The reader should be aware that I served as the financial markets expert witness for the defendants in the Thane litigation. I would like to thank John Haut, Chris Noe, Stephen O’Neil and Narinder Walia of Charles River Associates for helpful comments on earlier drafts of this paper.
Abstract

The recent Ninth Circuit decision in *Miller v. Thane International, Inc.* is a significant innovation that brings legal precedent regarding market efficiency more in line with current thinking in financial economics. Prior to *Thane* there was a tendency for courts to view financial markets as being either efficient or not. This is contrary to academic thinking in finance where scholars have come to accept that financial markets can never be fully efficient or completely inefficient. Instead financial markets, like physical systems, are better thought of as evidencing relative degrees of efficiency. By reaching the conclusion that the hurdle for assessing efficiency depends on the particular legal issue at hand, the Ninth Circuit appropriately adopts the concept of relative efficiency.
Since the inception of the fraud on the market doctrine, which facilitates class actions by creating a rebuttable presumption that class members relied upon the integrity of the security’s market price in making their investment decisions, the efficient market hypothesis has played a critical role in securities litigation.\(^1\) As research in financial economics has progressed, the concept of market efficiency in the academic finance literature has become more rich and nuanced. Courts, however, have been relatively slow to adopt this newer academic interpretation. In that regard, the recent decision in \textit{Miller v. Thane International, Inc.} is a significant innovation that brings legal precedent more in line with current research in finance. The point of this short paper is to explain how. To do so, I begin by first reviewing briefly the history of the \textit{Thane} litigation. I then turn to the question of how the concept of market efficiency has evolved in the academic finance literature. The final section explains how the \textit{Thane} decision incorporates academic thinking and, thereby, promotes a more balanced application of the concept of market efficiency in securities litigation.

\textit{The Thane Litigation History}

The following description of the facts and the history of the \textit{Thane} litigation is taken largely from the appellate decision. In November 2001, defendant Thane International, Inc. (\textquotedblleft Thane\textquotedblright), a company that markets consumer products through home shopping channels, infomercials, and other similar means, and Reliant Interactive Media Corp. (\textquotedblleft Reliant\textquotedblright) agreed to merge. The merger agreement provided for Reliant shareholders to receive shares

of Thane for their shares of Reliant. The “imputed merger price”—the value of Reliant stock each Reliant shareholder exchanged for each Thane share—was approximately $7.00. The prospectus Thane filed with the Securities and Exchange Commission (“SEC”) stated that Thane stock, which had not been publicly traded previously, was “approved for quotation and trading on the NASDAQ National Market upon completion of the merger, subject to Thane’s compliance with the minimum bid price requirements of $5.00 per share.” Miller v. Thane International, Inc., 2010 U.S. App. LEXIS 16435, 16438.

Nevertheless, after the merger was consummated on May 24, 2002, Thane shares commenced trading on the Over-the-Counter Bulletin Board (“OTCBB”) instead of the NASDAQ National Market System (“NMS”). For purposes of my discussion, I assume that the imputed merger price based on the exchange ratio and the price per share of Reliant stock at the time the merger closed incorporated the market’s expectation that Thane would list on the NMS after the merger was consummated. From a legal standpoint, this represents the value received by shareholders if the representations in Thane’s prospectus are taken to be true and also represents the maximum amount by which shareholders can be damaged under Section 12(a)(2).²

In the nineteen days (twelve trading days) between May 24 and June 11, 2002, Thane’s shares traded between $7.00 and $8.50, a range which was above the merger price that Reliant shareholders had paid. On June 24, 2002, however, the stock closed at $6.00. The next day Thane reported disappointing earnings for the fiscal year, and the stock closed

² Under Section 12(a)(2), a damaged shareholder may recover the difference between the value of the amount paid for the security (in this case the imputed merger price) and the amount for which the security was sold, adjusted for other factors which can be shown to have contributed to the loss. See 15 U.S.C. § 77l(a)(2). According to WEX of Cornell University School of Law’s Legal Information Institute, court holdings imply that purchasers in the secondary market cannot recover under Section 12(a)(2), but this point has not yet been settled. <http://topics.law.cornell.edu/wex/securities_act_of_1933> accessed August 16, 2010.
at $5.25. It soon thereafter dropped below $5.00, never to rise again above that minimum price required for initial listing on the NMS. In February 2004, Thane bought out existing shareholders at a price of $0.35 per share.

In September 2002, a class of individual Reliant investors who acquired shares of Thane in the merger (“investors”) filed suit against Thane and four of its executives in federal district court, alleging violation of section 12(a)(2) of the Securities Act of 1933, 15 U.S.C. § 77l(a)(2), and control person liability under section 15 of the Securities Act of 1933, Id. at § 77o, and seeking rescission of the merger, recovery of damages, and fees. Specifically, the investors alleged that Thane’s pre-merger prospectus contained materially misleading representations because it implied that Thane shares would list on the NMS.

After certifying the investors’ class and conducting a three-day bench trial, the District Court held that the Thane defendants did not violate section 12(a)(2). Miller v. Thane Int’l, Inc., 372 F. Supp. 2d 1198 (C.D. Cal. 2005). The Court found that the prospectus did not contain misleading representations, Id. at 1205-06, and that even if it did, any misleading representations were not material because Thane’s stock price did not depreciate below the merger price after the market became aware of the truth, Id. at 1208-11.

In a prior appeal, the Ninth Circuit reversed, ruling that the District Court clearly erred. Miller, 519 F.3d at 892 (“Miller I”). In the view of the appellate court, the prospectus contained statements that, although literally true, constituted misleading representations regarding where Thane stock would list. Id. at 885-88. Moreover, the Court held that those representations were material because a reasonable investor would have wanted to know that Thane stock would be listed on the OTCBB instead of the NMS in light of the advantages
associated with the latter market. Id. at 888. Even though there were materially misleading representations, however, the Court recognized that Thane could still prevail by establishing the affirmative defense of lack of loss causation. See 15 U.S.C. § 77l(b). “Without expressing any opinion as to the strength of [Thane’s] argument,” the Ninth Circuit “remand[ed] to the district court to address the issue of loss causation in the first instance,” and to conduct other proceedings as appropriate. Miller I, 519 F.3d at 892-93.

On remand, the District Court granted Thane’s Motion for Judgment on Loss Causation. The District Court observed that there could be no loss as long as Thane’s stock price remained at or above the price of $7.00 that the investors had paid for the stock in the merger and that, consequently, there could be no loss causation if the stock price did not drop below $7.00 after reacting to the failure to list on the NMS. The stock remained at or above that price for nineteen days. Accordingly, the District Court focused on whether the stock price “impounded,” i.e., absorbed, the non-listing on NMS in this nineteen-day period. It held that Thane had carried its burden to show that the stock did so. In response to this decision, the investor class filed a second appeal.

The Evolution of the Concept of Market Efficiency

The efficient market hypothesis is one of the cornerstones of modern finance. As originally defined by Eugene Fama in his classic review article which summarized prior research on this subject, an efficient market is one in which the price of a security reflects all publicly available information related to the value of that security.3 The hypothesis that the

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3 Eugene F. Fama, 1970, “Efficient Capital Markets: A Review of Theory and Empirical Work,” Journal of Finance, 25, 269-282. To be precise, Professor Fama defined three forms of market efficiency. The strong form, the semi-strong form and the weak form. The strong form holds that market prices of securities reflect all available information, whether public or not. The semi-strong form holds that prices reflect all publicly
stock market is efficient was immediately controversial when it was first articulated in the mid-1960’s because if market prices reflect all publicly available information, then professional investors and money managers would not be able to find undervalued securities. As a result, the hypothesis was a clear threat to the investment management industry. The controversy that ensued launched a wave of research on market efficiency. The general finding of this early research, of which Michael Jensen’s work on mutual funds is one of the most prominent examples, was that the hypothesis of market efficiency could not be rejected at conventional levels of significance. However, failure to reject is not the same as acceptance of a hypothesis. If the tests are not sufficiently powerful, they may fail to uncover various types of inefficiency.

As the empirical research became more specialized and sophisticated, evidence of potential inefficiencies began to accumulate. In recent years, that evidence has grown to the point where an entire sub-field of behavioral finance has blossomed. There are now hundreds of papers documenting pricing anomalies of one type or another, even for the most actively traded common stocks.

At the same time that more sophisticated empirical tests were being developed, theoretical research was also questioning the efficient market hypothesis. Most notably, work by Grossman and Stiglitz (1980) and Cornell and Roll (1981) reached the conclusion

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available information. The weak form holds that prices only reflect information related to the trading history of securities. Both the strong and the weak form have become historical footnotes. The efficient market hypothesis as commonly understood is Professor Fama’s semi-strong form.

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that markets could never be efficient in economic equilibrium.\textsuperscript{5} The reason for this is straightforward. If market prices reflect all publicly available information, then investors have no incentive to engage in research to find undervalued securities because there are none. But if investors fail to do research, there is no mechanism by which prices are driven to fair value. Therefore, prices will diverge from fair value and market inefficiencies will arise. The solution to this dilemma is that markets must be sufficiently inefficient in equilibrium that sophisticated investors can earn a fair rate of return on the time and effort they put into investment research. Markets can never be completely efficient.

At the other extreme, it is even hard to know what is meant by a completely inefficient market. Given Fama’s definition, a completely inefficient market would be one in which there was no relation between price and value. The concept of such a completely inefficient market is nonsensical. Markets exist because price is an effective tool for rationing resources. If price had no relation to value, the rationing process would breakdown entirely and the market would collapse. Accordingly, even the most inefficient markets are likely to exhibit a good deal of efficiency in that price is a reasonable, if not perfect, estimator of value. For example, although the used car market may not be perfectly efficient, there is clearly a relation between price and value. Porsches do not sell for less than Ford Pintos of the same vintage and state of repair.

The upshot of this line of empirical and theoretical research in finance is that it makes little sense to speak of a market as efficient or not in a binary sense. The more appropriate concept is one of relative efficiency. That concept is aptly illustrated by an

analogy offered by Campbell, Lo and MacKinlay.\textsuperscript{6} The authors note that physical systems are often given an efficiency rating based on the proportion of fuel converted to useful work. For instance, a piston engine may be rated at 60% efficiency, meaning that 60% of the energy in the fuel is converted to useful work while the other 40% is lost.\textsuperscript{7} Recognizing this, engineers never consider testing whether or not a particular system is perfectly efficient because they know that is impossible. Instead, they focus their efforts on measuring relative efficiency. Financial economists now think of markets in the same way as properly characterized by their relative efficiency. There are no perfectly efficient or completely inefficient markets.

At a practical level, there are a variety of ways in which relative efficiency could be assessed. One is to measure the speed of the response of security prices to information. Research in finance has shown that security prices respond quickly, but not instantaneously, to new information.\textsuperscript{8} Presumably, a security that trades in a more efficient market responds more quickly to new information. Similarly, more efficient markets should respond to more obscure news. The prices of virtually all stocks respond to major public announcements, such as large earnings surprises, but details on the operation of special purpose vehicles or the company’s pension obligations may escape investor notice in less efficient markets.

Whereas the speed of reaction to news and the type of news to which a security responds are direct measures of relative efficiency, there are indirect measures as well. For example, the volume of trading is often used to assess efficiency even though it provides no


\textsuperscript{7} \textit{Id.} at 24.

direct evidence on how price responds to information. The same is true of the extent of analyst coverage. Indirect measures are helpful because generally they can be observed directly without having to perform a sophisticated study. The five factors that the Court considered in Cammer v. Bloom, 711 F.Supp 1264 (1989), discussed further in the next section, are an example. The Cammer factors are (1) the stock’s trading volume; (2) the number of analysts that followed and reported on the stock; (3) the number of market makers; (4) the eligibility to file an S-3 Registration Statement; and (5) the reaction of the stock price on unexpected new events. Id. at 1286-87. Only the fifth factor is a direct measure of efficiency that requires a financial economic study to assess. The Cammer factors can be interpreted as providing a benchmark for measuring relative efficiency. It is reasonable to conclude that a stock which satisfies the Cammer criteria trades in a market that is more efficient than a stock which fails to satisfy the criteria. It should be noted that the Thane Court did not overturn the requirement of Cammer efficiency in order to certify a plaintiff class in an action brought under Rule 10b-5. Consequently, relative market efficiency would not be an issue in Rule 10b-5 actions where a class has been certified because the market for the stock in question has satisfied the higher Cammer standards for market efficiency.

In the context of litigation, relative efficiency has the benefit that it eliminates the misleading notion that a market is either efficient on inefficient. It follows that the relevant question for the law is not whether the market is efficient or inefficient, but what level of efficiency is required in a particular legal context. That is the question on which the Thane decision rightly focuses. Although the Court in Thane does not fully adopt the concept of
relative efficiency advocated by Campbell, Lo and MacKinlay, it moves a long way in that
direction and, thereby, brings legal precedent into closer alignment with financial research.

The Thane Decision and Relative Market Efficiency

The fundamental question that the appellate Court in Thane faced was “whether stock price evidence may be used in a loss causation assessment when the market for a stock is not Cammer-level efficient.” 2010 U.S. App. LEXIS at 16446. [emphasis added] In referring to Cammer-level efficiency, the Court is clearly opening the door to the notion of relative efficiency. The Court then goes on to conclude that, “The absence of Cammer efficiency does not mean that prices are unreliable.” Ibid. [emphasis added] This is also consistent with the concept of relative efficiency. The reliability of prices is not a yes or no question that can be answered in the abstract. It requires both factual context and an appropriate benchmark. The Court is concluding that the benchmark set by Cammer is not necessarily applicable in contexts other than that considered by the Cammer court. In particular, it may not apply when the question is loss causation.

Despite taking important steps to implement the concept of relative efficiency, the Court in Thane does confuse the issue somewhat by referring repeatedly to an “inefficient” market. For example, the Court says, “We did not comment on the reliability of Thane’s stock prices, other than to state what is undisputed, namely, that the stock traded in an inefficient market.” 2010 U.S. App. LEXIS at 16444 [emphasis added]. From the perspective of modern finance, such language is difficult to interpret because an “inefficient” market is never precisely defined. It would be more appropriate to say that the
stock traded in a market that was not sufficiently efficient to satisfy the *Cammer* criteria. Later in the decision the Court takes exactly this approach.

Focusing on relative efficiency is important because it avoids the apparent paradox that arises by saying that the stock traded in an inefficient market but that the market price still impounded the information that Thane was listed on the OTCBB instead of the NMS. In terms of relative efficiency that combination of facts makes perfect sense. Although the market for Thane’s stock was not sufficiently efficient to meet the *Cammer* criteria, it was sufficiently efficient to impound the obvious information related to where the stock was traded. The same interpretation in terms of relative efficiency elucidates the Court’s statement that, “*we reject a per se rule that it is inappropriate to rely on stock prices in an inefficient market to determine loss causation.*” *Id.* at 16448 [emphasis added]. If the market were totally inefficient, in that price had no relation to value, such reliance would be inappropriate, but that is not what the court has in mind. The context makes it clear that the judges are thinking of a market that fails to reach *Cammer* efficiency, but in which price still reflects, though perhaps imperfectly or with a lag, obvious information. This is a question of relative efficiency which must be assessed in terms of the appropriate benchmark. The *Cammer* factors are one such benchmark. Another is the ability of the market to impound information regarding the location of listing. Which is appropriate in what context is a legal question.

Reasoning using relative efficiency, though not precisely identified as such, allows the Court to conclude that loss causation can be established even in a market that fails the *Cammer* test. More specifically, the Court states that,

*Cammer efficiency, by definition, exists when the release of financial information results in an “immediate response” by the market. Cammer,*
711 F. Supp. at 1287. But an immediate response is not required for loss causation. Rather, the loss causation inquiry requires only a full response to the misrepresentation – one that is enough to assess whether the misrepresentation caused the plaintiffs’ loss. Significantly, a full response may occur in a market that is not Cammer efficient because ‘even an ‘inefficient’ market price is objective and contemporaneous with events,’ ‘changing in response to news, including statements by the [principals].’ Eckstein v. Balcor Film Investors, 8 F.3d 1121, 1130 (7th Cir. 1993).” 2010 U.S. App LEXIS at 16446 [emphasis added].

In the foregoing, the Eckstein Court was wise to put the word “inefficient” in quotation marks. The issue is not inefficiency per se, but a level of efficiency lower than that necessary to meet the Cammer benchmark. When considered in its entirety, the Court’s holding clearly distinguishes levels of efficiency requiring differing benchmarks depending upon the legal circumstances.

As further evidence of its adoption of relative efficiency, the Court goes on to observe that the Cammer hurdle for efficiency was specifically designed to be a high one, higher than required for loss causation. More specifically, the Court says, (“Because this inquiry can prove decisive for class certification, and because, given the realities of litigation costs, certification can compel settlements without trial, courts have frequently applied rigorous, though preliminary, standards of proof to the market efficiency determination.”) The Cammer test’s high bar is one such rigorous standard. But the same high bar is inappropriate to determine loss causation, where due concerns regarding class certification do not exist. Id. at 16447. [emphasis added]. This holding clearly, and correctly, contemplates differing levels of relative efficiency that are applicable in different contexts.

In conclusion, the idea that markets are either efficient or inefficient is one that finance scholars rejected more than thirty years ago in favor of the concept of relative
efficiency. Despite this, securities law has often treated market efficiency as a yes-or-no question. Such a dichotomy makes legal decisions difficult to reconcile with the actual behavior of markets. By adopting a standard of relative efficiency, the Court in *Thane* properly recognizes that the question of efficiency is relative and contextual. That is, courts should ask not whether a market is efficient or inefficient, but whether it is sufficiently efficient, as judged by a proper benchmark, to address the particular legal question at issue. For example, as the Thane Court concluded, the efficiency benchmark for class certification differs from that for loss causation.