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What A Solar Eclipse Has To Do With Market Efficiency

By **Daniel Bettencourt and Steven Feinstein** (November 17, 2017, 11:28 AM EST)

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On Nov. 6, 2017, the United States Court of Appeals for the Second Circuit issued an opinion in Strougo v. Barclays PLC, upholding the district court's certification of the investor class despite purported deficiencies in the plaintiffs' empirical test of market efficiency.[1] The appeals court ruled that the fifth Cammer factor, the direct or empirical factor, "is not always necessary to establish market efficiency." We believe the appeals court got it right. While the empirical factor, examined via an event study, is a powerful tool for demonstrating market efficiency or detecting inefficiency, it has its limitations. While the empirical factor is unique in that it can provide direct evidence of market efficiency or inefficiency, whereas other factors are indirect indicators, the empirical factor also has a unique limitation, as explained herein.

The battle for class certification in Section 10(b)-5 securities class actions often involves a debate over whether plaintiffs have sufficiently proved that the subject security traded in an efficient market. In numerous recent cases, defendants have tried to defeat class certification not by arguing that the market was inefficient, but instead by arguing that plaintiffs have not provided sufficient evidence of efficiency. Examples of such cases include In re Petrobras Securities Litigation (14-cv-9662-JSR), In Re Groupon Inc. Securities Litigation (12-CV-2450) and Strougo v. Barclays PLC (14-cv-05797). While Petrobras and Barclays are still being litigated, the respective courts in all three cases did certify the classes, finding that plaintiffs satisfied their burden with respect to market efficiency. On Nov. 1, 2017, the Petrobras defendants petitioned the U.S. Supreme Court for review.[2]

In order to satisfy the requirement of predominance with respect to reliance in securities class actions, plaintiffs generally seek to invoke the fraud-on-the-market doctrine, which was established by the Supreme Court in Basic v. Levinson.[3] This doctrine holds that if the market in which a security trades is an efficient market, then the market price will reflect alleged misrepresentations and omissions, just as the price reflects all material public information. Therefore, because all investors rely on the market price for transaction and investment decisions (even those who do not believe the market is efficient), all investors commonly rely on any false or misleading statements and omissions as well. Consequently, proving market efficiency is an important step in gaining class certification.

The court in Halliburton II clarified that the type of market efficiency that is necessary for the doctrine to hold is informational efficiency, not fundamental efficiency, reiterating the Basic court's opinion that the fraud-on-the-market doctrine is the "fairly modest premise that 'market professionals generally consider most publicly announced material statements about companies, thereby affecting stock market prices.'"[4] Informational efficiency means that a market is sufficiently well-developed such that material public information is not ignored, but rather disseminated, digested and traded upon, so that market prices reflect the information. Fundamental efficiency, by contrast, means that the prevailing market price must conform, at all times, to the valuation dictated by a particular investor's or analyst's fundamental valuation model. The court in Halliburton II also acknowledged the current understanding in financial economics that there are degrees of market efficiency. The idea of a perfectly efficient market, in which market prices always instantaneously respond fully to new information, is an unrealistic standard. Financial economists recognize that human beings

sometimes require some time to fully digest unexpected, complex and/or unusual information, even in an efficient market.

In Rule 10b-5 securities cases, plaintiffs' experts typically assess market efficiency by examining a market's structural characteristics using what is referred to as the first four Cammer and the three Krogman factors. These factors are trading volume, analyst coverage, the number of market makers and/or a listing on an exchange, eligibility for S-3 registration, market capitalization (the total value of the company's outstanding equity), float (the portion of market capitalization not held by insiders), and the security's bid-ask spread. These factors indicate whether the types of impediments that could lead to inefficiency are present. The greater the number of these factors that are satisfied, and the greater degree to which they are satisfied, the less likely it is that investors will ignore news related to the subject security or will be unable to trade, making it increasingly more likely than not that the subject security trades in an efficient market.

The Cammer court also considered a fifth factor, which the court described as "one of the most convincing ways to demonstrate efficiency." The fifth Cammer factor is "empirical evidence of a cause-and-effect relationship between company disclosures and resulting movements in stock price." While all of the Cammer and Krogman factors are empirical, this cause-and-effect factor has been called the empirical factor, owing to its use of formal statistical testing of observed price movements. The empirical factor has special importance because it provides direct evidence of the market behaving efficiently, whereas the other factors, the indirect factors, indicate that conditions are such that the market is far more likely than not to be efficient. However, while it is a unique factor with special importance, recent court decisions have acknowledged that the empirical factor is not necessarily the most important factor, and may not even be required to establish market efficiency. For example, the court in the Petrobras matter noted that "the indirect factors overwhelmingly describe a large and well-functioning market for Petrobras securities, common sense suggests that the market would materially react to material disclosures."[5] In Strougo v. Barclays, the district court noted that "indirect evidence of market efficiency — including that a stock trades in high volumes on a large national market and is followed by a large number of analysts — will typically be sufficient to satisfy the Basic presumption on class certification."[6] The Second Circuit Court of Appeals affirmed the district court's decisions in both Petrobras and Barclays.

Nonetheless, the most fiercely debated factor is the empirical factor, possibly because there is usually little dispute regarding the first four Cammer factors and the three Krogman factors.

Finance experts typically have performed event studies to determine whether the empirical factor is satisfied — that is, whether observed price data support a finding that there is a cause-and-effect relationship between information and price movements. Nobel laureate Eugene Fama noted, "[t]he cleanest evidence on market efficiency comes from event studies."[7] Notwithstanding that the evidence from an event study is clean, the event study methodology is often subjected to vigorous attack by defendants seeking to defeat class certification.

An integral step in conducting a market efficiency event study is the identification of suitable events to test. Appropriate candidate events are those on which information was released that is new, unexpected, valuation-relevant, and are of such import as reasonably to be expected to elicit stock price reactions exceeding the threshold for statistical significance. Tested events should be big news events, which, on the basis of valuation principles and the nature of the news, ought to elicit large, statistically significant security price movements. If instead one were to select events on which news transpired that reasonably would not cause a large, significant, security price reaction, the usefulness of the event study for testing market efficiency would be weakened. Should a modest or muted news event be selected, a nonsignificant security price reaction can either be due to market inefficiency, or alternatively, may be the appropriate efficient security price reaction to the modestly impactful news. When lesser news events are tested, the results from a traditional event study generally may not be able to distinguish an efficient market from an inefficient one.

It is not uncommon for there to be few ideal event candidates over the course of a proposed class period, as a variety of factors may lessen the valuation impact of an announcement or event. Countervailing confounding news is one example. Negative news released simultaneously with unrelated positive news will diminish the net valuation impact of the mixed information release. Sometimes, a company has intentionally managed disclosures so that the market learns of a negative development slowly over time, perhaps from several disparate sources, resulting in no

single significant stock price reaction. Misrepresentations and omissions that are designed to conceal adverse developments may avert significant security price declines and thereby eliminate potential event study events. When management's intention is to make a company's performance appear uneventful, it should be no surprise that there are few events for the forensic analyst to test.

Moreover, some businesses are predictable and stable by their very nature, and produce few, if any, good candidate events for testing market efficiency. Testing bonds and preferred stocks for market efficiency can be particularly challenging, as these securities are designed to be stable and insulated from routine company ups and downs. For all these reasons, among others, it is not uncommon for there to be only a handful, or even only one, if any, appropriate event(s) for a market efficiency event study over a proposed class period.

An event study is an observational experiment, but the availability of appropriate dates to observe is not in the hands of the analyst. The forensic analyst can search for dates on which new, unexpected, relatively unconfounded, highly valuation-relevant information arrived in the marketplace, but he or she cannot create such events.

A common criticism from defense experts and attorneys is that when only one, or a few, event(s) are tested, the number of events is insufficient and the results cannot generalize to the efficiency of the entire class period. They argue that positive event study results prove the market efficient only on the event dates tested, and the market may be inefficient on all other days.

Enter Albert Einstein. By 1915, Albert Einstein had published a series of papers that laid out his general theory of relativity. Unlike in Newtonian physics, Einstein's theory holds that space, time and the path of light are warped by the mass of large celestial bodies. An implication of Einstein's theory is that light from distant stars, as it passes the sun, would be warped by the sun's mass, such that the positions of those stars in the sky to an earthbound observer would appear to differ from their expected positions. While today Einstein's theory is lauded as one of the most important breakthroughs in the history of physics, at the time his papers were published, it was controversial as it lacked the empirical support necessary to gain greater acceptance. Given the available tools of the time, Einstein's hypothesis about the bent path of starlight could not be tested on ordinary days, as bright sunlight made it impossible to observe the faint light of distant stars as it passed near the sun during the day.

On May 29, 1919, a total solar eclipse occurred which was later referred to as "probably the most important eclipse in the history of science."[8] The eclipse made it possible to test Einstein's theory. That day, from an island off the coast of Africa and a city in Brazil, as the moon blocked the sun and distant stars became visible during the day, scientists observed that the positions of the stars were impacted precisely as Einstein had predicted according to his general theory of relativity.

Does that mean that the general theory of relativity holds only during total solar eclipses? No. Just because the theory could only be tested on a particular day (or handful of days) does not invalidate that the properties set forth by the theory hold on all other days as well.

When an event study demonstrates that a market does not ignore new material information, does that prove that the market was efficient only on the date(s) tested in the event study? Similarly, no. Unless there is some evidence that the infrastructure of the market has changed dramatically, which can be ascertained by examination of the indirect Cammer and Krogman factors, the event study conducted on appropriate events proves the market efficient generally. To posit otherwise defies reason and logic.

One may not necessarily be able to test market efficiency on all days during a particular period of time. However, that does not disprove the proposition or imply that market efficiency only holds on days amenable to testing. Proof on an appropriate event date that a market is sufficiently developed so there are no impediments preventing information from being disseminated, processed, traded upon and reflected in the market price is generalizable to dates beyond the date of the experiment.

Indisputably important events expected to have large valuation impacts provide the strongest evidence that a market does or does not incorporate new material information into the price of a security, such that the market for a security can be deemed efficient or inefficient. However, whether there are few or many appropriate events is beyond the control of the analyst. When testing market

efficiency with a traditional event study, the forensic analyst must find his or her total eclipse.

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DISCLOSURE: Crowninshield Financial Research was retained by the plaintiffs' counsel in the Petrobras Securities Litigation (14-cv-9662-JSR) and Groupon Inc. Securities Litigation (12-CV-2450) cases discussed in this article.

[1] Strougo et al. v. Barclays PLC et al., case number 16-1912, in the U.S. Court of Appeals for the Second Circuit, Opinion, dated Nov. 6, 2017.

[2] In re Petrobras Securities Litigation, Petition for a Writ of Certiorari, dated Nov. 1, 2017.

[3] Basic Inc. v. Levinson, 485 U.S. 224, 108 S. Ct. 978.

[4] Halliburton Co. v. Erica P. John Fund, Inc. ("Halliburton II"), 134 S. Ct. 2398, 2411.

[5] In re Petrobras Securities Litigation, 312 F.R.D. 354, 367 (S.D.N.Y. 2016).

[6] Strougo et al v. Barclays PLC, 312 F.R.D. 307, 322 (S.D.N.Y. 2016).

[7] "Efficient Capital Markets II," by Eugene F. Fama, Journal of Finance, 1991, p. 1607.

[8] http://www.esa.int/Our_Activities/Space_Science/Relativity_and_the_1919_eclipse

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