Chapter 5 discusses these issues in greater detail.

(iv) Newly Established Business. A difficult proposition to establish for an expert will be the lost sales or revenues for a newly established or never-established business.[37] Courts now hold that such businesses can recover damages, provided they have been proved with "reasonable certainty."[38] As a result, the expert needs to ascertain the plaintiff's market structure. If the plaintiff's market contained many small firms or a few large ones, an expert should know where a firm of the plaintiff's expected size would fit along this spectrum. If the plaintiff would have been a small competitor in a market composed chiefly of large competitors, the plaintiff's expert has to prove that the plaintiff still could have competed in such a market. Experts also need to consider ease of entry and the stability of existing firms in the industry. If the plaintiff asserts that its firm would have had an advantage over other competitors because of a patent or other new process but for the defendant's actions, the expert must make some reasonable assumption

regarding how long the benefits conferred by the patent or new process would last.[39] Regardless of the method used to estimate the plaintiff's lost sales, the expert should have some economic underpinning for the assumptions.

(v) Damages for Fraud. The prevailing approaches for damages in fraud claims are BOB and out-of-pocket damages. In these matters, the plaintiff can, but need not, ask the court to proceed as though the plaintiff wishes to carry out the contract. That is, the plaintiff can ask the court to remedy the damage done by the fraudulent activities or, in the alternative, unwind the transaction and rescind the contract. If the court calculates damages based on the assumption that the plaintiff would carry out the contract, BOB damages provide the usual remedy; reliance damages apply in the rescission scenario. A minority of jurisdictions recognize other possible techniques for evaluating damages; practitioners should confirm the allowable techniques with counsel.

4.4 MODELING CONSIDERATIONS

This section identifies various modeling techniques used for damages claims. Many of the specific methods of calculating damages use these techniques. This section will note those that have limited application to certain types of cases; others have broadly accepted application across case types, jurisdictions, and court systems.

(a) Use of Averages and Indexes. The use of an average (or the mean) is a basic, but sometimes necessary, technique used in damages claims. Practitioners employ them when they cannot obtain sufficient evidential matter that provides a more accurate or reliable mechanism for estimating a value. For example, average revenue growth over an historical period could offer the only reasonable means of estimating revenues during a but-for period where the resources needed to provide insight into market trends and the likely impacts of the adverse event are unavailable. Similarly, if useful data regarding cost trends are unavailable, practitioners can analyze averages across time, across an industry, or across operating units.

In some instances, such as litigation of insurance claims, convention employs the use of averages because developing and adjusting an insurance claim often uses unsophisticated or expedient estimation techniques in developing the underlying policy loss claim. Consequently, counsel and clients often do not want to develop another, more sophisticated damages model for use in litigation, absent other driving factors. This mindset reflects cost consciousness: the likely difference that could result from more sophisticated techniques often does not justify the added cost and complexity of using them. Practitioners also use averages when analyzing stable, mature businesses with predictable growth patterns in revenue and cost.

On the other hand, the use of averages can mislead the analysis (as further discussed in Section 4.4(g)),[40] especially when used as a benchmark in but-for comparisons. For example, suppose a practitioner draws a trendline average based on a large number of disparate data points and then attributes damages to a breach because sales fell below the trendline average. The opposing practitioner could easily refute this claim if most data points fell below the trendline but were offset by a few skewed data points that fell well above the trendline (*see* the Monte Carlo simulation discussion in Section 4.4(g)). In such instances, the use of averages will present significant risk to validity of the practitioner's analysis.

Some analysts seek to mitigate this risk by using indexes and other broader-based averaging techniques that can provide further corroboration for the use of a company-specific average figure. For example, some practitioners compare a company's financial performance and share price to a stock market index, such as the S&P 500, to establish the relative effect of broader market variables for all market participants versus the subject company's results. But the practitioner needs to justify the use of these indexes as an appropriate mechanism of comparison or they will be no more defensible than basic averages in proving damages.

(b) Use of Ranges. Some courts allow or prefer the presentation of damages as a range of results. Because damages claims often use but-for scenarios based on analysis of events that might have occurred but for an alleged wrong, they are inherently uncertain. Some courts find the presentation of a single damages figure objectionable when a certainty of knowledge of what would have occurred is usually impossible. In these cases, practitioners often modify key assumptions to generate a range of likely outcomes based on the probabilities of various assumptions coming to pass. This also allows practitioners some flexibility in explaining how they developed their damages conclusions. They should discuss with counsel the court's conventions and preferences when deciding whether to use ranges versus specific damages figures.

(c) Lost Profits versus Lost Business Value. Commercial disputes involve claims of lost income or lost business value[41] or both. Sometimes the claims include loss of future earnings or lost goodwill. How do practitioners differentiate among these damages elements and when should each be used? The courts have not provided consistency in distinguishing among these remedies. Some courts have ruled that they are redundant or overlapping; others have allowed claims and awarded damages under more than one of these theories. Federal and state laws provide different remedies depending on the substantive issues in the case and the types of claims brought by plaintiffs. This section will clarify the proper theoretical application of these measures, but practitioners should confirm with counsel the local court history and perspective on damages before concluding on the method to use.

As previously described, we define lost profits as the difference in profits between (a) what the plaintiff would have earned but for the defendant's actions and (b) the actual profits made by the plaintiff. In this context, lost profits usually refer to lost cash flows, but the practitioner must match the measure to the damage suffered. Lost business value addresses the negative impact of the impaired earnings (cash flows) on the overall value of the business. The time period over which the practitioner measures the lost profits, as well as the portion of the plaintiff's business affected by the defendant's actions, can result in different computations for lost profits and lost business value. If the defendant's actions caused the plaintiff to lose 100 percent of its cash flows, however, the damages from the lost profits analysis, the lost cash flow analysis, and the lost business value should equal each other, *ceteris paribus* (all else being equal).

Practitioners usually derive revenues for a lost profits analysis using one of four approaches:

1. **Before-and-after approach.** Comparing the performance of the company before and after the alleged harmful acts.
2. **Forecast approach.** Using sales forecasts of expected performance for the business or industry to evaluate the probable effect of the harmful acts.
3. **Yardstick approach.** Comparing the harmed business to comparable but unharmed businesses or locations to assess but-for results.
4. **Market share approach.** Comparing the plaintiff's market share during the period prior to the harm to that of the firm afterward.

From these revenues, the practitioner subtracts the appropriate amount of costs.

Similarly, practitioners usually measure business value by comparing the before-and-after values of the business using one of three approaches:

1. **Discounted cash flow approach:** measures the present value of future earnings that the owners of the business would receive.
2. **Market approach:** evaluates what informed capital market investors would pay for shares in the company (generally, the market capitalization for publicly traded companies).
3. **Comparable company transaction approach:** refers to recent transactions involving the purchase or sale of comparable companies within a reasonably recent period of time.

The terms *loss of future earnings* and *lost goodwill* refer to the same measure of damages as loss of business value because the various valuation approaches account for the effect of the defendant's actions on the cash flows and thus the value of the business. A loss of goodwill will lead to reduced cash flows, which factor into the valuation.

Lost profits and *lost business value* can be redundant terms because the business value equals the discounted value of the stream of anticipated future earnings. However, the practitioner must ensure that a damages analysis does not inadvertently make duplicate claims: the law does not allow for double recovery of damages. For example, lost profits and lost business value should not cover the same time periods.

Lost business value measures of damages are the appropriate measure when the defendant's injurious acts have destroyed a business. Lost profits measures are appropriate when the defendant's actions have negatively affected, but not destroyed, a business or when damages occur over a finite period. For example, the breach of a five-year supply contract after the first year would define the damages period for lost profits analysis as the ensuing four years. Some cases involve a period of impairment followed by a complete cessation of the business. Damages analysis for these cases can include both lost profits and lost business value elements, with the dividing line being the date of business demise. Note that claims for so-called diminution of the value of a business *are* lost profit claims—lost business value claims only apply to the destruction of a business. The practitioner must avoid overlap of these periods in the calculations to avoid duplicate claims.

(d) Time Considerations. Time is a critical component of damages calculations: inception and duration of the damages influence both underlying data and risk factors that affect cash flows and discount rates. Damages have no universally accepted valuation date. Accountants and economists often disagree whether to measure damages at the date of violation, the date the violation ceased, the date of trial, the date of recovery, or some other date.[42] We show the effects of these differences below.

Assume that the date of contract breach is January 2, 2010, the date of trial is May 15, 2012, and the date of the final judgment is April 20, 2013. Also assume that the damages measurement involves five years of cash flows (2010–2014).

- **Damages calculations as of the date of violation.** The practitioner should discount the five years of cash flows (2010–2014) to January 2, 2010. Then the practitioner should bring the damages amount forward using a prejudgment interest rate to the time of trial (May 15, 2012).
- **Damages calculations as of the time of trial.** Lost profits calculations performed as of the date of trial will not require prejudgment interest. The practitioner should bring the cash flows for periods prior to trial (January 2, 2010, through May 15, 2012) forward to the time of trial and the cash flows for period post-trial (May 16, 2012, through 2014) backward to the time of trial.
- **Damages calculations as of the final judgment or recovery.** Where a great deal of time passes between trial and the issuance of the final verdict, some courts permit the parties to recalculate the final judgment as of the date that the court rendered that judgment. That is, the amount calculated at trial increased to reflect that the plaintiff did not have use of the recovery between the time of trial and the time the court rendered its final judgment.

The risk factors relevant to different measurement dates will also bear on the valuation of both lost profits and lost business value measures. The practitioner can account for differing risk factors (such as market changes, operating differences, economic conditions, and new competition) either through adjustments to the anticipated cash flow streams or through adjustments to the discount rate, but not both.[43] The practitioner should avoid adjustments to both to prevent redundant consideration (double counting) of a risk factor.

(e) Causation. Courts too often find that damages analyses do not adequately address the issue of causation. Many times, counsel instructs the practitioner to rely on the analysis and opinions of others. This instruction can put the practitioner, and the case at large, on thin ice. A damages analysis that does not clarify the proximate cause link between the defendant's acts and the plaintiff's damages will fail court scrutiny. The court will often label the damages estimates as speculative and would likely bar the damages measurement from evidence. The damages claim must consider all other material factors that could have affected the plaintiff's financial results and develop sufficient evidential support for the nexus between the claimed damages and the defendant's wrongdoings.

Practitioners can use several tools to establish and measure relations among the variables that affect revenues and costs, and thus establish the causal link and measure the negative impact on profits. Sections 4.4 (f) through (j) discuss important analyses used in properly developing damages claims that appropriately consider these factors in the following sections.

(f) Regression Analysis with Confidence Interval. Regression analysis applies a statistical technique to develop an equation depicting the relation among variables and then uses that equation for prediction.[44] For example, an expert who needs to predict the sales that a firm would have made but for the defendant's actions could use a regression analysis that models the relation between the firm's sales and other relevant factors (e.g., total industry sales) over a control period preceding the defendant's actions to predict but-for sales in the absence of those actions. Similarly, an expert who needs to estimate how a share would have performed but for some event can predict this by performing a regression analysis. This regression analysis might relate an investment in the firm's share to an investment of the same size in a portfolio of shares in the same industry or in the market.

The regression analysis also provides other relevant information such as the statistical significance of the relation among the variables, the degree of explanation afforded by the equation, and the ability to construct confidence intervals around the estimate. Hence, the technique not only provides predictions but also explicitly describes the strength or stability of the predictions.

Assume that an expert has constructed an equation that models the sales of Firm A as a function of total industry sales. Now the expert would like to know whether the sales of Firm A relate to the total industry sales, that is, whether this variable helps explain the movement of the firm's sales. The *t*-statistic generated by the regression analysis will help the expert assess whether the variable has significant explanatory power. The expert can also check the coefficient of determination (often called the *R*-squared) to measure the amount of the change in the firm's sales explained by the total industry sales.

Although regression analysis produces an unbiased estimate, certain data relations can occur that obscure or overemphasize the estimates. *See* Chapters 7 and 8 for more discussion on regression analysis.

(g) Monte Carlo Simulation. Assume that the two parties in litigation need to value a mine. Both sides agree that the mining operation can recover one million tons of the mineral and that the incremental cost of mining the material equals \$10 per ton. Both sides also agree that the mineral has an uncertain future price, ranging between \$4 and \$20 per ton, with an average of \$12 (that is, the mean of the two extremes). The defense argues that the court should base the value of the mine on the average price of \$12, leading to a valuation of \$2 million [$= 1{,}000{,}000 \times (\$12 - \$10)$]. However, the average value of the property exceeds this because if the mineral price drops below \$10, the mine has the option to shut down, limiting cost when the low price precludes extraction. In other words, if the price drops to \$8, the mine would not operate at a loss ($-\$2 = \$8 - \$10$), but would cease operating until the price rose above \$10. On the other hand, if the price rises, no such limitation exists on the upside. At any price above \$10, the mine would operate. This example illustrates the principle that evaluating formulas using average values of uncertain inputs does not result in the average value of the formula. Mathematicians refer to this result as Jensen's Inequality; Sam Savage also pioneered much of the work in this field.[45]

Monte Carlo simulation is a well-accepted valuation technique that avoids this *flaw of averages* (a term coined by Sam Savage). The mathematician Stanislaw Ulam developed the Monte Carlo approach while working on the Manhattan

Project. As the name implies, the approach resembles testing a gambling strategy by repeating thousands of rolls of dice and recording the results. Suppose that a damages calculation depends on several uncertain variables—an interest rate that ranges between 2 percent and 28 percent; a price that ranges between $10 and $40; and a cost that ranges between $1 and $12—but each uncertain variable has its own pattern of probabilities. That is, certain interest rates will more likely occur than others and the pattern of probabilities for interest rates differs from the patterns for prices and costs. A Monte Carlo simulation can easily calculate multiple scenarios of a model by repeatedly sampling values from the probability distributions for each of the uncertain variables. The simulations can consist of as many trials (or scenarios) as the expert wants—hundreds, or even millions. During a single trial, the model randomly selects a value from the defined possibilities (the range and shape of the distribution) for each uncertain variable and then recalculates the value. The average of these outcomes would equal expected damages. The method offers, as a side benefit, measures of dispersion of the average estimate.

(h) Discounting. Many empirical studies on discounting require consideration of capital market risk.[46] For example, in a present value analysis, the practitioner discounts cash flows to a specific date and the discount factor the practitioner uses should reflect in some cases the market and industry effects of each period. Experts can estimate the appropriate discount rate.

Practitioners often use the capital asset pricing model (CAPM) to estimate the appropriate discount rate (*see* Chapter 9). CAPM defines the return of a firm as the risk-free rate of return (usually measured by the return on short-term T-bills) plus the difference between the return on the market and the risk-free rate of return (otherwise known as the risk premium) times the firm's beta (the measure of the firm's market risk).[47] A practitioner using the CAPM could develop a discount factor for the present value analysis that would incorporate not only the effects of cash flows occurring in different time periods but also the return that the market and the specific firm experienced. Hence, an expert could more precisely measure what an expected cash flow occurring in Period 6 would equal in Period 0.

Practitioners must also deal with the effect of leverage (or debt). The presence of debt that a company must pay before the shareholders receive any return makes the shareholders' investment relatively riskier. The discount factor for a firm's assets will therefore differ from the discount factor for the firm's equity by the amount of risk represented by debt.[48] If the practitioner measures lost cash flows after deducting interest, the practitioner should use the firm's equity beta in developing the correct discount rate. On the other hand, if the practitioner measures lost cash flows before deducting interest, the practitioner should use the firm's asset beta in developing the correct discount rate (or use the firm's weighted average cost of capital).

(i) Prejudgment Interest. A practitioner who has used a discounted cash flow analysis to evaluate the plaintiff's lost profits will need an interest rate to bring those cash flows forward to the time of the trial from the base point of the analysis—and if enough time passes between the trial and recovery, to the time of the final judgment. (This assumes that the jurisdiction or particular cause of action permits prejudgment interest—*see* Chapter 15.) At the very least, this interest rate should reflect the value that the plaintiff's funds have lost owing to inflation. This measure, however, will not compensate the plaintiff for the opportunity costs of the use of its funds.[49]

Some experts suggest using the defendant's debt rate[50] while others invoking a similar theory prefer the risk-free rate[51] to measure prejudgment interest. Others suggest using the plaintiff's cost of capital, that is, a measure of the opportunity cost to the plaintiff (of course, at this point the defendant can argue that by doing so, the plaintiff seeks consequential damages). The defendant's borrowing rate offers another measure because it regards the plaintiff's claim as an investment (albeit an involuntary one) in the defendant.[52]

Because confusion still abounds in the courts as to the meaning and proper application of lost profits, lost business value, appropriate valuation dates, discount rates, and risk factors, practitioners should address these issues early in the process through discussion with counsel to ensure proper consideration of jurisdictional nuances and accepted approaches for the type of matter at issue.

(j) Damages for Different Types of Cases. Certain types of cases have developed a body of case law and have established precedents for methods of calculating damages that nearly all practitioners use and nearly all courts recognize as the most appropriate means of measuring damages. Examples include royalty rate calculations in patent matters, market share analyses in antitrust matters, trendline analysis in business interruption insurance cases, and event studies in securities cases. The courts broadly (or even universally) apply some of these precedents; other precedents are jurisdictional or even specific to a judge. We advise discussion with counsel to discern or confirm these differences.

We also note that while some damages methods have academic support (for example, *see* Chapters 24 and 25 for a discussion of the use of event studies in securities cases), other damages measurement methods do not. Damages measurement methods lacking an economic basis or support within the academic community carry additional risk. Recently in *Uniloc USA Inc. v. Microsoft*,[53] the Federal Circuit unanimously struck down the use of the 25 percent rule in patent damages cases. Although the court noted this measurement method had general acceptance, the court also stated that this measure of damages was unrelated to the facts in the case and was inadmissible under the *Daubert* guidelines.

4.5 DEVELOPING AN EFFECTIVE DAMAGES CLAIM

Practitioners have no prescribed or universally accepted model for developing a damages claim but experienced practitioners employ methods that will improve the efficiency and effectiveness of the process and the results.

(a) Learn the Background. Practitioners should first understand the facts of the case and the liability issues related to causation of the alleged damages. They should review the relevant pleadings in the case that address damages (including the complaint and answer) and discovery-related documents such as interrogatories, depositions, and requests for admissions. Counsel often amends complaints and answers, so the practitioner should review the most current pleadings. In addition, the practitioner should discuss the case background and liability assumptions with counsel to confirm the basis giving rise to the claim. For some matters, the practitioner will find media coverage in either mainstream or industry-specific sources. A search of the Internet can also yield useful background information for some matters.

With the participation of counsel, the practitioner can obtain relevant background factual information from representatives of the company for whom the practitioner performs the analysis. It is prudent, however, to recognize that information obtained from a party to the litigation should be scrutinized with professional skepticism to avoid accepting potential bias in that information. Industry research and company-specific research often yields a wealth of information that provides insight into the substantive issues of the case; this can also prove useful when the practitioner develops assumptions for the damages analysis. The benefits of learning the case background extend beyond the obvious need to understand the firm's operations and the effect thereon of the events in question; they include helping the practitioner identify other potential factors that affected the operations and incorporate them in the analysis.

(b) Understand Causation and Its Effect. The harmful acts identified in the complaint will likely provide a framework to begin understanding causation and effects of the harm. However, most complaints and pleadings lack substantive proofs of cause and effect; these are the requirements of trial and often the province of the practitioner to prove. The practitioner should use the knowledge gained in learning the background of the case to begin associating the defendant's injurious acts with the plaintiff's damages. Other experts in the case (economists, industry experts, engineering and other technical experts, and medical professionals) often establish causation. Nevertheless, the practitioner should not blindly accept the conclusions of others without exercising due professional skepticism in applying these conclusions to the facts of the case and observed effects on the business. This becomes less complex when practitioners can establish causation through their own work, but is nearly always a necessary step. Triers of fact will look for a nexus between the actions of the defendant and the damages to the plaintiff and will expect practitioners to establish that connection based on their own work or through that of other experts. Practitioners can accomplish this through a combination of applying logic to the facts, using targeted analytics, and rebutting other possible explanations. Knowledge of company practices, industry conventions, technical methods, competitive behavior, accounting requirements, and economic principles are all important in analyzing potential effects and building the foundation for causation arguments.

(c) Identify the Damages Theory. As discussed throughout the chapter, many facets of damages analysis depend on the applicable law of specific jurisdictions or the circumstances of each case. Accordingly, we iterate that the practitioners should work with counsel to ensure that the damages categories in the model comport with those pled and with the law from both a liability and quantum perspective. For example, the practitioner should discuss and understand whether the plaintiff is seeking rescission of the contract, or affirmation of the contract with correction of the breach, or recovery of costs, or some other remedy. Ascertaining the objectives of the legal action will shed light on the available remedies and in turn the damages theories that can underpin a damages claim. Sometimes the plaintiff seeks a combination of equitable remedies and other legal remedies, such as damages. The plaintiff could have suffered losses for which it seeks compensation or could have lost opportunities for which it seeks restitution. In some cases, there are claims for both, which may be recovered so long as there is no duplication of the losses. Understanding the damages theory will allow the practitioner to identify appropriate models for an informed discussion with counsel.

(d) Select the Damages Model. Several factors affect the selection of an appropriate damages model:

- An understanding of the background of the case;
- Knowledge of the causation of damages and the effect on the company of the defendant's injurious actions;
- Verification of acceptable damages theories for the jurisdiction and matter at hand;
- Practices accepted by professional peers and academics;
- Consistency with the damages suffered; and
- Avoidance of redundancy (if using multiple models).

For example, a royalty rate model is both commonly accepted and well suited to assessing patent infringement damages because it applies an appropriate valuation of the patented technology to the effect of lost sales usurped by the infringing party. Once practitioners identify the appropriate model and confirm its use with counsel, they should begin to build the damages claim.

(e) Build the Damages Model—Lost Profits Scenario. A discussion of all the various methods of preparing damages claims could fill an entire book. Other chapters in this book provide guidance on particular types of litigation and the claims that naturally ensue in those matters. Thus, we limit this discussion to the development of a lost profits claim, although most of the steps identified (if not the specific procedures described) pertain to most damages analyses. Our scenario presents the steps from the viewpoint of the plaintiff, but the same activities occur regardless of which side of the litigation the practitioner represents. One develops knowledge about important factors and considerations (e.g., background facts, contract terms, causation, damages theory (including recovery objectives)) and ramifications of the breach before undertaking to build the damages model. Building the damages model concerns the quantum of loss claimed.

(i) Identify the Damage Period. While the attorneys will likely have already identified the key dates relevant to the damage period, the length of this period has important implications for revenue and cost measurements; the attorney's assumptions should be critically reviewed by the damages expert. For example, over a long enough period, almost all costs vary, and over a short enough period, almost all costs remain fixed. With a shorter period, practitioners will subtract fewer indirect cost items from the lost sales revenues to estimate lost profits. In

any event, practitioners who ignore this issue can arrive at the wrong answer even though they have correctly made all the other assumptions in the analysis. At a minimum, the practitioner must ascertain whether the lost profits apply only to the period of the contract term or have ramifications beyond the contract that the practitioner will express as an ongoing detrimental impact to the business. Identifying this period will define one of the most important parameters of the damages claim.

(ii) Identify Assumptions and Estimates Needed for the Particular Case. Practitioners who calculate lost profits damages must understand how to create a but-for world, because such claims require assessing what would have happened to a business had the defendant's injurious acts not occurred. When practitioners need to make conjectures, they develop and rely on supportable assumptions and estimates that must hold up under the counterparty's scrutiny. Thus, practitioners should identify the elements of a damages analysis as

- Undisputed facts, or
- Estimates (and the estimation process), or
- Assumptions (and the support for those assumptions).

An overabundance of estimates and assumptions can lead to a damages claim that practitioners will find difficult to defend.

Practitioners frequently ground undisputed facts in lost profits claims in either the contract terms or certain verifiable key metrics (for example, actual sales volumes, revenues, and fixed-cost items). Practitioners obtain this information through data that are readily available or subject to independent confirmation. Practitioners sometimes need to make estimates concerning many key financial components of the model (for example, levels of sales returns, bad debts, purchase volumes and discounts available, and ramp-up rates on new product introductions). Practitioners base these on analyses of historical results achieved, regression analysis of relevant variables, or other analytical procedures. Assumptions usually involve broader parameters of the but-for world (e.g., inflation rates, price and demand elasticity, relevant market size and share, and interest rate trends). Some practitioners do not recognize any practical distinction between estimates and assumptions and use the term *assumptions* in referring to all subjective factors in the analysis.

(iii) Build the Foundation for the Damages Claim. The process of building the foundation for the damages claim is partly defensive and partly practical, but is always necessary. Without sufficient foundation, the practitioner cannot establish the defendant's injurious acts as the proximate cause of the claimed losses; this omission can render the damages claim speculative and inadmissible. Even assuming another expert established causation, an inadequately researched, documented, and supported claim can fail to meet professional standards, survive a *Daubert* challenge, or prevail against the counterparty's arguments. A proper foundation will include supporting documentation, corroborative evidence, use of methods accepted by professional peers, and conformance to the law and precedent in the jurisdiction.

Practitioners must address many considerations in a lost profits analysis. Some of them are conducive to analysis using sophisticated modeling, including regression analysis and game theory. However, adequate or reliable data are not always available for these models. Nevertheless, the practitioner would be remiss in not adequately considering the factors described below, even if the practitioners cannot employ preferred modeling techniques.

- **Company knowledge.** The practitioner will have gathered significant information for the lost profits model during earlier activities in the process of evaluating the damages claim. The practitioner must now synthesize this diversity of knowledge and organize it to help develop and support the lost profits analysis. The practitioner should understand the company's operations, markets, and management practices; these factors help explain the negative impact on the company's profits. They also help the practitioner account for other factors that could play a role in the company's financial performance and explain the nature and duration of any negative effects caused by factors other than the breach. Hence, the practitioner gathers this body of knowledge for application to the damages claim model.
- **Pre-breach budgets and forecasts.** Practitioners can review pre-breach budgets and forecasts to help them understand the company's expectations before the defendant's injurious acts occurred. These documents can provide a wealth of corroborative information about management's expectations concerning the operations of the business, its revenue plans, cost structure, and investment plans. Most lost profits models will employ more sophisticated analyses to establish lost revenues and cost ramifications of a breach. (Section 4.4(f) and Chapters 7 and 8 include discussions on regression analysis that we will not repeat here.)

  Certain matters involve loss models that derive from the underlying contract, such as business interruption insurance claims. In these cases, practitioners may use pre-breach budgets or forecasts as a basis for estimating but-for revenues and costs. For example, to test and gain comfort on the forecasting accuracy previously achieved, an analyst could use a pre-loss budget as the basis for cost estimates by performing regression analysis of historical budgeted costs and actual results for the corresponding period. Aside from these relatively limited applications, budgets and forecasts are largely beneficial only as corroborating evidence; the practitioner will need to explain where they differ significantly from modeled lost profits.
- **Analysis of historical performance.** Most practitioners consider the historical financial performance of the subject company in validating estimates of but-for performance, regardless of the method used to develop that but-for estimate. Failure to do so will expose practitioners to criticism if their pro forma estimates materially diverge from actual past performance unless, of course, the parties intended the breached contract to have a material beneficial impact on that performance and the damages estimate reflects this gap. For example, suppose that the plaintiff sold 26,000 widgets per year for the two years preceding the damages period but the but-for analysis assumes that the plaintiff sells 25 percent more. The plaintiff should explain why a 25 percent increase in sales was a reasonable assumption in the but-for world. The analysis of historical performance should include a comparison to other comparable market participants and to the industry at large. Trends in historical performance can also be corroborative or identify other factors

that the practitioner must address in showing causal links. In short, a practitioner will find it perilous to prepare a damages claim in a vacuum, isolating the claimed losses from what the company accomplished in the past.

- **Industry research/guideline company analysis.** Another foundational element used in developing a damages claim involves an analysis of the relative performance of guideline companies or industry averages. This approach is particularly useful for new entities lacking historical track records, but practitioners broadly use this approach to establish corroborating evidence, challenge assumptions and estimates, or to establish the reasonableness of loss estimates for the subject company. While no specific requirements exist for guideline company selection, valuation literature contains widely accepted practices.[54] Such guidance helps to ensure that the analysis includes appropriate companies and excludes inappropriate companies. For example, if the subject company's labor costs as a percentage of revenue were 10 percent higher than its competitors for each of the past five years and the company reasonably expected this relation to continue, then the practitioner could estimate costs for the subject company by using the guideline company actual results plus 10 percent. Such an approach could remove the macroeconomic factors affecting performance (assuming these factors would affect the guideline companies in a similar manner) by isolating relative performance of the subject company.
- **General economic conditions.** Any approach used to estimate but-for profits should account for the general market and economic conditions that could affect future results in the absence of other intervening factors. Such conditions are as diverse as changes in the core economic indicators (e.g., housing starts for a real estate company damages claim), financial health of suppliers and buyers, substitute or complementary product introductions, pricing trends, inflation, legal and regulatory issues, and globalization of markets. In addition, the practitioner should consider ongoing or anticipated trends in these conditions or factors that will alter the prospects of the subject company or business.
- **Changes in competitive landscape.** Other effects fall closer to home than broad economic indicators. For example, in markets with high barriers to entry for new competition, a breach of contract may eliminate a competitive advantage and allow new entrants to enter an otherwise exclusive or restricted market, permanently impairing the profits of the victim of the breach. Outside influences can also alter the competitive landscape. Consider the effect of a hurricane on a broad geographic area. A breach of a supply contract suffered by a roofing contractor, absent the hurricane, could have a seriously detrimental effect on that contractor's profits. Assume the intervening hurricane damaged the property of the contractor and all local competitors, enabling out-of-state contractors to enter the market and win market share. Given these circumstances, a lost profits claim that relates all of the detrimental impact on this contractor to the contract breach is likely fatally flawed.
- **Potential company-specific factors.** Additional company-specific factors can affect the performance of the company and the practitioner should consider

them in developing the lost profits analysis and, in some cases, establishing proximate cause of the plaintiff's damages. These factors are often specific to the individual subject company and include the following:

- **Impairment of goodwill.** Plaintiffs sometimes assert lost profits claims based on impairment of goodwill. These claims usually stem from actions that damage the reputation of the business (for example, the effects of counterfeit goods). This reputation damage can result in reduced revenues and profits. Establishing that the damage to the reputation (1) was caused by the counterfeit goods, (2) resulted in lost sales and profits, and (3) was the only cause of the lost sales and profits can present a number of challenges to the practitioner. The practitioner must avoid separate claims in this regard—for example, claiming both lost profits and lost value of the intangible (goodwill) asset—as this reputational damage should manifest in lost profits and be recovered on that basis. In any event, supporting these claims can be challenging and will require ample documentation and a well-constructed analysis to prevail.
- **Management changes.** Practitioners should also consider the possible effects of normal changes in management as well as those that may have resulted from the acts of others. The practitioner should have gathered enough information about the company to establish critical management positions, personnel, and responsibilities that affect operating performance. For example, if the chief scientist on a key new product in development left the company, damages claims are appropriate if he was improperly recruited away by a competitor developing a similar product, but would not usually be expected if he went to teach in academia.
- **Other market issues.** A number of other market factors will bear on the performance of a specific company. These include the following:
  - Changes related to buyers and suppliers;
  - Changes in business lines and the market conditions that affect them;
  - The introduction of new products by the subject company and its competitors; and
  - The legal and regulatory environment in which the company operates.

Accounting for all other factors that can reduce profits for a company would be overwhelming. Few cases require such rigor. Practitioners can simplify the process by looking for the factors that *materially* affect business performance and focusing on those material factors where changes occurred or are anticipated. A practitioner who fails to explore key factors affecting company performance will be ill-equipped to assure the court that the defendant's actions have caused the damages suffered, thus weakening the causation argument and the damages case.

We next present a detailed analysis of constructing the revenues the plaintiff should have received but for the actions of the defendant and the costs that an expert should apply to those revenues.

(iv) Revenue Analysis. In a lost profits study, the practitioner must first compute the amount of lost revenues or sales units that the defendant's actions have caused. Practitioners use four common approaches to measure this amount:

1. **Before and after.** This approach compares the plaintiff's sales level before the defendant's wrongdoing with the plaintiff's sales level after the defendant's wrongdoing; the difference between the two levels represents the lost sales. This approach assumes that only the defendant's wrongdoing affected the plaintiff's business volume. It can underestimate lost sales for a plaintiff whose sales were increasing prior to the defendant's actions and overestimate lost sales if a plaintiff's business was in decline prior to the defendant's actions. To use such an approach effectively, practitioners often include a market analysis in the lost profits study. For example, if the target company's market is mature and stable during the period under question, the plaintiff's sales level probably would have remained unchanged but for the defendant's actions.
2. **Statistical forecast.** The expert forecasts but-for sales by using a variety of tools such as regression (or other statistical) analysis and then subtracting the actual sales to estimate the lost sales. With this approach, the expert's model (or equation) must adequately predict the sales and use a control period (over which the equation is estimated) that does not contain events that would bias the results; also, the regression equation must not contain biases such as heteroscedasticity, autocorrelation, or other similar factors. The model should also consider all important industry factors that affect the sales of the plaintiff's products. For example, the price of oil can affect the sale of products used in constructing oil rigs. The omission of a significant factor can invalidate the practitioner's results or make these results seem less credible to a judge and jury. The practitioner should ensure that the damages study considers all relevant factors and that the model includes the significant ones.[55]
3. **Yardstick.** The practitioner identifies an index of firms similar to the plaintiff's firm and compares the plaintiff's performance with the index's performance. This approach assumes that, but for the defendant's actions, the plaintiff would have performed the same, relative to the index, as it had in the past. Underlying biases in the data, however, can invalidate this index approach. A plaintiff firm that is smaller or larger relative to the index firms can lead to inaccurate results. For example, if a large plaintiff firm lost market share because of the defendant's wrongful conduct, small firms that acquired those shares could appear to be growing even if the market size remained constant.
4. **Market share.** Practitioners consider the plaintiff's market share during the period prior to the defendant's wrongdoing. In addition to defining the relevant market, the practitioner must also ensure that the market remained somewhat stable during the relevant time period. Numerous entrances or exits of competitors could undermine the use of this measure. Also, the analysis should examine the trend of the plaintiff's market share because if the plaintiff's market share varies greatly over the period before the defendant's actions, this measure can yield unreliable results.

(v) Cost Analysis. After estimating the amount of lost sales, the practitioner must subtract the costs the firm would have incurred to achieve these revenues. Such an analysis will consider many different cost measures depending on the nature of the harm:[56]

- *Marginal cost* is the cost of producing one additional unit.
- *Incremental cost* refers to the cost of an unspecified number of additional units or of a new product line.
- *Average cost* equals the total cost divided by the number of units produced.
- *Variable costs* change as the activity (or production) level changes.
- *Direct costs* are the costs of the direct material and direct labor incurred in producing a product.

The practitioner must decide which cost measure pertains to the particular case. For example, a variable cost estimate will apply only over a certain range of production (called the relevant range). If the estimated lost sales units would increase the production level outside the relevant range, then the use of the variable cost estimate can be incorrect.

The relevant cost measure can vary, of course, depending on whether the business is expanding or contracting. If the business is expanding and the amount of lost sales units would take production beyond the plaintiff firm's present capacity, the practitioner should consider including the capital costs of investment in new capacity or new equipment as a cost in the lost profits analysis. The practitioner using incremental costs should include such costs and should also make reasonable assumptions concerning the timing of the investments.

A practitioner estimating costs for a firm that would have sold more units but for the defendant's actions should consider the possibility of economies (or diseconomies) of scale.[57] If the model projects a large number of lost units, the plaintiff could achieve large cost savings at that production level. A study using only current costs could underestimate the plaintiff's damages. Similarly, learning curve effects would lead to a higher cost structure in a start-up firm than in a firm in business for some time. Finally, although average variable cost analysis can be appropriate for a firm already in the market, it can be inappropriate for a new entrant that will have to engage in promotional pricing to gain customer loyalty, a capital asset that a longtime competitor already possesses.

Even when the practitioner has decided on the relevant cost measure, important aspects of the analysis remain. For example, if claims relate to a single division (or product) of a multidivision (multiproduct) firm, the practitioner needs to consider joint costs.[58] The time frame over which the practitioner analyzes the firm's costs as fixed or variable becomes important: the shorter the period, the fewer the variable costs. The practitioner should consider whether to analyze costs that vary as production rises and falls within some output range or whether to measure costs that vary as production falls to zero (going-concern versus shutdown analysis). For a firm that has large costs associated with producing one unit that do not increase with the production level (zero-one costs), the level over which one measures costs as variable could determine the outcome of the case.[59]

(vi) Subtract Actual Results from the But-For Amount to Ascertain Lost Profits Damages. This step is basic arithmetic and does not require much discussion. Exhibit 4-2 illustrates the basic format for calculating the amount of damages from the but-for and actual balances. The practitioner only needs to match up but-for and actual flows so the practitioner can properly adjust for the time value of money.

(vii) Adjustment for Time Value of Money. As noted previously, courts differ on the dates for evaluating a lost profits analysis. Regardless of whether a court decides that the appropriate date is the date of the breach, the date of the trial, or some other date, the practitioner must value the lost profits occurring in multiple periods to a single period. That is, the practitioner must adjust lost profits for the time value of money.

Practitioners use a variety of discount rates (as discussed previously), but they use these discount rates to express the lost profits occurring in multiple years as if they occurred in a single year. For example, proper discounting allows the practitioner to appropriately offset the negative cash flows required in some years with positive cash flows that result in others because of those investments. Recall that lost profits are usually expressed as lost cash flows in this analysis. Sometimes the facts warrant a practitioner using profit measures instead of cash flows. Regardless of what measure the practitioner uses, the discount rate must correspond to the flow being discounted.

Although the cash flows at issue can occur during the course of a year, most practitioners do not conduct a monthly or daily discounted lost profits analysis. Instead they present an annual amount and discount that amount based on a midyear convention. With a midyear convention, the practitioner assumes that the annual cash flow occurs on June 30. Assume that the practitioner wants to discount all cash flows to December 31, 2008. Using the midyear convention, the January 15, 2009, cash flow would be discounted too much while the December 15, 2009, cash flow would be discounted too little. On average, the cash flows would be discounted the proper amount. The practitioner, however, should check to ensure that no factors exist that would cause the midyear convention to bias the results.

If practitioners discount the lost profits to a date that is not the trial date, they should adjust the net discounted lost profits result to the date of the trial using prejudgment interest. Many states have statutes governing the rate to use for prejudgment interest. Chapter 15 examines the principles and mechanics of prejudgment interest.

(viii) Tax Considerations. In many litigation analyses, the practitioner must consider the effects of income taxes. This includes the average tax rate, the marginal tax rate, the effective tax rate, or even the marginal effective tax rate.[60] For example, a firm's weighted-average cost of capital calculation includes the marginal corporate tax rate, whereas a firm's adjusted present value uses the effective tax rate.[61]

In addition, when practitioners complete their lost profits calculations, they should decide whether to calculate the damages on a pretax or after-tax basis. Because the government taxes a lost profits award, some practitioners prefer to calculate the award on a pretax basis. This advice, however, can lead to an over- or underestimation of damages by its failure to recognize changes in tax rates. Alternatively, one could calculate the award on an after-tax basis and then gross up the damages amount by the current tax rate (i.e., divide the after-tax damages by one minus the current tax rate). For example, suppose the plaintiff would have made $100 on a pretax basis during year one and, had it generated those funds in year one, it would have paid $46 in federal income taxes. (This example ignores present value and state tax issues.) Thus, the plaintiff would have had $54 more but for the defendant's wrongdoing. The plaintiff's case goes to trial in year seven, after the marginal corporate federal income tax rate has dropped to 34 percent. On the one hand, if the court awards the plaintiff the pretax $100 in year seven, it will pay only $34 in federal taxes and on an after-tax basis will have $66, $12 more than the amount needed to make it whole. On the other hand, had the court awarded the grossed-up amount of the plaintiff's lost profits on an after-tax basis, the plaintiff would have received $82 [= $54/(1 − 0.34)], paid $28 in taxes, and have $54 left. In this example, the plaintiff would have benefited had the damages award been paid on a pretax basis. The results go in the opposite direction if the tax rate increased. (Chapter 17 discusses the tax treatment of damages awards.)

4.6 CONCLUSION

Damages claims present some of the most interesting challenges and complex issues addressed by practitioners. A practitioner's effectiveness requires an understanding of the law, familiarity with the various damages models and their appropriate usage, attention to detail and thoroughness in analysis, and close coordination with legal counsel to assure the appropriateness of the models and methods used. Courts vary widely in their level of sophistication in assessing damages, and in many cases the practitioner will fulfill the traditional role of providing specialized knowledge to the triers of fact to help them understand these complex issues.

Damages presentations are often the culminating events in a trial. They incorporate many of the key factual and expert presentations that establish the basis for damages and claims and represent the means of righting the wrongs established during trial. Consequently, practitioners often play a defining role in the success of litigation.

NOTES

1. Henry R. Cheeseman, *Business Law*, 5th ed. (Upper Saddle River, NJ: Pearson Education, 2004), p. 200.
2. *Ibid.*, pp. 311 13.
3. The American Law Institute first compiled the *Restatement of the Law of Contracts* in 1932. Attorneys and courts often cite the *Restatement* (now in its second edition), but it is not law. Cheeseman, *Business Law*, p. 193.
4. For a listing of cases by state, *see* Robert L. Dunn, *Recovery of Damages for Lost Profits*, 4th ed. (Westport, CT: Lawpress Corporation, 1992), Section 1.2.
5. *Restatement (Second) of Contracts*, Section 352 (a) and (b) (1981); Robert M. Lloyd, "The Reasonable Certainty Requirement in Lost Profits Litigation: What It Really Means," *Tennessee Journal of Business Law* 12 (2010): 11, http://trace.tennessee.edu/transactions/vol12/iss1/2.
6. Cheeseman, *Business Law*, pp. 192 93.
7. *Ibid.*, pp. 74 81.
8. Richard Posner, *Economic Analysis of Law*, 5th ed. (New York: Aspen Law & Business, 1998), p. 272.
9. *Ibid.*, p. 273.
10. *See Seely v. White Motor Co.*, 63 Cal. 2d 9, 403 P.2d 145 (1965), and *Jones & Laughlin Steel Corp. v. Johns-Manville Sales Corp.*, 626 F.2d 280 (CA3 1980).

11. *Sharon Steel Corp. v. Lakeshore, Inc.*, 753 F.3d 851 (10th Cir. 1985).
12. *East River v. Transamerican DeLaval Inc.*, 476 U.S. 858, 868 75 (1986).
13. For a listing of cases under the majority and minority positions, *see* Dunn, *Recovery of Damages for Lost Profits*, Section 3.16.
14. *See Restatement (Second) of Contracts*, Section 347 and comments to that section; Posner, *Economic Analysis of Law*, p. 131.
15. *Restatement (Second) of Contracts*, Section 344 (a).
16. Under expectation damages in some jurisdictions, the analyst may be able to calculate damages associated with related product sales or other financial benefits stemming from the project (like service contracts stemming from product sales), so long as these damages were not speculative.
17. *Restatement (Second) of Contracts*, Section 344 (b).
18. Jeffrey T. Ferriell, *Understanding Contracts*, 2nd ed. (LexisNexis, 2009), http://www.lexisnexis.com/lawschool/study/outlines/html/contracts/contracts16.htm, §16.01 Types of Remedies [2].
19. *Restatement (Second) of Contracts*, Section 344 (c).
20. *Ibid.*, Section 344 (c) and comments to that section; Cheeseman, *Business Law*, pp. 305, 310.
21. Ferriell, *Understanding Contracts*, http://www.lexisnexis.com/lawschool/study/outlines/html/contracts/contracts16.htm, §16.01 Types of Remedies [2].
22. Eyal Zamir, "The Missing Interest: Restoration of the Contractual Equivalence," *Virginia Law Review* 93 (2007): 59.
23. Cheeseman, *Business Law*, p. 306.
24. Caprice L. Roberts, "Restitutionary Disgorgement for Opportunistic Breach of Contract and Mitigation of Damages," *Loyola of Los Angeles Law Review* 42 (2008): 131 44.
25. *See U.S. v. KeySpan Corp.*, No. 10-cv-1415 (S.D.N.Y. filed Feb. 22, 2010).
26. An investor should value a project using the project's weighted average cost of capital. Using a company cost of capital is incorrect unless the new venture has the same risk as the company. Richard A. Brealey, Steward C. Myers, and Franklin Allen, *Principles of Corporate Finance*, 8th ed. (New York: McGraw-Hill Irwin, 2006), p. 216.
27. *See* M. E. Porter, "How Competitive Forces Shape Strategy," *Harvard Business Review*, March/April 1979. In 1979, Professor Michael Porter of Harvard Business School developed a framework to analyze a company's industry in order to develop its business strategy. A worsening of industry conditions could result in values less than originally expected at the onset of the transaction that could cause RD damages to exceed BOB damages.
28. Cheeseman, *Business Law*, pp. 94 95.
29. Posner, *Economic Analysis of Law*, pp. 240 41.
30. Cheeseman, *Business Law*, p. 310.
31. *Ibid.*, p. 312.
32. Uniform Commercial Code, Section 2-610; *Restatement (Second) of Contracts*, Section 253.
33. *See* Matthew Milikowsky, "A Not Intractable Problem: Reasonable Certainty, *Tractebel*, and the Problem of Damages for Anticipatory Breach of a Long-Term Contract in a Thin Market," *Columbia Law Review* 108 (2008): 452.
34. Charles H. Goetz and Robert E. Scott, "Measuring Sellers' Damages: The Lost-Profits Puzzle," *Stanford Law Review* 31 (1979): 323.
35. Goetz and Scott, 1979.
36. Friedman, 1989.
37. *See* Chapter 11 of the fourth edition of the *Litigation Services Handbook*.
38. Dunn, Robert L., *Recovery of Damages for Lost Profits*, 4th ed., vol. 1 (Westport, CT: Lawpress Corporation, 1992), p. 345.

39. Most patents have a legal life of 17 years. Their effective life, however, may be less if the market has frequent technological changes or one can easily design around the patent.
40. *See also* Chapter 10 of the fourth edition of the *Litigation Services Handbook.*
41. The term *business value* is inadequately descriptive, as there are many potential measures, including fair value, fair market value, enterprise value, and value in use, to name a few. All are different measures and will yield different values. Chapter 10 provides further information on this topic. For this discussion, business value will be construed to mean fair market value of the business, which is representative of what a willing buyer and seller, neither under compulsion to transact, would be willing to exchange for the business.
42. Our time consideration discussion differs from *ex ante/ex post* considerations. The former relates to the time of the damages measurement, while the latter relates to the information considered available to make the damages measurement.
43. We discuss discounting in Section 4-4(h) of this chapter as well as in Chapter 9 of this book. Beta is one of the discount formula variables that addresses risk; selection of and adjustment to beta risk is an important element in correctly discounting damages more fully addressed in Chapter 9.
44. We forgo a detailed explanation and direct the readers to Chapters 7 and 8 in this book for more discussion regarding regression analysis in litigation.
45. *See* Sam L. Savage, *The Flaw of Averages: Why We Underestimate Risk in the Face of Uncertainty* (Hoboken, NJ: John Wiley & Sons, 2009). *See also* Chapter 10 in the fourth edition of the *Litigation Services Handbook.*
46. Capital market risk results from economy-wide factors that generally benefit or threaten all businesses.
47. Richard A. Brealey and Stuart C. Myers, *Principles of Corporate Finance*, 6th ed. (New York: McGraw-Hill, 2000), p. 195.
48. *Ibid.,* pp. 231 32.
49. *Opportunity cost* refers to the fact that had the plaintiff not been denied the use of the damages amount, it would have invested it in some enterprise (perhaps in shares, perhaps in the performance of the plaintiff firm) and would have received a return on this amount.
50. James M. Patell, Roman L. Weil, and Mark A. Wolfson. "Accumulating Damages in Litigation: The Roles of Uncertainty and Interest Rates." *Journal of Legal Studies*, 11 (1982): 341 64.
51. Fisher and Romaine 1990.
52. *See* Patell et al. 1982. Note that the defendant's interest rates used to bring the damages to present value should be the effective after-tax rate to reflect the realities of the plaintiff's alternative uses of cash. To do otherwise would have investments in damages claims grow more rapidly than real investments of similar risk. The final amount, of course, should be grossed up by the plaintiff's tax rate, as discussed previously.
53. No. 2010-1035, 2010-1055 (Fed. Cir. January 4, 2011).
54. *See* Shannon P. Pratt and Alina V. Niculita. *Valuing a Business*, 5th ed. (New York: McGraw-Hill, 2007).
55. In certain situations, practitioners use the plaintiff's budgets and forecasts as a basis for developing but-for sales, making adjustments as appropriate for factors such as industry trends and historical budgeting prowess.
56. These definitions are taken from the glossary of financial terms found in the fourth edition of the *Litigation Services Handbook*.
57. With economies of scale (i.e., increasing returns to scale), a firm can increase productivity or lower average costs of production by increasing production. For example, if a firm increases inputs by 10 percent and total output increases by more than 10 percent, the firm is better off with the higher production (assuming that price does not fall).

With economies of scope, a firm can achieve lower costs by producing multiple goods together. For example, a firm that produced both clocks and watches might be more efficient than two firms, one of which made clocks and the other of which made watches, because the first firm could share industry-specific knowledge and machinery across both product lines (P. Samuelson and W. D. Nordhaus, *Economics*, 14th ed. [New York: McGraw-Hill, 1991], p. 735).

58. In *Marsann Co. v. Brammal, Inc.*, 788 F.2d 611 (9th Cir. 1986), the Ninth Circuit held that the relevant average variable cost is that of the items sold at the challenged price, rather than that associated with the production of the total output.
59. Remarks about cost estimation made previously in this chapter also apply here.
60. The average tax rate is the rate found by dividing income tax expense by net income before taxes. The marginal tax rate is the tax rate imposed on the next dollar of taxable income generated. The effective tax rate is the rate that includes the effects of tax shields. The effective marginal tax rate is the marginal tax rate that includes the effects of tax shields.
61. Richard A. Brealey and Stuart C. Myers, *Principles of Corporate Finance*, 6th ed. (New York: McGraw-Hill, 2000), pp. 544, 558.

LIST OF CASES

East River v. Transamerican DeLaval Inc., 476 U.S. 858, 868 75 (1986)

Jones & Laughlin Steel Corp. v. Johns-Manville Sales Corp., 626 F.2d 280 (CA3 1980)

Marsann Co. v. Brammal, Inc., 788 F.2d 611 (9th Cir. 1986)

Seely v. White Motor Co., 63 Cal. 2d 9, 403 P.2d 145 (1965)

Sharon Steel Corp. v. Lakeshore, Inc., 753 F.3d 851 (10th Cir. 1985)

Uniloc USA Inc. v. Microsoft, No. 2010-1035, 2010-1055 (Fed. Cir. January 4, 2011)

United States v. KeySpan Corp., No. 10-cv-1415 (S.D.N.Y. filed Feb. 22, 2010)

REFERENCES

Brealey, Richard A., and Stuart C. Myers. *Principles of Corporate Finance*, 6th ed. New York: McGraw-Hill, 2000.

Brealey, Richard A., Suart C. Myers, and Franklin Allen. *Principles of Corporate Finance*, 8th ed. New York: McGraw-Hill, 2006, p. 216.

Cheeseman, Henry R. *Business Law*, 5th ed. Upper Saddle River, NJ: Pearson Education, 2004.

Dunn, Robert L. *Recovery of Damages for Lost Profits*, 4th ed. Westport, CT: Lawpress Corporation, 1992.

. *Recovery of Damages for Lost Profits*, 5th ed. Westport, CT: Lawpress Corporation, 1998, vol. 1, p. 345.

Ferriell, Jeffrey T. *Understanding Contracts*, 2nd ed. (LexisNexis, 2009). http://www.lexisnexis.com/lawschool/study/outlines/html/contracts/contracts16.htm, §16.01 Types of Remedies [2].

Fisher, Franklin M. "Multiple Regression in Legal Proceedings." *Columbia Law Review* 80 (1980): 702.

Fisher, Franklin M., and R. Craig Romaine. "Janis Joplin's Yearbook and the Theory of Damages." *Journal of Accounting, Auditing and Finance* 145 (New Series 1990): 145 157.

Friedman, D. D. "An Economic Analysis of Alternative Damage Rules for Breach of Contract." *Journal of Law and Economics* 32 (1989): 281.

Goetz, Charles H., and Robert E. Scott. "Measuring Sellers' Damages: The Lost-Profits Puzzle." *Stanford Law Review* 31 (1979): 323.

Lloyd, Robert M. "The Reasonable Certainty Requirement in Lost Profits Litigation: What It Really Means." *Tennessee Journal of Business Law* 12 (2010): 11.

Milikowsky, Matthew. "A Not Intractable Problem: Reasonable Certainty, *Tractebel*, and the Problem of Damages for Anticipatory Breach of a Long-Term Contract in a Thin Market." *Columbia Law Review* 108 (2008): 452.

Patell, James M., Roman L. Weil, and Mark A. Wolfson. "Accumulating Damages in Litigation: The Roles of Uncertainty and Interest Rates." *Journal of Legal Studies* 11 (June 1982).

Porter, M. E. "How Competitive Forces Shape Strategy." *Harvard Business Review*, March/April 1979.

Posner, Richard. *Economic Analysis of Law*, 5th ed. New York: Aspen Law & Business, 1998.

Pratt, Shannon P., and Alina V. Niculita. *Valuing a Business*, 5th ed. New York: McGraw-Hill, 2007.

Roberts, Caprice L. "Restitutionary Disgorgement for Opportunistic Breach of Contract and Mitigation of Damages." *Loyola of Los Angeles Law Review* 42 (2008): 131 44.

Samuelson, P., and W. D. Nordhaus. *Economics*, 14th ed. New York: McGraw-Hill, 1991, p. 735.

Savage, Sam L. *The Flaw of Averages: Why We Underestimate Risk in the Face of Uncertainty*. Hoboken, NJ: John Wiley & Sons, 2009.

Zamir, Eyal. "The Missing Interest: Restoration of the Contractual Equivalence." *Virginia Law Review* 93 (2007): 59.

CHAPTER 5

EX ANTE VERSUS *EX POST* DAMAGES CALCULATIONS*

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CONTENTS

5.1 INTRODUCTION

Economic damages awards in litigation serve a double purpose: they compensate entities that suffered harm from unlawful acts, and they deter future unlawful acts. The optimal compensation award should put an injured entity in the same economic position it would have been but for the act. The optimal deterrent award, putting aside punitive issues, should be equal to the ill-gotten gain derived from the unlawful act adjusted for the probability that someone will detect the act. In many cases these two amounts are the same. Consider an example whereby I steal $100 from you. If I were immediately apprehended and forced to return your money, then your economic loss would be eliminated and my

* The coauthors acknowledge their former coauthor, Michael Wagner; this chapter has retained much of his work from previous editions of the *Litigation Services Handbook*.

ill-gotten $100 would have been disgorged. Under that circumstance, the compensation amount equals the deterrent amount. I would have no incentive to steal from you, and you would have no incentive to make it easy to be robbed.

In this example of immediate restitution, one can easily find an optimal award that satisfies both the compensation and deterrent purposes. Ideally, plaintiffs would receive instantaneous compensation for the damages they suffered without delay between the date of injury and the award of damages. If a delay occurs between the time of the unlawful act and the date of restitution, however, the victim's harm and the wrongdoer's ill-gotten gain often diverge.

In the real world, a delay always occurs between the date of injury and the date the plaintiffs receive compensation. During the time lag, in addition to the divergence between the damages and ill-gotten gain, information about the payoffs to the unlawful act becomes available, which can change the parties' perception of the damages.

For example, suppose that you buy a lottery ticket for $1. Then suppose I steal it from you before the lottery winner becomes publicly known. Assume that on the date of the injury all lottery tickets had an equal chance of winning and there was no shortage of tickets available for $1. Time passes and it turns out that the ticket I stole from you is the lottery winner and is now worth $32 million. How much should I pay you to make you whole? Do I owe you the expected value of the return from the ticket, about 12 cents, called the *ex ante* value—its value before the event?[1] Or, do I owe you the fair market value of the ticket I stole, $1? Or, do I owe you the amount that you would have made had you owned the winning ticket, $32 million, the *ex post* value—its value after the event?

Surely one could argue that if you bought a ticket with an expected value of 12 cents, you were not planning to try to resell it before the winner was announced. If you weren't keeping the ticket through the lottery, you would have been better off not buying it at all. Therefore, after the fact—*ex post*—it is a virtual certainty that you would have won the lottery. One could also argue that the $1 price of the ticket is the replacement cost of that ticket and reflects the value of the low probability of a particular ticket winning plus the transaction costs of participating in the lottery.

Given these circumstances, and considering that at the time of the theft you could have bought another ticket with equal probability of winning for $1, few would disagree that on the date of the theft, damages did not exceed $1. However, after the lottery ends and your ticket becomes worth $32 million, few juries would consider a remuneration of $1 for $32 million in winnings a just resolution, even with the understanding that I had borne the risk of the ticket's not winning. After all, the case would likely not have gone to trial if the ticket did not win, and therefore, I had borne only a small risk of having to pay at all.

5.2 EXPECTANCY VERSUS OUTCOME DAMAGES

Ex ante is Latin for "from before." A pure *ex ante* analysis would use information only if it were available at the time of the unlawful act to calculate the damages incurred at the time of the act. Practitioners base the analysis, therefore, as though they were to analyze the damage caused by the act contemporaneously with the occurrence of the act. Most business activities resemble lotteries: the firm invests time and money up front in an activity with an uncertain outcome. Thus, the

	Ex Ante	*Ex Post*
Information	Use information known or knowable on the date of the unlawful act; ignore subsequent events.	Use all available information.
Measurement Date	Date of unlawful act.	Date of analysis.
Discounting	Discount all cash flows back to the date of unlawful act using a rate that reflects the risk of the asset. Calculate prejudgment interest on this amount from the date of the unlawful act to the date of judgment using a rate reflecting either the plaintiff's cost of capital, or the defendant's debt rate.	Bring past cash flows (i.e., damages) to present value using an interest rate reflecting either the plaintiff's cost of capital or the defendant's debt rate. Discount future cash flows (i.e., damages) to the date of judgment.

Exhibit 5-1. Differences between *Ex Ante* and *Ex Post* Calculations

damages expert faces the question of whether to compute damages at the time of the investment (or unlawful act) or after the outcome is known.

Ex post is Latin for "from after." A pure *ex post* analysis uses all the information available up to the date of the analysis. Such an outcome-based analysis accounts for facts that become known after the unlawful act, such as a product's success in the marketplace, the increased value of a tangible asset, or, indeed, the outcome of a lottery.

One could also perform an analysis that is a hybrid between *ex post* and *ex ante.* For example, when analysts use information available from the date of the unlawful act forward, they often discount cash flows that occurred at a risk-adjusted discount rate during this same period.

The differences between *ex post* and *ex ante* analyses lie in which information subsequent to the unlawful act the analyst uses, the date of the damages measurement, and how the analyst discounts future damages. Exhibit 5-1 highlights the differences between the two approaches as practitioners have applied them.

5.3 APPLICATION OF THE *EX ANTE* APPROACH IN LITIGATION

(a) The Mechanics of *Ex Ante* Analyses. To illustrate the mechanics of *ex ante* analyses, we use the following example. Suppose that on New Year's Day 2000, the defendant stole the victim's 1972 AMC Pacer. At that time, the defendant and others could have bought an identical replacement Pacer for $300. Also, suppose that in early 2005 BMW came out with a remake of the original Pacer and subsequently the fair value of a classic AMC Pacer increased to $10,000.

The car's owner files a lawsuit, and trial begins on December 31, 2006. An expert using a pure *ex ante* approach would calculate damages of $300 and then might calculate interest on the $300 from January 1, 2000, to December 31, 2006. Three hundred dollars is the expected value of the car as dictated by the then-current market price. If the plaintiff had a different expectation for the car's future value, he could have mitigated any damages by buying another car for $300 after the theft. In fact, if he had thought the car was worth more than its market value of $300, he should have bought additional cars.

Advocates of *ex ante* analyses point out that using *ex ante* information properly allocates risk.[2] In the example of the Pacer, the car's market price on the date of the theft already incorporates the probability that the model will become a collector car. The market price also incorporates the then-higher probability that the car will ultimately be worth only the salvage value of the metal used in its manufacture.

When the victim's $300 car was stolen, he was relieved of the risk that it would ultimately become nearly valueless and deprived of the low probability outcome that it would become a collector car. The market value of the car on the theft date reflects the present value of these two possible outcomes and all future costs and benefits associated with ownership of the car. In this way, an *ex ante* approach helps analysts avoid two significant potential pitfalls associated with an *ex post* approach: incorrectly accounting for avoided risk, and neglecting avoided costs and benefits.

Proponents of the *ex ante* approach argue that awarding $10,000 improperly rewards the plaintiff for the full current value of the car without taking into account that the plaintiff avoided the costs and risks of ownership. Implicitly, the costs and risks of ownership equal $9,700 (= $10,000 – $300). An *ex ante* approach properly measures the value of an asset at the time it *was taken*, whereas an *ex post* approach converts a risky investment into a certain outcome.

Even though the *ex ante* approach solves some particularly sticky problems associated with *ex post*, it has problems of its own. For example, some firms have private information on which they value particular assets more or less highly than the market does. In that case, do the firms' expectations set the amount of damages? Likewise, the plaintiff may have had a once-in-a-lifetime chance to succeed (i.e., there may have been no additional lottery tickets or Pacers available to replace the stolen one). Additionally, the assets can have unique value to a particular firm. Is this unique value the relevant measure of *ex ante* damages if the firm falls victim to an unlawful act? Proving that an asset has a value that differs from market value can be difficult.

The damages expert can rarely value the act's consequences with accuracy as of the time of the act because of the difficulty of reconstructing the information known when the act occurred. Sometimes contemporaneous forecasts exist, but these can be imprecise information sources. Forecasts produced for different purposes or by different business units in the same organization can vary. Sometimes individuals associated with a project prepare more aggressive forecasts than those prepared by management, whose bonuses rely on performance compared against those forecasts. Banks and venture capitalists prefer conservative forecasts. Firms and industries often make multiple forecasts showing different expected outcomes. These problems sometimes drive experts to inappropriately rely on forecasts made at the time of the unlawful act that were not reliable.

(i) Usable Information. An *ex ante* analysis relies on information known or knowable at the time of the unlawful act. However, one cannot easily identify all

knowable information. Anything in the public domain is arguably knowable. Private information held by the opposing parties or third parties is also arguably knowable. Indeed, patent law accepts that the patent holder's private information is knowable. Patent law regards all subsequent information as knowable at the time of the hypothetical negotiation that the courts assume to occur contemporaneously with the act. Section 5.6 of this chapter discusses this concept, also known as the *book of wisdom*.

One way to identify relevant information hypothesizes an analysis that the plaintiff could have performed at the time of injury. The current analysis could include any information that the injured party would have used in performing that contemporaneous analysis. As a practical matter, the expert uses other information from documents dated slightly after the date of the unlawful act on the basis that the information was known or knowable prior to the date that the document memorialized it.

Questions often arise regarding the treatment of subsequent mitigation and investment. If one uses an *ex ante* analysis, one should not consider the outcome of subsequent actual mitigation. Doing so converts the analysis into an *ex post* measure of damages. Similarly, in theft of trade secrets or patent infringement cases, the injured party often makes significant investments after the date of the theft that it might not have made had it been aware of the theft. To ensure consistency, a pure *ex ante* analysis should not consider subsequent information about these actual investments.

(ii) Measurement Date. The measurement date is the date as of which the expert calculates damages. In the case of an unlawful act that occurs on a single date—the breach of a contract, for instance—the measurement date would be the date of the breach. Some cases have multiple unlawful acts occurring on different dates. For example, one could argue that every time a patent infringer makes, or uses, or offers to sell, or sells an infringing product, the infringer commits a new unlawful act. In this example, an expert applying an *ex ante* analysis should measure the damages associated with each separate unlawful act on the date that each occurred.[3]

(iii) Probability of Outcome. If no contemporaneous market price exists, or if, for whatever reason, the market price does not reflect the idiosyncratic value to the victim, then the expert can forecast future cash flows with contemporaneous information. Such forecasts lend themselves to the assignment of relative probabilities to different possible outcomes. Similarly, if contemporaneous analyses do exist, one may find multiple analyses, such as best-case, worst-case, and expected-case analyses. A proper analysis should assign probabilities to the various scenarios and weight the resultant net present values of damages proportionately.

(iv) Ex Ante *Discounting.* In *ex ante* discounting, an expert applies a risk-adjusted rate of return appropriate for the company or project at issue when discounting the lost cash flows back to the date of damage (or breach). This calculation yields a lump sum equal to the present value of the damages on the date of the injury. The analysis can weight this lump according to the probability of outcome as described in Section 5.3(a)(iii) of this chapter. The expert subsequently applies

prejudgment interest to the damages amount starting from the date of the act and continuing through the restitution date.

As with identifying measurement dates, discounting becomes complicated when the unlawful act is not a one-time event. For example, suppose that two unlawful acts occur on different dates. An analyst could ascertain separate discount rates for each unlawful act and discount the lost cash flows back to the corresponding unlawful act dates. Or, as in the case of the patent infringement discussed in Section 5.3(a)(ii) of this chapter, one should not discount all the cash flows back to the date of first infringement; instead, an expert should discount the separate cash flows (at different discount rates, if necessary) to the date of each lost sale. In summation, if the unlawful act does not occur on a single date, then the expert should calculate damages associated with each unlawful act and discount the damages for each act back to the appropriate date at the appropriate discount rate, which depends on the date of each unlawful act.[4]

(v) Prejudgment Interest. Some courts allow the computation of prejudgment interest and grant that amount to plaintiffs. One should calculate prejudgment interest from the date of damages to the date of recovery. Because of uncertain recovery dates, the courts often use the date of trial as a proxy for the recovery date. Courts have used a variety of interest rates for prejudgment interest. State law and federal statutes often specify a statutory rate. If no statutory rate exists, it is common and logical to use the defendant's unsecured borrowing rate.[5] This practice makes sense because the defendant owes the damages to the plaintiff; thus, the analysis can regard the damages as funds that the plaintiff has, albeit involuntarily, lent to the defendant. The appropriate risk-adjusted rate for this loan reflects the defendant's default risk, captured by the defendant's unsecured borrowing rate for loans of similar duration initiated in the same time period. Even though courts sometimes use the plaintiff's opportunity cost as a measure of prejudgment interest rates, this rate is inappropriate because it is calculated under the false assumption that the plaintiff would have assumed risk in order to earn its opportunity cost.

(b) The Debate

(i) Advantages. The *ex ante* approach properly accounts for risk. The contemporaneous market price or contemporaneously conducted analyses capture the probability of the entire spectrum of outcomes. Awarding a plaintiff with all the benefits of a successful project without the plaintiff's having to assume the project risk would overcompensate the plaintiff. In fact, it would give the plaintiff an incentive to seek harm. Better that I should induce you to deprive me of the right to drill for oil on a site that is likely a dry hole than that I should spend the, say, $1 million to drill for myself. If I can induce you to deprive me of the right to drill, then I can save the $1 million of drilling costs but still collect the value of the oil if, contrary to expectation, the well turns out to be a gusher. Additionally, the results of an *ex ante* analysis are independent of when the trial occurs. Therefore, there is no incentive for a plaintiff to attempt to game the court system by timing a potential lawsuit to maximize damages awards. *Ex ante* analyses also provide foreseeability of consequences to potential wrongdoers. Another advantage: it does not penalize the plaintiff for a decision to either pursue or not pursue mitigation.

(ii) Disadvantages. *Ex ante* approaches often require a complex reconstruction of the world at the time of the unlawful act, likely impaired by a shortage of contemporaneous information. The expert will often need to construct both an actual and a but-for world, neither of which in fact existed. The constructed actual world reflects the cash flow from the next best alternative given the unlawful act. The but-for world is composed of future cash flows that would have followed but for the act.

Another potential disadvantage of the *ex ante* approach lies in its use of contemporaneous markets for valuation at the time of the unlawful act. The notion that the market value at any given time reflects the present value of future cash flows assumes efficient markets and perfect information. However, some markets are not efficient, and perfect information rarely exists. In fact, proponents of the *ex ante* approach agree that since private information related to the value at the date of the act provides the best information, the market is not the ultimate arbiter of value.[6] Also, even with complete information, market forecasts can be wrong. Even if one had a broad portfolio of stolen cars, the forecast future value of the cars at the time of the theft will not likely closely match the actual future value if the restitution were many years away.

5.4 APPLICATION OF THE *EX POST* APPROACH IN LITIGATION

(a) The Mechanics of *Ex Post* Analyses. *Ex post* computations rely on actual outcomes. The expert looks backward from the time of trial and uses actual information. In an *ex post* analysis, experts believe that events that happened after the date of the unlawful act provide information useful in understanding the economic effect of the act and, thus, affect the cost imposed by the act. Consider our example of the stolen AMC Pacer introduced in Section 5.3(a) of this chapter. The market value on the date of theft was $300 even though the current market value is $10,000. Using *ex post* information, damages would be $10,000 less the avoided costs of ownership between the theft date and today (e.g., costs of maintenance, insurance, and fuel), plus any lost benefits of ownership of the car between the theft date and today (e.g., monetary award in a car show and the cost of replacement transportation services).

The application of *ex post* information raises several questions:

- If subsequent information is available, how should the expert use it?
- If the analysis uses subsequent information, how does this affect the risk profile of the cash flows and, consequently, how does this affect the appropriate discount rate for discounting those cash flows?
- Does the use of subsequent information affect the selection of the present value date used for the calculation of damages?
- How should the analysis treat subsequent mitigation and investment?

(i) Usable Information. In a pure *ex post* analysis, all available information has relevance. Because the analysis aims to value the unlawful act as of the date of restitution, more recent information about the value becomes particularly important in assessing the current value. If only forecasts are available at the time of computation, the analysis uses recent forecasts, not earlier ones, and adjusts those forecasts for known differences in assumptions.

Additionally, both the outcomes of mitigation efforts and the actual investments made by the victim provide relevant and important information in *ex post* analyses. If, for example, the defendant wrongfully precluded the plaintiff from making a particular investment, an expert should consider what the plaintiff subsequently did or should have done with the funds it could not invest.

(ii) Measurement Date. Experts measure *ex post* damages as of the date of restitution. Such analyses use the trial date or the analysis date as proxies for the date of restitution. One could also use the expected date of final payment or even the expected date of the resolution of subsequent appeal, depending on the facts of the case and the available information.

(iii) Ex Post *Discounting of Cash Flows.* The *ex post* approach discounts future lost cash flows at the risk-adjusted rate of return appropriate for the company or project at issue. *Ex post* discounting uses past lost cash flows and brings them forward to the restitution date at a rate sufficient to compensate for the defendant's default risk, but with no other risk considerations. As Section 5.4(a)(ii) of this chapter discussed, the analysis can use various dates as a proxy for the restitution date.

Proponents of the *ex post* approach argue that their method of discounting has merit because it gives the plaintiff the exact recovery that, if invested at the same risk-adjusted rate of return as that of the firm, would reproduce the future stream of lost cash flows. Proponents also argue that the *ex post* approach offers the only means of putting plaintiffs in the same position they would have been in but for the unlawful act. In fact, one could argue that this approach is conservative, because it regards the plaintiff's restitution date as the date of trial when, in fact, restitution often does not occur until much later after appeals. In that situation, even though the plaintiff does not receive restitution until years after the initial trial date, the method discounts the amount generated from future cash flows further back than necessary, to the initial trial date.

Critics of the *ex post* approach argue that by discounting only future damages that occur after the restitution date, experts accept pretrial damages as though they were certain and neglect the risk associated with earning those cash flows. The counterarguments have a legal, rather than economic, basis. In fact, the defendant precluded the plaintiff from taking the risks associated with earning those particular cash flows. If the plaintiff wanted to and could take those risks, the defendant should not benefit from preventing the plaintiff from taking those risks. One could also argue that once the plaintiff proves liability, the benefit of any uncertainty should go to the plaintiff. Section 5.7 of this chapter discusses the case law supporting this concept, known as the wrongdoer's rule. Moreover, critics argue *ex post* damages reduce the incentive for mitigation—after all, victims could have bought another lottery ticket or another Pacer and restored their economic position as of the time of the unlawful act. If one knows they will collect *ex post* damages, then they have no incentive to mitigate.

(iv) Prejudgment Interest. Even though *ex post* analyses do not discount past lost cash flows, the cash flows should accrue prejudgment interest from the date the

plaintiff lost them to the date of recovery (or a proxy for such a date). As with *ex ante* analyses, courts have used various interest rates for prejudgment interest. State law or federal statutes often specify a statutory rate. If no statutory rate exists, one can use the defendant's unsecured borrowing rate because the plaintiff is effectively lending the damages amount to the defendant.

(b) The Debate

(i) Advantages. The *ex post* approach appeals to an individual's sense of justice. If someone steals your lottery ticket that becomes worth \$32 million, even an unskilled lawyer can persuade jurors to award you \$32 million in damages, not \$1. While proponents of the *ex ante* approach argue that an *ex ante* analysis makes the victim whole as of the *date of the unlawful act*, proponents of the *ex post* approach argue that the *ex post* approach makes the victim whole at *any time*.

The *ex post* approach also provides a social deterrent to violating the legal rights of others. Only cases with significant damages will go to trial. For example, no one will bring a case to trial for a stolen lottery ticket that became worthless. *Ex ante* damages, therefore, will fail to deter when the plaintiff has little incentive to bring the wrongdoer to justice either because the outcome was small (or negative) or because even when the outcome was large, its expected value was small and the defendants need pay only the expected value. In the real world of potential judicial error and high transaction costs to litigating, this implication suggests that *ex ante* damages analysis without compensation for both the chance of court error and transaction costs does not properly deter.

Additionally, the *ex post* approach ensures that those who commit unlawful acts do not receive windfalls from doing so. Even though the thief of a losing lottery ticket is not brought to justice, his benefit was small—the small probability of winning and keeping the benefits of winning. This observation poses a powerful argument for using *ex post* information to calculate unjust enrichment.

(ii) Disadvantages. The *ex post* approach to measuring damages has disadvantages, one being that the damages amount changes over time as new data become available. Because the changing environment influences *ex post* damages, this approach provides incentive for gaming the courts to maximize or minimize damages. For instance, a party can intentionally delay proceedings until the stock market improves, or, as in our example, until classic AMC Pacers are valued at \$10,000. Second, as Section 5.4(a)(iii) of this chapter discusses, the *ex post* approach unquestionably gives plaintiffs the benefit of the proceeds from a risk that they did not bear. Also, this approach risks overcompensation of the plaintiff. In particular, if the plaintiff can choose between an *ex post* and an *ex ante* remedy, the plaintiff is overcompensated when the *ex post* damages exceed *ex ante* damages. A defendant will argue whichever approach gives the lower damages figure as the correct approach to use.

Frank Fisher puts forth an alternative argument that the *ex post* method can overly deter wrongdoers because the infringer runs the risk of the downside loss. For example, assume that an infringer has a 50 percent chance of a \$200 gain and a 50 percent chance of a \$100 loss; his expected gain then equals \$50 [$= (50\% \times \$200) + (50\% \times -\$100)$]. The plaintiff will not choose to sue if the infringer incurs a loss but will sue if the infringer makes a gain. The plaintiff's expected recovery equals \$100 [= (50% × \$200) + (50% × \$0)], and the defendant's expected net loss after disgorgement is −\$50 [= (50% × (\$200 − \$200)) + (50% × (−\$100 + \$0))].[7]

Thus, the plaintiffs could be compensated for risks they did not bear while the infringers could be overpenalized by both bearing the downside risk and potentially being forced to disgorge the entire upside.

5.5 HYBRID APPROACH

Experts frequently blend different aspects of both *ex ante* and *ex post* analyses in a hybrid approach. A common hybrid between a pure *ex ante* and a pure *ex post* analysis uses *ex post* information but an *ex ante* measurement date. Experts discount the lost cash flows back to the date of the unlawful act, using a risk-adjusted discount rate based on the actual volatility of the returns in the *ex post* period.

The hybrid approach reasons that if all parties know what the lost cash flows would have been, no rationale exists for ignoring this information. What actually happened was, after all, one of the plausible outcomes at the time of the breach. This hybrid approach also appeals to some individuals' sense of justice because it uses the real world as a basis for the calculation of damages as opposed to a hypothetical expectation of what was known and knowable at the time of the unlawful act. It eliminates some speculation as to what the cash flows would have been.

Advocates argue that we must discount the actual cash flows to reflect the business risk of earning those cash flows. If the analyses do not discount actual cash flows at a risk-adjusted rate—as occurs in a pure *ex ante* approach—plaintiffs enjoy a superior economic position relative to where they would have been but for the unlawful act because the analyses ignore business risk.

Consider the situation in which a person has a choice between earning cash flows associated with some uncertainty and holding a free call option on his or her future cash flows. This individual would invariably choose the call option in order to avoid downside risk. Likewise, pursuing a pure *ex post* result in court is like giving the plaintiff a free call on his or her future lost cash flows, because to obtain those cash flows, but for the unlawful act, the plaintiff would have had to suffer through some level of uncertainty, whereas he avoided such uncertainty when the act occurred.[8]

Discounting the *ex post* cash flows back to the date of the unlawful act at the appropriate risk-adjusted discount rate moves the pure *ex post* result closer to a position that is at risk parity with what would have happened but for the unlawful act. The appropriate discount rate for the hybrid approach should incorporate information from proxy companies in the market. The risk premium would be the market risk premium multiplied by the beta of the proxy companies for a period that parallels the damages period as closely as feasible. This hybrid analysis should calculate prejudgment interest as in the *ex ante* analyses—from the date of the unlawful act to the date of restitution. Therefore, an expert would first discount future lost cash flows to the date of the unlawful act and then apply prejudgment interest to both future and past lost cash flows from the date of the illegal act. When statute does not specify a prejudgment interest rate, a reasonable rate would be the defendant's borrowing rate.

5.6 THE BOOK OF WISDOM

Some hybrid analyses use the concept of the *book of wisdom.* This concept allows damages experts to apply facts established after the date of damage to their calculations. The Supreme Court first set forth the concept of the book of wisdom in 1933 in the landmark case *Sinclair Ref. Co. v. Jenkins Petroleum Co.*[9] In its decision, the Court stated that

> at times the only evidence available may be that supplied by testimony of experts as to the state of the art, the character of the improvement, and the probable increase of efficiency or savings of expense . . . . This will generally be the case if the trial follows quickly after the issue of the patent. But a different situation is presented if years have gone by before the evidence is offered. Experience is then available to correct uncertain prophecy. Here is a book of wisdom that courts may not neglect. We find no rule of law that sets a clasp upon its pages, and forbids us to look within.

Further, the Court opined that facts established after the date of damage do not necessarily change past facts; rather, they "bring out and expose to light the elements of value that were there from the beginning."

Use of the book of wisdom often persuades courts because one could perceive it as a call for less speculation. In *Transit RR. Comm'rs.*,[10] the courts ruled that "certainty is better than conjecture, and injuries actually inflicted a better guide than opinion of experts as to the market values just before and after." Likewise, in *Fishman et al. v. Estate of Arthur M. Wirtz et al.*,[11] the Seventh Circuit allowed a damages calculation that applied the book of wisdom, stating that "we know of no case that suggests that a value based on expectation of gain is more relevant and reliable than one derived from actual gain."

In cases involving a measurement of value, the courts have used the book of wisdom to allow an analysis or grant an award based on a lost outcome (i.e., *ex post*) approach, as opposed to a lost expectancy (i.e., *ex ante*) approach. For example, the Seventh Circuit sided with a book of wisdom approach in *Fishman.* The Fifth Circuit also supported a valuation analysis based on the book of wisdom in *Park v. El Paso Board of Realtors*,[12] even where it opined that, though a hypothetical sale at the date of the unlawful act can present a useful analogy for purposes of valuation, a lost going-concern value offers a more appropriate measure of loss when the plaintiff has been driven out of business. The court based its support of a lost going-concern calculation because nothing in principle prevents a plaintiff with a destroyed business from recovering future profits.

In addition to cases of valuation, courts often apply the book of wisdom in patent infringement cases when deciding the details of the hypothetical negotiation that would have occurred between two parties. In *Fromson v. Western Litho Plate & Supply Co.*,[13] the Federal Circuit, citing *Sinclair*, indicated that one could look at postinfringement events in calculating reasonable royalty damages. In this case, the plaintiff wanted to use the infringer's actual profits as evidence of the value of the patent. The court found that excluding the evidence was erroneous and explained that

> the methodology [of simulating a hypothetical negotiation] encompasses fantasy and flexibility; fantasy because it requires a court to imagine what warring parties

> would have agreed to as willing negotiators; flexibility because it speaks of negotiations as of the time infringement began, yet permits and often requires a court to look to events and facts that occurred thereafter and that could not have been known to or predicted by the hypothesized negotiators.

Likewise, in *Jamesbury Corporation v. United States*,[14] the opining judge found that because he was "aided by the benefit of hindsight, it [seemed] unnecessary to create such a fictional [analysis]" as a hypothetical negotiation would have used.

On occasion, however, courts have limited the applicability of the book of wisdom. In *TWM Manufacturing Co., Inc. v. Dura Corp.*,[15] the defendant argued that the plaintiff erred in its damages calculation because it based damages on a gross profit value that the defendant's management had projected in an internal memorandum prior to the defendant's infringement of the patent. The defendant believed that the plaintiff should have considered actual gross profit values, not projected values. The Federal Circuit rejected the defendant's argument and considered its preinfringement memorandum as probative on the reasonable royalty issue. Thus, the court focused on the time the infringement began—specifically, it ruled that the book of wisdom did not apply in this case. Evidence of what happened after that time did not mitigate damages. Additionally, in *Odetics, Inc. v. Storage Technology Corp.*[16] (CAFC), the U.S. Court of Appeals for the Federal Circuit found that the federal district court had not abused its discretion by disallowing a book of wisdom approach and thus excluding evidence of two licenses granted by a patent infringement plaintiff from consideration in calculating a reasonable royalty rate for award of damages. The Federal Circuit reasoned that, because the hypothetical negotiation required in reasonable royalty analysis obliges courts to envision the terms of a licensing agreement reached between patentee and infringer when the infringement began, the court could not in this case consider the license agreements in question, which were negotiated four and five years after the date of infringement.

Robert Goldscheider reconciles the contrary positions of the courts by stating that "one may employ the book of wisdom only by looking prospectively from the date of the hypothetical negotiation, not retrospectively." He illustrates this concept with the example of an invention that had no noninfringing alternative at the date of the hypothetical negotiation but had one—a design-around—five years later. In this case, the expert cannot use the book of wisdom to say that this alternative technology was potentially available at the time of the hypothetical negotiation just because it was achieved five years later. However, this example shows that it took five years to design around the infringed patent. The expert should use this information in calculating damages. Goldscheider adds that "reference should be made by expert witnesses to the book of wisdom whether or not such actual subsequent events were non-foreseeable aberrations. Anything that can contribute to the realism of the exercise should be given serious consideration."[17]

In sum, case law indicates that experts can, and indeed should, incorporate all information, even information relating to events that occurred after the date of damage or after the date of hypothetical negotiation in the damages analysis. If the goal is to ascertain the amount of damages that would return the plaintiff to the same position it would have been in but for the unlawful act, the expert should use all available information in reconstructing the but-for world so that the resulting award reflects all the events that have contributed to or limited the damages suffered by the plaintiff.

5.7 THE WRONGDOER'S RULE

Because precedent has accepted both *ex post* and *ex ante* analyses, how do the courts decide which approach to use? Both experts and courts often overlook the concept of the *wrongdoer's rule.*

When the court has found liability, the wrongdoer's rule gives the benefit of the doubt to plaintiffs, leaving defendants with the burden of dispelling any uncertainty. In *Story Parchment Co. v. Paterson Parchment Paper Co. et al.*,[18] the Supreme Court ruled that "whatever . . . uncertainty there may be in [a] mode of estimating damages, it is an uncertainty caused by the defendant's own wrong act; and justice and sound public policy alike require that he should bear the risk of the uncertainty thus produced." The courts can apply this ruling to find in favor of a plaintiff's damages calculation.

Although its application is certainly not limited to *ex post* and *ex ante* cases, the wrongdoer's rule can provide a guideline for courts dealing with these two alternative analyses when deciding which damages calculation to award. Unless proved otherwise by the wrongdoer, courts will not withhold a reasonable damages estimate from the plaintiff. In *Fishman et al. v. Estate of Arthur M. Wirtz et al.*,[19] the Seventh Circuit granted a damages award based on an *ex post* analysis, opining that the defendants' objections of speculation were not sufficient as the "defendants . . . should not benefit because their wrongdoing made it difficult to establish the exact amount of injury." Additionally, the court held that an *ex post* analysis was a reasonable estimate of damages as "we know of no case that suggests that a value based on expectation of gain is more relevant and reliable than one derived from actual gain." It also cited *Sinclair* in saying that "to correct uncertain prophecies . . . is not to charge the offender with elements of value nonexistent at the time of his offense. It is to bring out and expose to light the elements of value that were there from the beginning." As applied by the Court of Appeals of Maryland in *M & R Contractors & Builders, Inc. v. Michael et al.*,[20] the court can use the wrongdoer's rule in awarding an *ex ante* damages calculation. In this case, the court found nothing wrong in a damages calculation based on a profit expectation that was measured as of the signing of the subsequently broken contract. The court advised the district court, "Where a defendant's wrong has caused the difficulty of proving damage, he cannot complain of the resulting uncertainty." Citing from *Corbin on Contracts* (1951), the court further expressed "doubts [as to whether the amount of lost profits] will generally be resolved in favor of the party who has certainly been injured and against the party committing the breach."

Courts have not frequently applied the wrongdoer's rule to cases in which *ex ante* and *ex post* have been points of contention, but courts have tested and upheld its applicability on many occasions. In each of these occasions, the defendants complained that the plaintiffs' measures of damages were speculative, yet the courts allowed these calculations because, as stated in *Story Parchment*, the uncertainty involved was "caused by the defendant's own wrong act." Following *Story Parchment*, the Supreme Court again applied the wrongdoer's rule in granting damages based on historical performance to the plaintiff in *Bigelow et al. v. RKO Radio Pictures, Inc., et al.*[21] The wrongdoer's rule as established by *Story Parchment* allowed for the granting of damages "which are definitely attributable to the wrong and only uncertain in respect of their amount." However, in *Bigelow*, the Supreme Court went one step further than it had in *Story Parchment*, concluding that even though a jury cannot "render a verdict based on speculation or guesswork . . . the wrongdoer may not object to the plaintiff's reasonable estimate of the cause of injury and of its amount, supported by the evidence, because [it is] not based on more accurate data which the wrongdoer's misconduct has rendered unavailable." Few courts, however, have applied the wrongdoer's rule as recognized in *Bigelow* to establish a causal relation between the harmful act and economic damages.

The Second Circuit has also used the wrongdoer's rule to award plaintiff damages when damage has resulted from the defendant's harmful act. *See Contemporary Mission, Inc. v. Famous Music Corp.*[22] and *Indu Craft, Inc. v. Bank of Baroda*.[23] As the Second Circuit stated in its *Contemporary Mission* decision, "Under the longstanding New York rule, when the existence of damage is certain, and the only uncertainty is as to its amount, the plaintiff will not be denied a recovery of substantial damages." State courts have also supported the wrongdoer's rule. The Supreme Court of Michigan has ruled that the risk of uncertainty should be thrown upon the wrongdoer instead of upon the injured party (*Allison v. Chandler*).[24] Similarly, in *Tull v. Gundersons, Inc.*,[25] the Supreme Court of Colorado granted damages to the plaintiff "although the amounts were not mathematically certain, [because] had we disallowed recovery . . . for injuries that had been proven in fact, we would have rewarded the injurious party."

In cases of *ex ante* and *ex post*, the courts can use the wrongdoer's rule in siding with the plaintiff's measure of damages. Because both approaches yield arguably reasonable results, defendants carry the burden of showing why the plaintiff's analysis is not appropriate for a specific case. This approach is especially relevant when the defendant's own acts have precluded an accurate understanding of the but-for world (e.g., cases of antitrust and breach of contract).

5.8 CONCLUSION

The time lag between the date of the unlawful act and the date of restitution will always cause debate as to the merits of using *ex ante* and *ex post* analyses in calculating damages. No single approach will be appropriate for all situations; the decision to apply any particular approach will depend on case specifics. For any method described in this chapter, one can concoct a situation in which the result of applying that method would not satisfy a common perception of fairness.

Appendix: Case Law Supporting *Ex Ante* and *Ex Post* Analyses

CASE LAW SUPPORTING *EX ANTE* ANALYSES

This section discusses cases that reflect court decisions supporting *ex ante* analyses. We list these cases in chronological order. Note that the following cases reflect that breach of contract damage measures usually employ *ex ante* approaches.

***M&R Contractors & Builders v. Michael*, 215 Md. 340, 351; 138 A.2d 350, 356 (1958).** Defendants hired a contractor (plaintiff) to build a home for them. Several months later the defendants informed the plaintiff that they did not want to have a home built at that time and asked the plaintiff to release them from the contract. Plaintiff filed suit against the defendants for the contract price of $23,420, of which $20,020 represented costs and $3,400 the expected profit. The plaintiff admitted that the only work done prior to the breach consisted of contract preparation, studying plans, and obtaining estimates from subcontractors. The plaintiff did not begin digging, paying for building materials, or signing contracts with subcontractors. At trial, the plaintiff abandoned his claim for the cost of the home and asked only for his anticipated profit, which he calculated by subtracting the estimates of the subcontractors from the contract price. The trial court found the plaintiff's proof of loss profits speculative and granted the defendants a motion for dismissal. The plaintiff appealed that decision and the appellate court reversed and remanded for a new trial. The appellate court held that one should measure unrealized profits as the difference between the contract price and the actual or estimated costs of full performance and that in this case the plaintiff appeared to make a reasonable estimate of his lost profits. The defendants also raised the issue of whether the plaintiff had minimized his damages. The appellate court held that the court should not deduct from the damages measure the gains made by the plaintiff on another transaction unless the plaintiff could not have worked on another job without the defendants' having breached the original contract. Hence, while the lost profits damages measure relied on an *ex ante* analysis, whether the court should reduce the plaintiff's lost profits by the amount of profit made on a substituted contract depended on an *ex post* analysis.

***Sharma v. Skaarup Ship Management Corporation*, 916 F.2d 820, 825–26 (1990).** The plaintiffs alleged that the defendants (Chemical Bank and other individuals) breached a refinancing agreement, causing the plaintiffs to lose ownership of four tankers that became the property of the defendants. The plaintiffs sought as damages not only the market value of the vessels ($15 million) but also lost profits from future years ($80 million). The plaintiffs argued that Chemical Bank believed the shipping industry would experience sharply increased demand shortly and wished to acquire these tankers prior to the economic boom and that, but for Chemical Bank's wrongful actions, the plaintiffs would have received substantial profits when demand for the tankers increased. The trial court disagreed with this reasoning, stating that the plaintiffs could recover only the market value of the tankers and that lost prospective profits was not a proper damages measure. The plaintiffs appealed that decision. The appellate court also disagreed with the plaintiffs. The appellate court stated that "it is a fundamental proposition of contract law, including that of New York, that the losses caused by a breach are determined as of the time of the breach." The appellate court cited the following examples:

- In measuring damages, courts cannot take into account changes in currency exchange rates subsequent to a breach.
- Damages for the breach of an agreement to purchase securities equal the difference between the contract price and the market value of the asset at the time of the breach.
- Damages for a breach of contract to buy real estate equal the difference between the contract price and the market value at the time of the breach.

The appellate court concluded this discussion by noting that measuring damages by using the value of the items at the time of breach takes expected lost future profits into account. "The value of assets for which there is a market is the discounted value of the stream of future income that the assets are expected to produce. This stream of income, of course, includes expected future profits and/or capital appreciation."

***Indu Craft, Inc. v. Bank of Baroda*, 47 F.3d 490 (1995).** The jury found that the Bank of Baroda (the defendant) had curtailed the credit of Indu Craft (the plaintiff) and had caused Indu Craft difficulties in obtaining letters of credit because Indu Craft's president failed to invest in the computer business of the son of one of the bank's officers. The jury further found that these actions caused Indu Craft to go out of business in November 1987. The plaintiff presented two claims: (1) lost profits, and (2) the loss of the value of the business. The appellate court rejected the calculation of lost profits because the plaintiff did not include fixed costs in its analysis. The appellate court, however, accepted the plaintiff's calculation of the lost business value. The plaintiff calculated the lost business value by estimating the earnings as of November 1987 (adjusted for a nonrecurring event—the embargo of a country from which Indu Craft imported goods) and applying an earnings multiplier based on the earnings of publicly traded comparable companies to that number. The appellate court cited the *Sharma* case, which stated that "where the breach involves the deprivation of an item with a determinable market value, the market value *at the time of the breach* is the measure of damages" (emphasis added).

***Brushton-Moira Central School District v. Fred H. Thomas Associates*, 91 N.Y.2d 256, 261–62; 692 N.E.2d 551, 553–54; 669 N.Y.S.2d 520, 522–23 (1998).** The plaintiff school district employed the defendant to renovate its high school building. Three months after the defendant completed the renovations, insulated panels that replaced glass windows began to deteriorate, permitting water to penetrate the building. The plaintiff sued for breach of contract. On appeal, the Appellate Division of the Supreme Court of New York held, among other issues, that the plaintiff should receive the replacement cost of the defective panels measured as of the trial date, and sent the case back to the trial court. In turn, the plaintiff and defendant appealed that decision. The Court of Appeals of New York rejected the prior measurement date (i.e., the trial date) for damages. "Damages are intended to return the parties to the point at which the breach arose and to place the nonbreaching party in as good a position as it would have been had the contract been performed. . . . A cause of action for defective design or contruction accrues upon the actual completion of the work." The Court of Appeals also held that the trial court should award prejudgment interest from that same date.

***Kelly v. Marx*, 428 Mass. 877, 878; 705 N.E.2d 1114, 1115 (1999).** The plaintiffs paid the defendants a $17,500 deposit for the $355,000 purchase of the defendants' property. Five months later, the plaintiffs informed the defendants that they could not purchase the property and asked the defendants to put it back on the market. Several weeks after that, the defendants sold the property for $360,000, but refused to return the plaintiffs' deposit. The plaintiffs sued to recover their deposit. The trial court held that the liquidated damages clause in the contract was enforceable and allowed the defendants to retain the deposit. The Appeals Court of Massachusetts ruled that the defendants should not keep the deposit in that they suffered no damage and as a result liquidated damages served as a penalty, not as compensation for a loss. The Supreme Court of Massachusetts sided with the trial court. It rejected examining the amount the defendants finally received (i.e., the retrospective or "second look" approach) and instead focused on the circumstances at the time of contract formation or the time of the plaintiffs' breach (i.e., the "first look" approach). The Supreme Court noted that "a liquidated damages clause in a purchase and sale agreement will be enforced where, at the time the agreement was made, potential damages were difficult to determine and the clause was a reasonable forecast of damages expected to occur in the event of a breach." The court found that, under the circumstances, the deposit was a reasonable forecast of the defendants' losses should the plaintiffs breach the contract.

CASE LAW SUPPORTING *EX POST* ANALYSES

This section cites cases containing *ex post* analyses by courts. For example, decisions related to antitrust, patent infringment, damage to property by government, and legal malpractice cases have used *ex post* analyses. We list these cases by subject matter in chronological order.

1. Antitrust

***A.C. Becken Co. v. Gemex Corporation*, 314 F.2d 839, 840 (1963).**
Civil Antitrust. The plaintiff claimed injury because the defendant refused to sell the plaintiff watch bands after 1956. At the original trial, the district court had found as fact and concluded as law that the plaintiff was not damaged. The Seventh Circuit Court of Appeals reversed and remanded in 1959, stating that, in fixing the proper amount of damages, the district court should consider the evidence already in the record on the subject of the plaintiff's damages, any proper evidence offered by the defendant, and rebuttal evidence of plaintiff. On the remandment, the district court considered additional evidence that occurred while the case was on appeal. According to the Seventh Circuit, these actions by the district court placed it in a position "where it had the benefit, not only of such projections as might have been reasonable based on the facts appearing at the first trial . . . but it also had the superior advantage of evidence of conditions which had in fact occurred while the case had been on appeal." The Seventh Circuit noted that while the evidence at the first trial was a reliable basis for damages, "no one can deny that to the extent future events modified its correctness, the entire evidence must be considered together."

***Park v. El Paso Board of Realtors*, 764 F.2D 1053, 1068 (1985).**
Sherman Act. The plaintiff filed suit in 1978, claiming that the defendants had conspired to boycott his real estate firm in retaliation for the plaintiff's attempts to reduce real estate commissions. In 1982, the jury found that six of the ten remaining defendants had conspired to boycott the plaintiff's firm and entered a $927,559 judgment against them for past and future profits for the period from 1978 to 1991. To calculate damages, the plaintiff relied solely on the testimony of its expert, Dr. George. Among other factors, Dr. George estimated that by 1983 the plaintiff's firm would have captured 20 percent of the El Paso real estate market, but presented no basis for the support of that assumption. The Fifth Circuit Court of Appeals reversed and remanded for a new trial on several issues. Because the court believed that the issue of adequate support for the damages amount might arise on remand, it noted that several aspects of Dr. George's model lacked a rational basis. For example, had the plaintiff's firm captured 20 percent of the El Paso real estate market, it would have equaled the size of the four largest real estate firms in El Paso combined. "On remand, the plaintiff must present a revised damages model, with a rational basis for each of the model's principal assumptions." The Fifth Circuit further stated that "since the exact number of residential resales can now be determined for much of the damages period, the plaintiff should incorporate these figures into his model rather than rely on projections as he did previously. The plaintiff should also use actual figures rather than projections for the home

resale inflation rate, when calculating the commission he would have received for his lost sales."

***Fishman v. Estate of Wirtz* and *Illinois Basketball, Inc. v. Estate of Wirtz*, 807 F.2d 520, 552 (1986).**

Sherman Act and Illinois Law. In 1972, Illinois Basketball Inc. (IBI) and Marvin Fishman sought to purchase the Chicago Bulls (the Bulls). Instead the Chicago Professional Sports Corporation (CPSC) purchased the Bulls. IBI and Fishman filed a lawsuit claiming that CPSC had acquired the Bulls through violations of the Sherman Act and Illinois common law. The district court found that the defendants had engaged in anticompetitive acts in destroying the contract the plaintiffs had executed with the former owners of the Bulls. The Seventh Circuit Court of Appeals agreed that the defendant had violated Sections 1 and 2 of the Sherman Act, but disagreed with the district court's judgment that the defendant's actions amounted to a boycott or tortious interference with the contract. The Seventh Circuit also found that the district court erred in its computation of damages and remanded the case back to the district court for a new trial on this issue. The district court calculated IBI's damages using the yardstick of CPSC's actual financial experience from 1972 until 1982 (the time of the original trial). While the Seventh Circuit agreed with the general use of this yardstick, it found that the district court's damages method required revision. The Seventh Circuit, nevertheless, specifically disagreed with the defendant's assertion on appeal that damages must be computed as of the date of the injury (i.e., July 1972). "We know of no requirement that damages must always be computed as of the time of the injury or, if not, reduced by some appropriate discount rate to produce a value as of that date. . . . If a victim is deprived of what may turn out to be an unusually successful investment, his damages should reflect that fact." Further, the majority opinion disagreed with the dissent, which adopted 1972 as the time at which the court should measure damages. The dissent argued that while IBI lost one business opportunity, it could go out and invest in the next best business opportunity in 1972 and that the district court should have awarded the plaintiffs only the bargain element of its contract (i.e., the amount at which the plaintiffs would have been able to buy the Bulls below their "market price"). The dissent concluded that the plaintiffs lost no bargain element, no unique opportunity (in 1972), and they had no damages. The majority opinion noted that "we find the dissent's analysis unpersuasive insofar as it may suggest that IBI should have invested promptly in another basketball team. The dissent appears to treat basketball teams as fungible commodities. But the record does not disclose that there is anything like an auction market in basketball teams. As far as we know, the law imposes no duty on a buyer who has been unlawfully done out of a purchase of the Bulls to cover immediately with the Bucks, Celtics, or the Lakers. The record does not disclose that these teams were either fungible or available."

2. Patent Infringement

***Trans-World Manufacturing Corp. v. Al Nyman & Sons, Inc.*, 750 F.2d 1552, 1568 (1984).**

Design Patent Infringement. In 1978, the defendant (Nyman) asked the plaintiff (Trans-World) to design display racks for the eyeglasses that the defendant sold. The plaintiff delivered to the defendant models of the display racks. Later, the plaintiff obtained design patents for these racks. Meanwhile, the defendant arranged for another firm to manufacture display racks based on the plaintiff's designs. The plaintiff claimed that the defendant's design patents were invalid. The plaintiff filed for two design patents for the racks in 1979 and the Patent Office issued the patents in 1980 and 1981. The plaintiff filed this suit in 1981. The trial judge refused to admit evidence of the defendant's profits on the sale of eyeglasses sold from the infringing display racks. Ultimately, that decision was irrelevant because the jury concluded that both patents were invalid. The appellate court, however, reversed the jury's decision on the patents' validity. Hence, the appellate court decided to issue an advisory opinion on the admissibility of the defendant's profits because the plaintiff would likely seek to introduce that evidence at the new trial. The appellate court noted that among the *Georgia-Pacific* factors, the jury should consider the infringer's "anticipated" profit from use of the patented invention and that "evidence of the infringer's actual profits generally is admissible as probative of his anticipated profits." Hence, the trial judge should admit this previously excluded evidence at the new trial, if offered.

***Fromson v. Western Litho Plate and Supply Co.,* 853 F.2d 1568, 1575 (1988).**
Patent Infringement. The plaintiff accused the defendant of violating its patent. Both parties appealed from the district court's decision. In discussing the proper damages measure, the appellate court stated that without evidence of an established royalty rate, the district court must create one based on "hypothetical negotiations between a willing licensor and a willing licensee." The court went on to state that this hypothetical negotiation "encompasses fantasy and flexibility; fantasy because it requires a court to imagine what warring parties would have agreed to as willing negotiators; flexibility because it speaks of negotiations as of the time infringement began, yet permits and often requires a court to look to events and facts that occurred thereafter and that could not have been known to or predicted by the hypothesized negotiators."

3. Damage to Property by Government

***The Board of Rapid Transit Railroad Commissioners of the City of New York,* 197 N.Y. 81, 90 N.E. 456 (1909).** The building of a subway caused damages to homes in Brooklyn, making them unfit for habitation for approximately 18 months. The court found that a railroad constructed beneath the street was a new burden, not contemplated by the original owner of the land when he agreed to devote the land to use as a street. As a result, the claimants were entitled to the full value of their property that was taken without deduction for benefits and also to just compensation for the injury done to the remainder. The commissioners must adapt the measure of damages to the actual injury. "It is the duty of the commissioners of appraisal to receive evidence relating to the condition of the properties down to the time of trial."

***Michigan State Highway Commission v. Davis,* 38 Mich. App. 674; 197 N.W.2d 71 (1972).**
For the purposes of highway construction, in 1968 the Highway Commission proposed to take portions of a parcel that would have severely limited the owners'

use of the remaining property. Two preliminary appraisals valued the damages at $62,200 and $78,000. The Highway Commission, however, did not complete the contracting process until May 1969. Moreover, in June 1969 the commission made changes to the plans, giving the owners access to their remaining property. A third appraisal made at this time valued the damages at $25,650. In the condemnation hearing, the trial court ruled that it would calculate damages as of the time of possession in 1968. The appellate court overruled the trial court's exclusion of the third appraisal, stating that "since we are dealing here not with the value of the property taken, but rather with the damage done to the residue as a result of the taking, we find no bar to the introduction of evidence bearing on those damages despite the fact that the evidence concerns facts occurring after the date of the taking."

4. Legal Malpractice

***Kilpatrick v. Wiley, Rein & Fielding,* 37 P.3d 1130, 1145 (2001).** The plaintiffs, who had formed MWT, Ltd., alleged that the defendants represented them from 1981 to 1991 in connection with their efforts to acquire a television station and that the defendants breached their fiduciary duties. The plaintiffs' expert presented two valuations of the television station, one as of 1987 and the other as of 1997, but for the alleged breaches of fidicuary duty. The defendants appealed the trial court's decision to allow the jury to measure the plaintiffs' damages "*either* from the date of defendants' alleged breaches of fiduciary duty or from the date almost a decade later when the case was ready for trial" (emphasis added). The appellate court disagreed and stated that, while measuring damages at the time of the breach is appropriate in some cases, "the general objective of tort law [is] to place an injured person in a position as nearly as possible to the position he would have occupied but for the defendant's tort" and that "the trial court is in the best position to determine what award of damages will make a plaintiff whole." As a result, the appellate court ruled that the trial court could use its discretion in deciding the date from which the jury would measure damages. The appellate court concluded that allowing the jury to hear evidence related to both dates "allowed the jury to come to a reasonable approximation of the damages the MWT, Ltd., limited partners actually incurred as a result of defendants' alleged breaches of fiduciary duty. Accordingly, the trial court's decision was within its permitted discretion."

NOTES

1. Here we ignore the state's vigorish in selling tickets. Because of the state's take from the proceeds before disbursing to the winners, the expected value of all legal lotteries of which we are aware is negative.
2. The statement of this approach appears in J. M. Patell, R. L. Weil, and M. A. Wolfson, "Accumulating Damages in Litigation: The Role of Uncertainty and Interest Rates," *Journal of Legal Studies* 11 (June 1982): 341 64.
3. In the case of continuing breach, such as patent infringement, the limiting case occurs when each period approaches zero length. (Recall the limit theorems and analysis of first-year calculus.) In that case, under suitable assumptions of continuity of damages

paths, the *ex ante* analysis and the *ex post* analysis will give the same result. The periods are so short that the before-the-fact analysis of each period becomes identical with the after-the-fact analysis of the preceding period.

4. Obviously, this approach merits a measure of common sense. At some point, this exercise becomes so complex that it becomes unfeasible.
5. The first showing of this result appears to be in Patell et al. (see n. 2). *See also* Chapter 15 in this book.
6. Franklin M. Fisher and Craig R. Romaine, "Janice Joplin's Yearbook and the Theory of Damages," *Journal of Accounting, Auditing and Finance* 5 (Winter 1990): 156 57.
7. Edward F. Sherry and David J. Teece, *Some Economic Aspects of Intellectual Property Damages*, Practicing Law Institute; Patents, Copyrights, Trademarks and Literary Property Course Handbook Series, PLI Order No. G0 007N, New York City, October 7 8, 1999, Section XI.
8. As stated earlier in the chapter, we assume that courts do not err. If the courts will assume that there is some chance of error, then they should divide the result by the probability of being found guilty.
9. *Sinclair Ref. Co. v. Jenkins Petroleum Co.*, 289 U.S. 689, 698 99, 53 S. Ct. 736, 77 L. Ed. 1449 (1933).
10. *Transit RR. Comm'rs.*, 197 N.Y. 81, 108, 90 N.E. 456, 465 (1909).
11. *Fishman et al. v. Estate of Arthur M. Wirtz et al.*, 807 F.2d 520 (7th Cir. 1986).
12. *Park v. El Paso Board of Realtors*, 764 F.2d 1053 (1985).
13. *Fromson v. Western Litho Plate & Supply Co.*, 853 F.2d 1586, 1575 76 (Fed. Cir. 1988).
14. *Jamesbury Corporation v. United States*, 207 USPQ 131 (US ClCt 1980).
15. *TWM Manufacturing Co., Inc. v. Dura Corp.*, 789 F.2d 895, 899 900 (Fed. Cir. 1986).
16. *Odetics, Inc. v. Storage Technology Corp.* (CAFC), 51 USPQ2d 1225 (1999).
17. Robert Goldscheider, "The Employment of Licensing Expertise in the Arena of Intellectual Property Litigation," *IDEA: Journal of Law and Technology* (1996).
18. *Story Parchment Co. v. Paterson Parchment Paper Co. et al.*, 282 U.S. 555, 51 S. Ct. 248 (1931).
19. *Fishman et al. v. Estate of Arthur M. Wirtz et al.*, 807 F.2d 520 (7th Cir. 1986).
20. *M & R Contractors & Builders, Inc. v. Michael et al.*, 215 Md. 340, 138 A.2d 350 (1958).
21. *Bigelow et al. v. RKO Radio Pictures, Inc., et al.*, 327 U.S. 251; 66 S. Ct. 574 (1946).
22. *Contemporary Mission, Inc. v. Famous Music Corp*, 557 F.2d 918 (1977).
23. *Indu Craft, Inc. v. Bank of Baroda*, 47 F.3d 490 (1995).
24. *Allison v. Chandler*, 11 Mich. 542, 550 56 (1863).
25. *Tull v. Gundersons, Inc.*, 709 P.2d 940, 945 (1985).

LIST OF CASES

A.C. Becken Co. v. Gemex Corporation, 314 F.2d 839, 840 (1963)

Allison v. Chandler, 11 Mich. 542, 550 56 (1863)

Bigelow et al. v. RKO Radio Pictures, Inc., et al., 327 U.S. 251; 66 S. Ct. 574 (1946)

Brushton-Moira Central School District v. Fred H. Thomas Associates, 91 N.Y.2d 256, 261 62; 692 N.E.2d 551, 553 54; 669 N.Y.S.2d 520, 522 23 (1998)

Contemporary Mission, Inc. v. Famous Music Corp., 557 F.2d 918 (1977)

Contractors & Builders, Inc. v. Michael et al., 215 Md. 340, 138 A.2d 350 (1958)

Fishman et al. v. Estate of Arthur M. Wirtz et al., 807 F.2d 520 (7th Cir. 1986)

Fromson v. Western Litho Plate and Supply Co., 853 F.2d 1568, 1575 (1988)

Indu Craft, Inc. v. Bank of Baroda, 47 F.3d 490 (1995)

Jamesbury Corporation v. United States, 207 USPQ 131 (US ClCt 1980)

Kelly v. Marx, 428 Mass. 877, 878; 705 N.E.2d 1114, 1115 (1999)

Kilpatrick v. Wiley, Rein & Fielding, 37 P.3d 1130, 1145 (2001)

Michigan State Highway Commission v. Davis, 38 Mich. App. 674; 197 N.W.2d 71 (1972)

M&R Contractors & Builders v. Michael, 215 MD. 340, 351; 138 A.2D 350, 356 (1958)

Odetics, Inc. v. Storage Technology Corp. (CAFC), 51 USPQ2d 1225 (1999)

Park v. El Paso Board of Realtors, 764 F.2d 1053, 1068 (1985)

Sharma v. Skaarup Ship Management Corporation, 916 F.2d 820, 825 26 (1990)

Sinclair Ref. Co. v. Jenkins Petroleum Co., 289 U.S. 689, 698 99, 53 S. Ct. 736, 77 L. Ed. 1449 (1933)

Story Parchment Co. v. Paterson Parchment Paper Co. et al., 282 U.S. 555, 51 S. Ct. 248 (1931)

The Board of Rapid Transit Railroad Commissioners of the City of New York, 197 NY 81, 90 NE 456 (1909)

Transit RR. Comm'rs., 197 N.Y. 81, 108, 90 N.E. 456, 465 (1909)

Trans-World Manufacturing Corp. v. Al Nyman & Sons, Inc., 750 F.2d 1552, 1568 (1984)

Tull v. Gundersons, Inc., 709 P.2d 940, 945 (1985)

TWM Manufacturing Co., Inc. v. Dura Corp., 789 F.2d 895, 899 900 (Fed. Cir. 1986)

REFERENCES

Adams, Edward S., and David E. Runkle. "Solving a Profound Flaw in Fraud-on-the-Market Theory: Utilizing a Derivative of Arbitrage Pricing Theory to Measure Rule 10B-5 Damages." *University of Pennsylvania Law Review* (May 1997): 1097 145.

Ben-Shahar, Omri, and Lisa Bernstein. "The Secrecy Interest in Contract Law." *Yale Law Journal* (June 2000): 1885 925.

Bonsack, Konrad. "Damages Assessment, Janis Joplin's Yearbook, and the Pie-Powder Court." *George Mason University Law Review* 13 (Fall 1990): 1 26.

Fisher, Franklin M., and R. Craig Romaine. "Janis Joplin's Yearbook and the Theory of Damages." *Journal of Accounting, Auditing and Finance* 5 (Winter 1990): 145 57.

Kabe, Elo R., and Brian L Blonder. 1999. "Discounting Concepts and Damages (New)." In *Litigation Services Handbook, 1999 Supplement to the 2nd Edition*. Hoboken, NJ: John Wiley & Sons, pp. 325 54.

Kolaski, Kenneth M., and Mark Kuga. "Measuring Commercial Damages Via Lost Profits or Loss of Business Value: Are These Measures Redundant or Distinguishable?" *Journal of Law and Commerce* (Fall 1998): 1 354.

Lanzillotti, R. F., and A. K Esquibel. "Measuring Damages in Commercial Litigation: Present Value of Lost Opportunities." *Journal of Accounting, Auditing and Finance* 5 (Winter 1990): 125 44.

MacIntosh, Jeffrey G., and David C. Frydenlund. "An Investment Approach to a Theory of Contract Mitigation." *University of Toronto Law Journal* Spring (May 1987): 113 82.

Patell, James M., Roman L. Weil, and Mark A. Wolfson. "Accumulating Damages in Litigation: The Roles of Uncertainty and Interest Rates." *Journal of Legal Studies* 11 (June 1982): 341 64.

Phillips, John R. "The Rite Way to Discount Damages." Putnam, Hayes & Bartlett, Inc.

Scott, Robert E. "The Case for Market Damages: Revisiting the Lost Profits Puzzle." *University of Chicago Law Review* 57 (Fall 1990): 1155 202.

Taurman, John D., and Jeffrey C. Bodington. "Measuring Damage to a Firm's Profitability: *Ex Ante* or *"Ex Post"*?" *Antitrust Bulletin* 37 (Spring 1992): 57 106.

Tye, William B., and Stephen H. Kalos. "Antitrust Damages From Lost Opportunities." *Antitrust Bulletin* (Fall 1996).