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## Measuring Securities Market Efficiency in the Regulatory Setting

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# MEASURING SECURITIES MARKET EFFICIENCY IN THE REGULATORY SETTING

RANDALL S. THOMAS\* AND JAMES F. COTTER\*\*

## I

### INTRODUCTION

In November 1998, the Securities and Exchange Commission (“SEC”) proposed a modification to the federal securities law disclosure requirements to facilitate the process of issuing new securities. In a massive document, nicknamed the Aircraft Carrier,<sup>1</sup> the SEC sought public comments on a variety of proposed changes to the federal securities laws that were designed to minimize the cost and delays associated with issuing securities, while continuing to provide the public with the information that it needed to make investment decisions. Although the public comment period on these proposals has passed without any apparent action by the SEC, the policy questions raised by the Aircraft Carrier continue to be important ones.

This article addresses one of the key issues that the Aircraft Carrier raised: How can we determine when companies should be able to issue simplified disclosure documents? In this proposed regulatory regime, the SEC suggested the use of a simplified registration statement, Form B, for larger, more experienced issuers, while other companies would continue to make traditional extensive disclosures using Form A whenever they sell securities to the public.<sup>2</sup> The SEC’s proposal would have limited Form B disclosure to firms who had a public float greater than \$250 million, or had a combination of \$75 million in public float *and* average daily trading volume (“ADTV”) greater than \$1 million.<sup>3</sup>

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1. Securities Act Release No. 7606A, 63 Fed. Reg. 67,174 (Dec. 4, 1998) [hereinafter Aircraft Carrier].

2. *See id.* at 58-60.

3. Public float is the aggregate market value (price times number of shares) of the issuer’s outstanding voting and non-voting common equity held by non-affiliates of the issuer. *See id.* at 58 n.78. While similar to market capitalization (price times shares outstanding), float excludes shares owned by affiliates of the company that are not readily available for investment by institutional or small investors. For calculating ADTV for purposes of Form B, “issuers would be required to measure their ADTV during the three full calendar months (or any 90 consecutive calendar days ending within 10 calendar days) immediately preceding the filing of the registration statement.” *Id.* at 59.

Similar to the way that the short form and shelf registration systems introduced by the SEC in the early 1980s allowed companies to take their securities to market more efficiently and quickly, the proposed Form B disclosure rules were intended to decrease the amount of time and to lower the cost associated with selling a company's securities. The theoretical basis for permitting simplified disclosure for some companies, but not for others, rests on the efficient capital markets hypothesis. This theory postulates that the market for a company's securities can be said to be efficient if, for a specific set of information, the security's market price is the same as it would be if all investors possessed this information.<sup>4</sup> Securities that trade in efficient markets have rapid price adjustments to new information, whereas those in inefficient markets do not. Today, it is well accepted that the efficient capital markets hypothesis constitutes the theoretical underpinning for the federal securities laws disclosure policy.<sup>5</sup>

The SEC's premise in the Aircraft Carrier proposals was that companies whose shares are traded in an efficient capital market should be permitted to file simplified registration statements that incorporate by reference many of their other federal securities law filings.<sup>6</sup> While we agree with this fundamental premise, we believe that the regulatory criteria that the SEC proposed for issuers to be eligible to file on the new Form B failed to capture market efficiency adequately. In this article, we argue that the SEC's study of the underlying factors that lead to capital market efficiency—which uses analyst following for a company's stock as a proxy for market efficiency—employed too broad a definition of what constitutes an “analyst” for purposes of measuring market efficiency. We also believe that the SEC failed to consider other important available proxies for market efficiency, particularly the level of institutional investors' stock ownership in these companies.

When we adjust the definition of analyst to reflect more accurately only those analysts whose research effectively disseminates information to investors in the market, we find that the proposed numerical cutoffs for the use of Form B were set much too low. This conclusion is confirmed when we examine the

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4. Financial economists and legal scholars use different measures or methods to judge the efficiency of financial markets. See Eugene F. Fama II, *Efficient Capital Markets*, 46 J. FIN. 1575 (1991). Financial economists are generally more focused on the financial ramifications of the disclosed information, and as such focus on the speed at which security markets incorporate information into the value of a security. Therefore, an efficient market would be one that quickly incorporates a value-relevant information release (for example, the announcement of a takeover where the target firm is being acquired at a significant premium over the pre-takeover price). If information is incorporated slowly, some investors who have not incorporated the revelation of a takeover, for instance, would be adversely affected in favor of others who have. Legal scholars, on the other hand, focus on the magnitude of the response, and view an efficient market as one that correctly values information so that security prices do not over- or under-shoot the correct price. In this instance, legal scholars view an efficient market as one that correctly incorporates the information on security prices. In this article, we focus on the legal or informational efficiency that would be measured by the extent to which information is communicated to the relevant investment community by sell-side security analysts.

5. See Ronald J. Gilson & Reinier H. Kraakman, *The Mechanisms of Market Efficiency*, 70 VA. L. REV. 549, 550 (1984).

6. See Aircraft Carrier, *supra* note 1, at 38, 39.

distribution of institutional investor stock ownership in American companies, and reach the same result.

If the SEC should decide to implement the proposed changes, we suggest that it raise its proposed numerical thresholds for the use of Form B. While we do not offer a specific set of new thresholds, we urge the SEC to adopt our methodology and revise their earlier research to determine new thresholds for the use of Form B. We believe that it is imperative that investors receive full and complete disclosures whenever the underlying capital markets cannot be relied upon to disseminate information swiftly and fully about the company. This may not occur if the proposed criteria for the use of Form B are adopted.

The remainder of this article is structured as follows. Section II begins by briefly examining the SEC's methodology in determining market efficiency in the adoption of the short form registration system. It then outlines the SEC's Aircraft Carrier proposals for Forms A and B, and concludes with a discussion of the existing scholarship on measuring market efficiency using quantitative indicators. Section III looks at the underlying research conducted by the SEC's staff prior to the issuance of the Aircraft Carrier. In section IV, we discuss our research methodology and data. We finish with some brief concluding observations.

## II

### THE SEC'S USE OF MARKET EFFICIENCY IN REGULATING SECURITIES OFFERINGS

#### A. The Integrated Disclosure System and Form S-3

The integrated disclosure system adopted by the SEC was designed to meet investors' need for information about the companies selling securities, while simultaneously eliminating the previous overlap of information disclosure and dissemination requirements of the Securities Act of 1933 and the Exchange Act of 1934.<sup>7</sup> The new system had two essential pieces: first, uniform disclosure requirements for all documents filed under the two acts; and second—and more important for our purposes—the coordination of the disclosure required by these acts to permit the incorporation by reference of company-specific information from Exchange Act filings into Securities Act filings.<sup>8</sup>

Three new forms were introduced for the registration of securities: (1) Form S-1, which requires complete disclosure to be set forth in the prospectus without any incorporation by reference;<sup>9</sup> (2) Form S-2, which allows incorporation by reference from the company's Exchange Act filings, but requires the issuer to forward either its last annual report or Form 10-K as part of the final

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7. See Adoption of Integrated Disclosure System, Securities Act Release No. 6383, [1937-1982 Transfer Binder] Fed. Sec. L. Rep. (CCH) ¶ 72,328, at 62,992 (Mar. 3, 1982).

8. See *id.* ¶ 72,328, at 62,993.

9. See *id.* ¶ 72,328, at 62,994.

prospectus;<sup>10</sup> and (3) Form S-3, which presents the same transaction specific information as Forms S-1 and S-2, and allows incorporation by reference from the issuer's Exchange Act reports, but requires a final prospectus of only the confirmation slip conveying price-related information.<sup>11</sup> Form S-3 is the preferred alternative for most issuers. Companies that want to issue securities quickly benefit because an S-3 registration statement can be prepared and become effective in just a few days, instead of a few weeks or months when more lengthy documents are filed. The costs of preparing Form S-3 are also lower than those associated with Form S-1.

At the time of the adoption of these new forms, the SEC created two general types of eligibility requirements for Form S-3.<sup>12</sup> First, a U.S. issuer needed to have thirty-six months of experience reporting under the Exchange Act.<sup>13</sup> Second, if the registrant satisfied the first criteria, it needed also to have a minimum \$150 million float, or a \$100 million float and annual trading volume of at least three million shares.<sup>14</sup> Float was used as an eligibility standard for several reasons: (1) because it was a widely used eligibility criterion among trading market organizations that seek to measure the breadth of market following in listing and delisting situations; (2) because the Federal Reserve Board uses float as a criterion to delineate over-the-counter issues that may be traded on margin; and (3) because commentators on the proposal supported its continued use; and (4) because investment institutions revealed that float is a prominent, numerically-defined standard in making research coverage decisions.<sup>15</sup> Trading volume was also considered as an eligibility standard because it affects information dissemination to the market, and was an important criterion for investment analysts in deciding which stocks to follow.<sup>16</sup>

Form S-3 was designed in reliance on the efficient capital market hypothesis and its numerical thresholds were intended to be a rough proxy for companies widely followed by the investment community.<sup>17</sup> Commentators quickly pointed out that Form S-3 covered many companies that were not extensively covered

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10. *See id.* ¶ 72,328, at 62,994-95.

11. *See id.* ¶ 72,328, at 62,995.

12. *See* LOUIS LOSS & JOEL SELIGMAN, *SECURITIES REGULATION* 614-15 (1989).

13. *See id.* at 616. There are also some requirements that the issuer has not defaulted on a variety of financial matters. *See id.*

14. *See id.* at 615-16. Float, or aggregate market value, was calculated using either "the price at which the stock was last sold or the average of bid and asked prices of the stock on any date within 60 days before the date of filing" of the registration statement. *Id.* at 617 n.47. Annual trading volume was the "volume of shares traded in any continuous 12-month period ending within 60 days before the filing." *Id.*

15. *See* Reproposal of Comprehensive Revision to System for Registration of Securities Offerings, Securities Act Release No. 6331, Exchange Act Release No. 18,007, 46 Fed. Reg. 41,902, 41,904 (Aug. 18, 1981) [hereinafter *Reproposing Release*].

16. *See id.* at 41,904-05. In the end, trading volume was adopted only when concurrently present with a minimum level of float because of concerns that it would lead to uncertainty over which issuers could file a Form S-3 and that it might discriminate against issuers whose stock was held by long-term investors. *See id.*

17. *See* Donald C. Langevoort, *Theories, Assumptions, and Securities Regulation: Market Efficiency Revisited*, 140 U. PA. L. REV. 851, 876 (1992).

by analysts.<sup>18</sup> At the time the integrated disclosure system was adopted, the SEC estimated that the dual eligibility standards would result in roughly 32% of the NYSE-, AMEX-, and NASDAQ-listed companies, or 17.6% of all reporting companies, being eligible to file Form S-3.<sup>19</sup> In 1992, the SEC relaxed these criteria so that the minimum issuer reporting requirements were dropped from thirty-six months to twelve months, and the float requirement was reduced to a minimum of \$75 million in voting stock held by non-affiliates.<sup>20</sup>

Integrated disclosure was based on the idea that where securities markets were efficient, there was no need for companies to disclose information in the registration statement that was already publicly available.<sup>21</sup> The SEC, however:

never attempted directly to study which securities were traded in an efficient market, and could be issued safely with firm specific data incorporated by reference. Instead, the agency focused on one mechanism of market efficiency—ongoing monitoring by institutional investors and securities analysts—and defined a category of securities that it was confident would be “actively and widely followed.” This did not mean that other securities also would not be traded in an efficient market. Other mechanisms of market efficiency such as the financial press or the computerized dissemination of firm specific data might create an efficient market in these securities as well. But the Commission proceeded cautiously, assuming only an operative and efficient market for a class of securities when it was able to assemble circumstantial evidence to support the assumption.<sup>22</sup>

This practical definition of market efficiency, focusing on coverage of a security by institutional investors and securities analysts, continues to be employed by the SEC in its latest proposals to reform the securities laws.<sup>23</sup>

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18. See Jeffrey N. Gordon & Lewis A. Kornhauser, *Efficient Markets, Costly Information, and Securities Research*, 60 N.Y.U. L. REV. 761, 813 (1985).

19. See Reproposing Release, *supra* note 15, at 41,910.

20. See LOUIS LOSS & JOEL SELIGMAN, SECURITIES REGULATION 115 (1996 Supp.) (noting that the trading volume alternative requirement was dropped entirely).

21. The SEC stated its belief that “the market operates efficiently for [S-3] companies, i.e. that the disclosure in Exchange Act reports and other communications by the registrant, such as press releases, has already been disseminated and accounted for by the marketplace.” Langevoort, *supra* note 17, at 876 (quoting Reproposing Release, *supra* note 15, at 41,904). Gordon and Kornhauser argue that:

[f]or the SEC, the efficient market hypothesis justifies its Form S-3 policy as follows. Information contained in 1934 Act disclosures is widely disseminated through the financial press, is publicly available for free or at nominal cost, for at least a certain set of issuers, is closely studied by financial analysts and other sophisticated market participants. Therefore, such public information should be reflected in the price of the issuer’s securities.

Gordon & Kornhauser, *supra* note 18, at 811-12.

22. LOSS & SELIGMAN, *supra* note 12, at 616. The \$150 million float was determined to cause a sufficiently high level of security analysis to ensure extensive, ongoing monitoring and evaluation of companies. See *id.* at 615 n.41. But see Gordon & Kornhauser, *supra* note 18, at 812-13; JAMES D. COX ET AL., SECURITIES REGULATION: CASES AND MATERIALS 247 (2d ed. 1997) (citing Reproposing Release, *supra* note 15, at 41,909 (reporting that larger investment institutions tended to focus their analytical efforts on 300-500 issuers at any one time)).

23. The SEC is doing today exactly what commentators noted that it did when it adopted the integrated disclosure system. See Gordon & Kornhauser, *supra* note 18, at 812:

Rather than condition eligibility on a determination of the efficiency of a particular market (such as the New York Stock Exchange), the SEC tried to identify those particular securities likely to be efficiently priced. The SEC acted on the theory that market efficiency results from the competitive research and trading activities of market participants. The SEC chose to use major investment institutions, such as large broker-dealers, as a proxy for market participants.

## B. The Aircraft Carrier Proposals and Form B

In November 1998, the SEC launched the Aircraft Carrier proposals in an effort to reform the registration system for securities. These proposals were based on the premise that the traditional mandated disclosure system might not be necessary any longer to ensure that public investors have sufficient information to make sound investment decisions when issuers that have an established market following sell securities.<sup>24</sup> Instead:

[f]or larger seasoned issuers, communications made around the time of a typical registered offering, whether or not part of a traditional prospectus, provide the basis for investment decisions in the offering. Those issuers are well followed by the market and the important statements that they make are quickly disseminated and considered by investors. . . .<sup>25</sup>

The SEC proposed that these larger, well-established issuers be able to issue securities using a simplified registration statement, named "Form B."<sup>26</sup> Most other issuers would use Form A, which employs the traditional full-disclosure format.<sup>27</sup>

Form B, according to the SEC, would "provide much the same flexibility to issuers that delayed shelf registration on Forms S-3 and F-3 has provided," but would also have many advantages.<sup>28</sup> For companies using Form B, the existing prospectus disclosure system would no longer be needed. Rather, their prospectuses would include only offering information, the issuer's 1934 Act reports via incorporation by reference, a securities term sheet, an undertaking to provide incorporated information to investors on request, and, in the case of non-U.S. issuers, the U.S. GAAP reconciliation.<sup>29</sup> The registration statement would not need to be filed with the SEC prior to the offering of the securities, although it would need to be filed before sales could begin. Free writing and communications would be permitted at any time for Form B issuers, and those free writing materials used during the offering period, beginning fifteen days prior to the first offer, would need to be filed with the SEC at the time that the registration statement is filed.<sup>30</sup> Furthermore, the underwriters and issuers would designate the effective date of the registration statement and have complete control over when they offer and sell securities under Form B.<sup>31</sup> Some of the other advantages that Form B offers over the current shelf registration system include no front-end-loaded registration fee, and no concerns about overhang of securities on the market for the company's stock.<sup>32</sup>

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24. See Aircraft Carrier, *supra* note 1, at 49.

25. *Id.*

26. See *id.*

27. See *id.*

28. Aircraft Carrier, *supra* note 1, at 55-56 (discussing the various ways in which Form B would be preferable over Forms S-3 and F-3).

29. See Mark S. Bergman, *United States*, INT'L FIN. L. REV., Jan. 1999, at 24 (Supp. Capital Markets Yearbook 1999).

30. See Bergman, *supra* note 29, at 4.

31. See *id.*

32. See Aircraft Carrier, *supra* note 1, at 56.



To qualify to use Form B, a company with at least twelve months of reporting history under the Exchange Act must either have “a public float of \$75 million or more and an [average daily trading volume] (ADTV) of \$1 million or more, *or* [have] a public float of \$250 million or more.”<sup>33</sup> The SEC looked at the number of research analysts that would cover companies at various public float and ADTV levels in order to determine the appropriate thresholds for the use of Form B.<sup>34</sup> The SEC believed that “the number of analysts that cover companies that fit a certain profile is indicative of the level of investor interest in companies within the profile.”<sup>35</sup> This is the same assumption that the SEC made when it adopted the integrated disclosure system.<sup>36</sup>

### C. Analyst Coverage as a Method of Measuring the Efficiency of Securities Markets

Analyst coverage is the most widely-accepted method of measuring when securities markets are efficient at processing information. Academic commentators have agreed that analyst coverage is an important mechanism for disseminating information to the market.<sup>37</sup> For example, Professor Coffee has claimed that analyst coverage is one of the key means for information to get out to the investing public.<sup>38</sup> Coffee states that “the analyst seems likely to become the critical mechanism of market efficiency because on-line computerization of the SEC-filed data makes access to such information both immediate and relatively costless to the analyst.”<sup>39</sup>

Several empirical studies examine the equity analyst’s role as an information producer and conduit for company information. For instance, Sok Te Kim, Je-

33. *Id.* at 58 (emphasis added).

34. *See infra* text accompanying note 51.

35. Aircraft Carrier, *supra* note 1, at 59.

36. *See* Langevoort, *supra* note 17, at 876.

37. *See, e.g.,* Alan K. Austin & Clay B. Simpson, *Interacting With Analysts*, in THE ART OF COUNSELING DIRECTORS, OFFICERS & INSIDERS 1998, at 91 (PLI Corp. Law & Practice Course Handbook Series No. 1083, 1998) (stating that “[a]nlyst coverage makes the market for the company’s stock more efficient, by getting new information out to the public as it is released by the public”); Brad M. Barber et al., *The Fraud-on-the-Market Theory and the Indicators of Common Stock Efficiency*, 19 IOWA J. CORP. L. 285 (1994).

38. *See* John C. Coffee, Jr., *Market Failure and the Economic Case for a Mandatory Disclosure System*, 70 VA. L. REV. 717, 723-24 (1984) (stating that “most accounts explaining the stock market’s efficiency assign a substantial responsibility to the competition among analysts for securities information”).

39. *Id.* at 723. According to Coffee, though, there are factors that constrain the analyst’s ability to perform his function as effectively as possible. For example, because many people use securities research as the information gets passed along, it has a “public goods-like character.” *Id.* at 726. This character, in turn, means that the analyst will not get the full economic benefit of his work and will, therefore, engage in less search and verification than the investing public desires. *See id.* Another problem that the analyst faces is the fact that he cannot contract on a bilateral basis and is, therefore, under-compensated, a fact that also operates as a disincentive. *See id.* at 727. Coffee argues that mandatory disclosure will alleviate these problems and allow analysts to perform their market function. *See id.* at 728. He states that mandated disclosure “reduces the market professional’s marginal cost of acquiring and verifying information” and “increases the aggregate amount of securities research and verification provided.” *Id.* at 729. As analysts begin to see more returns on their work, there will be an influx of competitors into the field and the industry will therefore become more competitive. *See id.*

Chai Lin, and Myron Slovin examine the market response to analysts who initiate coverage on a company with a buy recommendation.<sup>40</sup> They find that despite slight differences between NYSE/AMEX and NASDAQ announcements, the private information disseminated by analysts who initiate coverage with a buy recommendation is reflected in stock prices in less than fifteen minutes.<sup>41</sup>

Similarly, Carl Chen, James Wuh Lin, and David Sauer examine the “informational effect of earnings announcements on stock price changes,” and how the number of analysts affect the extent of an earnings surprise and the lag for the information to be reflected in stock prices.<sup>42</sup> They show that the number of analysts significantly decreases the extent to which the market is “surprised” by the company’s announced earnings (percent difference between the analysts’ consensus estimate and the actual reported earnings).<sup>43</sup> Moreover, they show that the market adjusts more quickly to information releases as the number of analysts increases.<sup>44</sup>

These studies do not, however, resolve the critical question of what level of analyst coverage is necessary to ensure that securities markets are efficient. As commentators on the earlier adoption of integrated disclosure noted, even if one accepts the claim that market efficiency justifies the use of simplified disclosure for the sale of securities of companies whose stock is traded in efficient markets, a question remains about where to draw the line for making this determination.<sup>45</sup> In the next section, we look at the SEC’s research and analysis on determining the threshold for a company’s qualification to use Form B.

### III

#### THE SEC’S PROPOSAL AND RESEARCH

In its research on the appropriate thresholds for the Form B registration statement in the Aircraft Carrier, the SEC used the Center for Research in Security Prices (“CRSP”) for transaction volume data and Nelson Publications’ data for analyst coverage for the year 1996.<sup>46</sup> The Nelson Publications’ data sweeps analysts of all types into its analyst coverage data, including analysts that are paid by the companies that they follow.<sup>47</sup> We have been informed that the SEC used an earlier version of this same data in its research at the time of the adoption of the shelf registration system.<sup>48</sup>

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40. See Sok Te Kim et al., *Market Structure, Informed Trading and Analysts’ Recommendations*, 32 J. FIN. & QUANTITATIVE ANALYSIS 507, 513 (1997).

41. See *id.*

42. Carl R. Chen et al., *Earnings Announcements, Quality and Quantity of Information, and Stock Price Changes*, 20 J. FIN. RES. 483, 492 (1997).

43. See *id.*

44. See *id.*

45. See, e.g., Gordon & Kornhauser, *supra* note 18, at 813.

46. Telephone Interview with SEC staff (Apr. 9, 1999).

47. These paid analysts include Moody’s, Fitch, and Standard & Poors (“S&P”).

48. Telephone Interview with the SEC staff (Apr. 9, 1999).

The SEC's research is discussed in several footnotes in Appendix A of the Aircraft Carrier.<sup>49</sup> Their empirical work focused on the level of analyst following of a company's stock as its measure of market efficiency. The SEC states that it looked at this factor because it believed that "the analyst coverage is indicative of the level of investor interest in companies."<sup>50</sup> In the footnotes to the paragraph containing this statement, the SEC indicates that analyst following is an important measure of market efficiency and that adequate analyst coverage must exist to ensure an efficient market.<sup>51</sup>

The footnotes reveal that, using the numerical cutoffs proposed in the Aircraft Carrier, the SEC found only 4% of companies with ADTV greater than \$1.0 million to have fewer than three analysts following the company.<sup>52</sup> Further, the SEC reports that only 14% of companies with market capitalization of \$75 million or more, and 5% of companies with market capitalization of \$250 million or more, have fewer than three analysts following the company.<sup>53</sup> The SEC also states that its research indicates that companies that meet the proposed combined public float/ADTV test for Form B eligibility would have an average of fourteen analysts following them.<sup>54</sup>

The implication of the SEC's findings is that the proposed cutoffs will be sufficient to determine which companies have a demonstrated market following sufficient to permit them to use Form B. Investors in these companies are presumed to have access to multiple sources of information about the company, thereby making short form registration appropriate.

## IV

### OUR RESEARCH

#### A. Methodology

We agree with the SEC that effective communication of information from companies to investors is made by analysts who communicate to investors. We believe, however, that the definition of analyst should have been restricted to so-called sell-side equity analysts, those individuals who are employed by securities firms, such as Morgan Stanley Dean Witter, Merrill Lynch, and others. These sell-side analysts publish company-specific research and earnings esti-

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49. See Aircraft Carrier, *supra* note 1, at 58, 60 n.80, 81, 87-91.

50. *Id.* at 59.

51. The supporting statement is slightly unclear about the SEC's views on what drives market efficiency. Footnote 82 of the Aircraft Carrier states that "[w]here an issuer has significant analyst following and the market operates efficiently with respect to price discovery, we believe it is fair to assume some level of investor awareness of company information." *Id.* at 59 n.82. We assume that the SEC is drawing a connection between market efficiency and analyst following similar to the one that we discuss in the text. If this is incorrect, we are unclear what mechanisms for price discovery the SEC believes are operating to make the market efficient.

52. See *id.* at 58, n.80.

53. See *id.* at 58, nn.80, 81.

54. See *id.* at 58.

mates of a relatively small number of companies. Their reports are distributed to the portfolio managers who actually invest in the stock of publicly traded companies, the buy-side investors. Sell-side analysts are not explicitly paid by buy-side investors for their research; rather, their value to their firms arises from compensated transaction volume being diverted to the sell-side analyst's firm.<sup>55</sup> We are not aware of any instance where companies followed by sell-side analysts pay those analysts for publishing research and earnings estimates.<sup>56</sup> Therefore, we use only the sell-side equity analysts from major and regional investment banks that publish research and earnings estimates on the companies that they follow.<sup>57</sup> We believe that these analysts are the most impartial and accurate source of information concerning such companies, and provide a valuable conduit for information to pass from companies to investors.

While we include sell-side equity analysts who follow companies with publicly traded equity in our sample, we exclude analysts arising from debt issuance (major debt rating agencies) that are paid by the companies that they follow to provide debt ratings when debt securities are issued. This means that our data set excludes analysts from such firms as Moody's, Fitch, and Standard and Poors ("S&P"). We exclude these types of analysts, which are included by the SEC in its research, because they generally do not publish future earnings estimates and their research is not included by major earnings consensus firms (Zacks and First Call) who distribute this information about future company earnings results and the future target price for the stock.<sup>58</sup>

First Call's earnings estimate dissemination service is a very important conduit for information from companies to their investors. Investors believe that First Call data is so important that they (investors) actually purchase consensus earnings estimates and short analyst write-ups (First Call Notes) that sell-side analysts publish. We argue that the importance of an analyst could be measured by the fact that major buy-side firms must purchase First Call's earnings estimate data and written comments (First Call Notes) from sell-side analysts. We believe that analysts included in First Call information represent the most

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55. The SEC notes that:

"sell-side" analysts, have inherent conflicts of interest . . . [and] [t]here is a risk that impartiality may be compromised when their firms seek to participate in the issuers' distribution. We believe, nevertheless, that analysts in general, and the expanding "buy-side" analysts in particular, are in a unique position to gather and analyze information about issuers. They represent an undeniably significant method of corporate disclosure and dissemination.

The Aircraft Carrier, *supra* note 1, at 39 n.6.

56. We note anecdotal evidence that some analysts have attempted to get firms to pay them for providing analyst coverage of the company's stock. See Charles Gasparino, *Hired Help: Starved for Attention, Small Companies "Buy" Wall Street Coverage*, WALL ST. J., July 14, 1999, at A1.

57. While we believe that it would be useful to also include "buy-side" analysts, individuals who are employed by firms (such as pension funds and insurance companies) that invest in the stocks and bonds of publicly traded companies, we do not know of any public source that discloses which companies these analysts follow. We were informed by the SEC that it did not have access to this information either.

58. See generally Frank Partnoy, *The Siskel and Ebert of Financial Markets?: Two Thumbs Down for the Credit Rating Agencies*, 77 WASH. U. L.Q. 619 (1999) (criticizing accuracy of credit agency ratings).

reasonable estimate of analyst following by independent conduits of information from companies to the institutional investing community.

The SEC's definition of analyst includes Moody's, Fitch, and S&P.<sup>59</sup> We note that using the SEC's definition of analyst will generally guarantee that at least two analysts will be counted as following any company that has issued debt or equity securities of any kind in the recent past. Given that the SEC uses fewer than three analysts as its threshold for insuring an efficient capital market, it is not surprising that the SEC concludes that almost all companies' stocks are traded in efficient markets. If both paid and unpaid analysts are to be included in the measure of analyst coverage, we suggest that the SEC's measurement standard be increased from fewer than three to fewer than five. We further suggest that the SEC recalculate its numerical threshold cutoffs using a fewer than five measure for analyst following.

## B. Description of Data

We sought to replicate the SEC's results on analyst coverage of proposed Form B companies using an independent source of data from a financial information firm called Market Guide. Market Guide collects and distributes traditional financial information, as well as data on analyst coverage and market-trading information on about 9100 publicly traded firms. We eliminated firms whose stock price on December 31, 1998, is less than one dollar per share. Our final data set includes approximately 7875 firms.<sup>60</sup> The SEC has confirmed that while its study used data that are somewhat older than ours (1996 data), their sample was similar in size to ours.<sup>61</sup>

Using Market Guide, we collected information on the value of each company's common equity (market capitalization), the value of the company's public float, the institutional ownership of each company, and the number of *equity* analysts that follow each company. Market Guide uses the well-known analyst consensus firm, First Call, for consensus estimates of future earnings. In addition to consensus earnings estimates, First Call provides Market Guide with the number of analysts that provide earnings estimates to the market. First Call collects analyst following data using approximately 250 firms worldwide and 118 domestic firms that provide equity research to their institutional clients. Where no research is published, Market Guide records a zero for the number of analysts following a company.

Table 1 provides descriptive statistics for our full sample.<sup>62</sup> For the sample as a whole, the average market capitalization was \$2.128 billion, while the median market capitalization was \$128 million. The wide difference between the

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59. See *supra* text accompanying note 47.

60. We deleted firms that have a share price lower than one dollar (so-called "penny stocks") because such firms are small, often financially distressed, firms with limited investor interest and virtually no analyst coverage. These firms are unlikely to qualify for Form B usage.

61. Telephone Interview with SEC staff (Apr. 9, 1999).

62. The full sample covers all firms whose stock price was greater than one dollar on December 31, 1998.

mean and median is due to the presence of several large firms in the sample. The average market capitalization was \$5.556 billion (median \$819.5 million) for the NYSE sample and \$0.665 billion (median \$65.0 million) for the non-NYSE sample. As expected, the NYSE had firms larger as measured by market capitalization. The average public float was \$1.696 billion for the full sample, with the average of \$4.537 billion for the NYSE samples and \$475.4 million for the non-NYSE samples.

TABLE 1  
SAMPLE DESCRIPTIVE STATISTICS

	Full Sample	NYSE Sample	Non-NYSE Sample
Number of firms in sample	7875	2366	5509
Average Market Capitalization (median) B (in millions)	\$2128.1 (\$128.4)	\$5556.0 (\$819.5)	\$655.8 (\$65.0)
Average Public Float (median) B (in millions)	\$1696.0 (\$68.6)	\$4537.9 (\$490.3)	\$475.4 (\$33.4)
Number of firms (percentage) with analyst coverage	4784 (60.7%)	1884 (79.6%)	2900 (52.6%)
Number of Sell-Side Analysts	3.45 (1.00)	6.45 (5.00)	2.15 (1.00)
Percentage of firm owned by institutional investors	34.80%	51.80%	23.15%
Number of firms with Market Capitalization (number of shares outstanding times stock price) greater than \$250 million	3055 (38.8%)	1823 (77.0%)	1232 (22.4%)
Number of firms with Market Capitalization (number of shares outstanding times stock price) greater than \$75 million and an Average Daily Trading Volume (ADTV) greater than \$1 million	3413 (43.3%)	1864 (78.7%)	1541 (27.9%)
Number of firms with Market Capitalization (number of shares outstanding times stock price) greater than \$75 million	4792 (60.8%)	2222 (93.9%)	2570 (46.6%)
Number of firms with Average Daily Trading Volume (ADTV) greater than \$1 million	2744 (34.8%)	1453 (61.4%)	1291 (23.4%)

Source: Market Guide (Dec. 31, 1998). The following statistical measures were used: average, median, sum, and percent.

Analysts follow companies where they expect that institutional investors are going to need investment advice and then act on that advice and purchase stock through the analyst's firm. Table 1 also presents data on the size, analyst following, and institutional ownership for the sample and the sample divided into

NYSE and non-NYSE sub-samples. Of the 7875 firms included in our sample, 4784 (60.7%) had published earnings estimates and at least one equity analyst following the company. Of those 4784 stocks, 1884 NYSE stocks (79.6% of the stocks traded on the NYSE) and 2900 non-NYSE stocks (52.6% of the non-NYSE stocks) had at least one analyst covering each company.

Analysts tend to follow firms where institutional ownership is significant. As Table 1 indicates, institutions owned approximately 34.8% of firms in the full sample. For the NYSE stocks, however, institutions owned 51.8% of each firm and 23.15% of the non-NYSE stocks. This suggests that firms with a larger market capitalization tend to have larger institutional ownership and tend to be listed on the New York Stock Exchange with a greater analyst following.

As shown in Table 1, if we apply the first of the SEC's proposed numerical cutoffs to our sample, 3055 (38.8%) of the firms would qualify to use Form B on the basis that their market capitalization is in excess of \$250 million.<sup>63</sup> Firms can also use Form B if their market capitalization is greater than \$75 million and their ADTV is greater than \$1.0 million. Using this proposed second criterion, 358 (4.5%) additional firms qualified for Form B disclosures. Thus, using our data set, we find that a total 3413, or 43.3% of firms in the sample qualify to file Form B.

We also calculate the number of firms who have market capitalization greater than \$75 million and separately calculate the number of firms that have ADTV greater than \$1.0 million. We find that 4792 (60.8%) of the sample have market capitalization greater than \$75 million, while 2744 (34.8%) of the sample have ADTV greater than \$1.0 million.<sup>64</sup> We note that 1379 firms that would have qualified to use Form S-3 under the existing numerical thresholds will be required to use Form A.<sup>65</sup>

In Table 2, we present our results concerning the extent of analyst following for companies qualifying to use Form B using each of the proposed criteria to replicate exactly the footnotes presented by the SEC in the Aircraft Carrier.<sup>66</sup> First, we examine firms that have market capitalization greater than \$250 million. We find that 797 (26.1%) have fewer than three analysts covering the firm.

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63. While the SEC regulations specify public float as its criteria for Form B qualification, the SEC uses market capitalization (shares outstanding times stock price) in its published research. In this article, we calculate firms that qualify for Form B disclosures as firms whose market capitalization is greater than \$250 million.

64. We will use these results later to calculate the proportion of firms who have an analyst following of "fewer than three."

65. Using its data, the SEC calculated that 1175 firms that currently report using Form S-3 will be required to use Form A. See Aircraft Carrier, *supra* note 1, at 59. While companies and their representatives have argued against including current S-3 reporting firms in new Form A disclosures, we believe that past S-3 reporting should not be the primary method for Form B qualification. Rather, we argue that informational efficiency and investor safety and soundness should represent the primary goal of firm disclosure. Firms must report what is necessary, unencumbered by the prior regulatory reporting regime.

66. See Aircraft Carrier, *supra* note 1, at 58, nn.80, 81.

Next, we turn to firms that have market capitalization greater than \$75 million. We find that 1837 (38.3%) have fewer than three analysts covering the firm. Finally, in Table 2 we replicate the SEC's footnote 80 of the Aircraft Carrier and determine that 563 (20.5%) of firms that have ADTV greater than \$1 million have fewer than three analysts following the company.

As Table 2 indicates, the SEC claims that the vast majority of firms that would qualify to use Form B because they have adequate analyst following appear significantly overstated when our data are used. For instance, if we compare our calculations of the percentage of firms that have market capitalization greater than \$250 million and fewer than three analysts covering their stock (26.1%) with the percentage reported by the SEC (4%), the difference is clearly substantial. Similar differences appear when other measures of market size are examined. These results suggest that the extent of analyst following is significantly lower than that estimated by the SEC and that the extent of communication from company to investor is much lower than assumed by the SEC.

TABLE 2  
ANALYST FOLLOWING

	SEC Footnote	Full Sample	NYSE Sample	Non- NYSE
From the given universe of stocks that have a Market Capitalization (number of shares outstanding times stock price) greater than \$250 million, how many (what percentage) of the companies have fewer than three analysts following	??? (5.0%)	797 (26.1%)	436 (18.4%)	361 (29.3%)
From the given universe of stocks that have a Market Capitalization (number of shares outstanding times stock price) greater than \$75 million, how many (what percentage) of the companies have fewer than three analysts following	??? (14.0%)	1837 (38.3%)	651 (29.3%)	1186 (46.1%)
From the given universe of stocks that have more than \$1 million in Average Daily Trading Volume (ADTV) > \$1 million, how many (what percentage) have less than three analysts following	??? (4.0%)	563 (20.5%)	217 (14.9%)	346 (26.8%)

Sources: The Aircraft Carrier, *supra* note 1, at 58 n.80; Market Guide (Dec. 31, 1998). The following statistical measures were used: average, median, sum, and percent.

The difference between our results and those of the SEC is striking. We believe that this difference is primarily due to the difference between our definition of analyst (sell-side analysts) and the SEC's definition of analyst (all analysts, paid and unpaid). We believe that analysts that are not paid by the



company (sell-side analysts) represent a better measure of analyst following. As a company issues debt, its securities are customarily rated by S&P, Moody's, or Fitch at the behest of the company. These services are paid by the company for their ratings. Sell-side analysts, on the other hand, are loyal to the institutional community and are responsible for communicating information to the buy-side investors. If the SEC decides to include both forms of analyst, the measure of adequate analyst coverage should be increased from the fewer than three measure to a fewer than five measure.

We test the robustness of the results by separating the sample into firms that traded on the NYSE and those that did not. We find that the NYSE sample firms are more frequently followed by sell-side analysts (probably because they are larger and more widely owned by institutional investors). However, the comparative differences between analyst following in our sample and in the SEC sample persist. This shows that the difference between the SEC's results and ours is not attributable to a difference in the market where the firms trade.

Finally, in Table 3 we examine the extent of analyst following in relation to institutional ownership as tabulated by Market Guide. Institutional ownership is highly statistically correlated to analyst coverage. Using our sample, we find a correlation coefficient of 0.60 between analyst coverage and institutional ownership. This makes intuitive sense, as analysts are much more likely to cover stocks where there are institutional buyers.<sup>67</sup>

More important for our purposes, it suggests that institutional stock ownership is a second important proxy for market efficiency. If we are correct, then our data on institutional stock ownership should also show that a surprisingly high number of companies that are eligible to file Form B have stocks that are not widely held by institutions and are not followed by analysts.

For firms using Form A under the SEC's proposed limits of size and trading volume, 2802 firms (59.2%)<sup>68</sup> have low institutional ownership<sup>69</sup> and fewer than three analysts following the companies. For Form B firms, 498 (15.9%) have low institutional ownership and fewer than three analysts following the companies. We find it troubling that such a high percentage of companies with low institutional stock ownership are eligible to file Form B. We again express our concern that the SEC's numerical cutoffs are set too low in the current proposals.

Finally, we note that, historically, the SEC has established reporting requirements based on fixed market capitalization (or float) level or a fixed level of trading volume. Using these fixed levels ignores the historical appreciation

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67. The SEC recognizes this point in *Aircraft Carrier*, *supra* note 1, at 59, but it does not examine levels of institutional ownership.

68. This result is calculated by summing the upper left nine cells in the Form A panel of Table 3 divided by the total Form A firms.

69. We define low institutional stock ownership as less than 30% of the shares outstanding. Although this number is somewhat arbitrary, it represents an ownership level that is less than the sample average (see Table 1). We justify this choice as consistent with a reasonable threshold level below which sell-side analysts would de-emphasize coverage of the company's stock.

of company value as share prices increase over time. In the current SEC proposal, companies are required to disclose issuing information using Form A only if their firm size or market transaction activity remains below fixed levels. We believe that the SEC should consider the adoption of limits that reflect the growth in firm and market activity value. For instance, the SEC could require that the fixed levels are periodically changed as the market capitalization of the S&P 500 increases. Such a requirement would ensure that all companies do not make the transition from Form A to Form B simply because the market capitalization of (substantially) all firms increases over time.

TABLE 3  
ANALYST FOLLOWING AND INSTITUTIONAL OWNERSHIP

FORM A COMPANIES

Number of analysts following a company	Institutional Ownership										No Ownership Data	Form A Total
	0% to 10%	10% to 20%	20% to 30%	30% to 40%	40% to 50%	50% to 60%	60% to 70%	70% to 80%	80% to 90%	90% to 100%		
0	1300	437	251	139	69	56	24	13	15	7	252	2563
1	214	190	134	94	58	36	27	17	1	1	7	779
2	79	104	93	82	46	35	29	19	12	9	4	512
3	33	58	82	55	51	27	28	21	11	4	1	371
4	15	34	41	38	25	23	17	12	8	6		219
5	2	16	24	24	21	17	14	14	7	3		142
5<#<10	2	12	18	25	23	19	10	9	10	12	1	141
10<#<15			1	2				2				5
15<#<20	1								1			2
number of >20												
Form A Total	1646	851	644	459	293	213	149	107	65	42	265	4734

Source: Market Guide (Dec. 31, 1998). The following statistical measures were used: average, median, sum, and percent.

## FORM B COMPANIES

Number of analysts following a company	Institutional Ownership											Form B Total
	0% to 10%	10% to 20%	20% to 30%	30% to 40%	40% to 50%	50% to 60%	60% to 70%	70% to 80%	80% to 90%	90% to 100%	No Ownership Data	
0	247	67	66	39	33	21	18	4	6	7	20	528
1	25	23	14	13	16	9	10	12	4	4	1	131
2	17	26	13	21	17	19	17	17	8	6	4	165
3	11	25	25	20	23	23	21	27	13	6	3	197
4	11	21	30	30	24	26	30	38	15	23	1	249
5	7	21	30	23	22	26	33	28	32	22	1	245
5<number of<10	17	28	59	81	96	108	133	148	106	121	2	899
10<number of<15	1	12	15	29	40	57	73	66	84	63	4	444
15<number of<20	0	1	3	9	11	16	27	42	36	26	0	171
number of>20	0	1	3	4	11	26	31	13	13	8	2	112
Form B Total	336	225	258	269	293	331	393	395	317	286	38	3141

Source: Market Guide (Dec. 31, 1998). The following statistical measures were used: average, median, sum, and percent. Table 3 uses the actual SEC measure of size, public float, as the measure of company size.

## V

## CONCLUSION

In formulating the federal securities laws that govern the issuance of new securities by corporations, the SEC needs quantifiable measures to set threshold limitations on the applicability of rules. This article has addressed the SEC's determination of what the appropriate standards should be in its latest regulatory proposals, the Aircraft Carrier. As explained above, we believe that the SEC overstated the efficiency of the markets for many corporate securities by using an overestimate of the number of securities analysts in its research. If it should decide to move forward with these proposals, we urge the SEC to redo its earlier research with a more defensible methodology. It should also consider the use of institutional investor ownership data as an adjunct measure of market efficiency to confirm the accuracy of its estimates.

We recognize the inherent difficulty of such line drawing exercises. Even the appropriate measure for market efficiency is debatable, for there is little empirical research on how to best quantify measures of market efficiency. Nevertheless, the SEC's stated goal of ensuring that investors receive adequate information to make informed investment decisions argues against adopting too low a standard for permitting companies to reduce their disclosures when they are actively marketing their securities. We advise that the SEC do as it did with these thresholds under the integrated disclosure system and err on the side of caution in establishing the initial requirements for the new Form B. It is better for investors if the SEC adjusts the new thresholds later on, rather than setting them too low at the beginning of the new regime.