Patterns of Institutional Investment, Prudence, and the Managerial "Safety-Net" Hypothesis

S.G. Badrinath
Gerald D. Gay
Jayant R. Kale

Abstract

This research analyzes the investment behavior of institutional portfolio managers within the context of their fiduciary responsibility arising from handling client capital. The perspective is unique because it incorporates the propensity of portfolio managers to protect their income potential in determining investment choices owing to this responsibility. During times of lackluster performance, a "safety-net" is provided to managers if they can demonstrate the prudence of a particular investment. The empirical tests support this hypothesis since the level of institutional holdings is an increasing function of the safety-net potential of a common stock. The tests also document the relationship of institutional investment behavior with other firm quality characteristics such as market risk, firm size, volatility, trading liquidity, years exchange-listed and past performance.

"... if a fund manager invests $10 million in a B stock and it collapses, he may very well risk his job. If the $10 million was invested in a B+ or higher rated stock, and it collapsed, his investment was justified." Street wisdom [Curzio (1987)].

Introduction

The December 7, 1987 issue of Barron's reported that, as of September 30, 1987, the outstanding supply of equity in the U.S. capital markets was estimated to be $3.802 trillion. Of this amount, $1.427 trillion or 37.5 percent

---

S.G. Badrinath is Assistant Professor of Finance at Northeastern University. Gerald D. Gay and Jayant R. Kale are Professor and Assistant Professor of Finance at Georgia State University, respectively.

The authors have benefitted from the comments of Harold Skipper, Bruce Fielitz of Atlanta Capital Management, Martin Grace, Tom Noe, the editor and an anonymous referee. An earlier version of this paper was presented at the Georgia Tech Finance Workshop. We acknowledge the research assistance of Chang Kil Lee, Janet Payne, Yong-Kil Shin, and Clement Wong. Research support from the College of Business Administration Research Council of Georgia State University and the Research and Scholarship Development Fund at Northeastern University is gratefully acknowledged.

Editor's Note: This paper won the Financial Management Association's 1988 Competitive Paper Award in the area of investments.
was in the hands of institutions. In the third quarter of 1987 alone, institutions purchased $142.393 billion worth of equity and sold $147.960 billion [Palmer (1987)]. Barron's also reported that, in the 13-month period of March 1986 to March 1987, on average institutions accounted for 43.12 percent of the number of shares bought and 41.48 percent of the shares sold each month on the New York Stock Exchange [Norris (1987)].

The law, recognizing the importance and the welfare implications of the monetary power of institutions, has laid down several crucial constraints, including severe penalties in case of imprudent management, on the investment behavior of institutional portfolio managers. Similarly, researchers have long acknowledged the major role of institutional investors in U.S. capital markets [see Cummins, Percival, Westerfield, and Ramage (1980), Ledolter and Power (1984), Cummins and Westerfield (1981), and Demsetz and Lehn (1985)]. However, institutional portfolio managers' methods for selecting their investments in this environment has received scant attention. Because their activities are governed by laws not applicable to an individual investor, it is conceivable that traditional portfolio selection criteria, such as minimizing portfolio variance for a given level of target return, may not adequately capture all the relevant aspects of institutional investment.

Earlier research on institutional investment examined the effect of the passage of the Employee Retirement Security Act of 1974 (ERISA) on private pension plans. For example, Cummins et al (1980) present survey evidence regarding the impact of ERISA on the investment policies of private pension plans. They find that ERISA has caused these plans to adopt written statements of investment policy and guidelines, to purchase fiduciary liability insurance, to place greater emphasis on performance measurement, and to seek an overall decrease in portfolio risk. Cummins and Westerfield (1981) investigate the impact of ERISA on the level of diversification in the portfolios of private pension plans, and suggest that the observed decline in their portfolio concentration ratios may be due to ERISA which evaluates prudence in the framework of modern portfolio theory. This differs from the traditional rule under common law in which each security in the portfolio had to individually qualify as a prudent investment. These authors also documented evidence supporting the two-tier market hypothesis which implies that institutional investors concentrate their activity on the stocks of large firms.

This study of institutional investment behavior attempts to determine the impact of the prudent man rule in a broader sense. Particularly, the study investigates patterns of institutional ownership of common stock without discriminating between types of institutional investors. The interest is in determining factors which influence the investment choices of the institutional

---

1 The statistics for the American Stock Exchange are 24.89 percent of the buys and 26.48 percent of the sells. On NASDAQ, institutional buys accounted for 20.22 percent of the purchases and 18.93 percent of the sells.

2 See Blair and Heggestad (1978) for a discussion on this issue.

3 For discussions of the tiered market hypothesis, see Blume (1976), Reilly (1975), and Cummins and Westerfield (1981).
portfolio manager. The perspective taken is unique in that it incorporates the propensity of institutional portfolio managers to protect their income potential in determining investment choices. The decisions of institutional portfolio managers are distinguished owing to the fiduciary responsibility arising from the handling of client capital. Since managers' performance and investment choices are continually monitored and evaluated, they tend to insure that not only are their investment decisions intrinsically sound, but would be considered by others to be decisions which are reasonable, well-informed, and prudent. This external evaluation of investment choices becomes substantially more significant during times of lack-luster performance. Thus, during such times, a "safety-net" is provided to managers if they can demonstrate that their judgement regarding the soundness of a particular investment choice was shared by others.

The article is organized as follows. The legal environment within which institutional portfolio managers operate is reviewed briefly and the potential influence of a set of firm characteristics on institutional investment is discussed. Then the data, research methods and results from the cross-sectional tests are described. Reports on the market reaction following the initial assignment of quality rankings are next presented. A discussion of the implications of this research and concluding remarks follow.

**Determinants of Institutional Investment under the Prudent Man Law**

**Fiduciary Duties and Penalties**

The behavior of institutional managers is subject to restrictions under both common law and ERISA. Under these laws, the managers, in their fiduciary capacity, are expected to behave in the manner of a prudent person. According to Section 404 of ERISA, fiduciaries are expected to discharge their duties

... with the care, skill, prudence, and diligence under the circumstances then prevailing that a prudent person acting in a like capacity and familiar with such matters would use in the conduct of an enterprise of a like character and with like aims; ...

ERISA also explicitly addresses the issues of penalties for managers who breach their fiduciary obligations. The Act provides that, in such cases, the fiduciaries shall be personally liable for any losses resulting from such infractions, as stated in Section 409:

Any person who is a fiduciary with respect to a plan who breaches any of the responsibilities, obligations, or duties imposed upon fiduciaries by this subchapter shall be personally liable to make good to such plan any losses to the plan resulting from each such breach, and to restore to such plan any profits of such fiduciary which have been made through use of assets of the plan by the fiduciary, and shall be subject to such other equitable or remedial relief as the court may deem appropriate, including removal of such fiduciary.\(^4\)

\(^4\)Similar penalties are described in Section 36 of the Investment Company Act of 1940.
Thus, institutional managers must ensure that their investment choices are deemed prudent or leave themselves open for bearing fairly high costs.\(^5\) In addition, under this Act, it is also now easier to bring lawsuits in the federal court to enforce the prudent man rule.

In view of these potential costs to institutional managers, it is important to note how the law evaluates managers' portfolio decisions. While the law does indeed recognize the tenets of modern portfolio theory which suggests that individual securities be assessed in a portfolio context, the wording of the law is still generally interpreted in terms of the performance of individual securities. This interpretation is in keeping with the common law rule prevailing in most states which explicitly requires the prudence of an individual investment to be assessed in terms of its own characteristics in addition to that of its relation to the entire portfolio. For example, the New York Court of Appeals has held that

\[\text{The record of any individual investment is not to be viewed exclusively, of course, as though it were its own water-tight compartment, since to some extent individual investment decisions may properly be affected by considerations of the performance of the fund as an entity, as in the instance, for example, of individual security decisions based in part on considerations of diversification of the fund or of capital transactions to achieve sound tax planning for the fund as a whole. The focus of inquiry, however, is nonetheless on the individual security as such and factors relating to the entire portfolio are to be weighed only along with others in reviewing the prudence of the particular investment decisions.}\]

This particular fact has important implications for institutional portfolio managers' investment behavior. Not only must managers be concerned with earning an adequate return on their portfolios while maintaining a sufficient level of diversification, but they also must ensure that the securities in the portfolio are such that they will qualify as individually prudent investments.

**Safety-Net Considerations for Institutional Investment**

The preceding discussion regarding legal restrictions on the investment behavior of portfolio managers has important implications for an empirical analysis of institutional investment patterns. Given that institutional investors must concern themselves with the "quality" of each investment in satisfying the prudence criterion, those characteristics of a security which will qualify it as a prudent investment by others "acting in a like capacity" become

---

\(^5\)As an illustration of the magnitude of these costs, Financial Programs, Inc., a mutual fund manager registered with the SEC as an investment advisor, was alleged to be in violation of the prudent man rule for committing $21 million of the fund's assets to over-the-counter securities that were speculative, unseasoned, and in limited supply. Even though a settlement was reached without an admission of guilt, it is instructive to peruse the terms of the offer made by the defendants. Financial Program's offer of settlement obligated it to: refrain for 180 days from performing any investment advisory function for any new client; offer $2.5 million in settlement of claims; and pay half of that $2.5 million even if the offer were rejected [summarized from Rattner (1978), pp. 50-51].

important factors in their investment decisions. The "safety-net potential" of an investment is the vector comprised of firm characteristics which are relevant in the determination of prudence. The objective is to determine the relationship between levels of institutional ownership and a stock's safety-net potential. While it is not possible to analyze an institutional investor's response to every conceivable firm characteristic, the authors select a sample of generally accepted firm attributes. The variables selected include firm size, trading liquidity, total and market risk, financial risk as measured by leverage, historical performance, dividend yield, years exchange-listed, and external validation, i.e., what others in the profession think of the particular firm.

The last attribute, external validation, is extremely important to a portfolio manager in providing a safety-net since, by definition, a prudent investment is one which is deemed by others in the profession to be a reasonably sound investment. The relationship with external validation, which would be the most direct test for the safety-net hypothesis, has heretofore not been conjectured in the literature and is unique to this analysis. Earlier discussions regarding legal issues would lead to the conjecture that this relationship is positive.

According to the two-tier market hypothesis, institutional investors restrict their investment activity primarily to the stocks of firms with large market values, and individual investors are active mainly in stocks of firms with lower market values. Therefore, the resulting hypothesis is that, cross-sectionally, institutional ownership is positively related to firm size. Similarly, institutional ownership should be an increasing function of the level of trading liquidity of a stock for several reasons. First, high trading liquidity is generally associated with large firms. Second, in order to minimize the search costs (i.e., administrative and research) of investment, \textit{ceteris paribus}, institutions will tend to avoid overdiversification. Therefore, given that the dollar amount that institutions invest in any one stock may be substantial, block trades by institutions may exert significant price pressure if the stock's trading liquidity is low. In order to avoid such price risk, institutions would prefer stocks with higher trading liquidity.

Even though modern portfolio theory suggests that only the market risk of a security is relevant for investment decisions, the institutional portfolio manager must also consider the total risk of each individual security since, under common law, and to a smaller extent under ERISA, investments by institutions are also required to be individually prudent. Therefore, both total risk and market risk (as measured by the Capital Asset Pricing Model beta) of

\footnote{To illustrate the importance of external validation as an indicator of prudence, refer to a recent landmark trust case, \textit{Chase vs. Peever}, that recently reached the Massachusetts Supreme Judicial Court on appeal. In this case, even though the court agreed that the fiduciary trust had been breached for holding on to questionable investments too long after "disquieting information was known," the court's focus in reducing the amount of surcharge was that others, as shown by figures reported in the Standard and Poor's Security Owner's Stock Guide and the Common Trust Fund Report, had invested in the same securities. [Chase vs. Peever, 383 Mass. 350, 419 N.E.2d 1358 (1981)].}
A stock must be explicitly considered as cross-sectional determinants of institutional ownership patterns. The authors conjecture that the relationship between the level of institutional ownership in a firm and total risk (as measured by the standard deviation of returns) is negative because of the propensity of portfolio managers to avoid large losses on individual securities. Large losses are to be avoided for two reasons. First, a large loss may have a detrimental impact on the overall portfolio performance and, second, a large loss on any one security may cause legal action to be initiated against the portfolio manager.

The relationship between beta and institutional ownership is more subtle. On the one hand, holding a stock with a high beta increases the expected return of the stock, thereby decreasing the possibility of sub-standard portfolio performance, which suggests a positive relationship between beta and institutional ownership. On the other hand, the holding of a stock with a higher beta also exerts a negative effect. To see this, consider a manager who is compensated under a symmetric performance incentive remuneration scheme with some market return as the performance index. Under this scheme if the portfolio outperforms the market the manager earns a “bonus,” and bears a “loss” in case of sub-market performance. If there are no legal costs, the manager would be indifferent to the beta of the portfolio because the expected performance incentive payment would be zero. However, given the existence of legal costs, which may have to be borne by the manager in addition to the losses from the symmetric incentive remuneration scheme, the total cost to the manager for under-performing the market is relatively higher than the benefit of outperforming it, and therefore, the manager may have an incentive to hold lower beta stocks. Therefore, the empirically observed direction of the relationship between beta and institutional ownership will determine which of the above two effects dominates.

The above considerations regarding the relationship between measures of risk and institutional ownership are also relevant in hypothesizing an empirical relationship between firm leverage and institutional ownership since leverage is positively related to both the total and market risk of a stock. Because of its positive relationship with total risk, leverage should be negatively related to levels of institutional ownership. However, because of a possible negative relationship between beta and institutional ownership, and given that leverage and beta are positively related, a negative relationship between leverage and institutional ownership can also be hypothesized.

With respect to a firm’s stock price performance, the relationship with institutional ownership is conjectured to be positive. In determining whether a particular investment is prudent, the court may consider the firm’s performance in the recent past. Therefore, in order to be deemed prudent,

---

*For discussions of the impact of compensation schemes on managerial behavior, see Modigliani and Pogue (1975), Starks (1987), and Cohen and Starks (1988). For a description of the prevailing portfolio managers’ compensation schemes, see Grinold and Rudd (1987) and Record and Tynan (1987).*
institutional portfolio managers ensure that their investments have reasonable performance possibly resulting from superior firm management ability.\textsuperscript{9} Similarly, the dividend history of a stock may also be relevant in determining the level of institutional ownership. For example, as discussed in Black (1976), investing in a non-dividend paying stock may be considered by certain portfolio managers as imprudent. It could also be that some institutions are prohibited from investing in non-dividend stocks. Thus, a positive relationship between dividend yield and institutional ownership is hypothesized. Finally, institutions may place importance on whether the security is sufficiently seasoned because courts may link this to prudence. Therefore, it is conjectured that the level of institutional holding in a firm is positively related to the number of years a security has been listed on an exchange (NYSE or AMEX) which is a proxy for the level of seasoning.\textsuperscript{10}

While it is true that all the attributes mentioned above contribute to the safety-net potential of a stock, the most robust test of the safety-net hypothesis would be the empirical relationship between an external validation measure and the levels of institutional ownership in firms. In fact, in the following analysis, the term safety-net hypothesis is reserved for the relationship between external validation and levels of institutional holding. It is understood that other attributes such as size and volatility, though contributing to the safety-net potential of a stock, could be related to levels of institutional holding for other reasons.

Patterns of Institutional Investment: The Empirical Evidence

Data

Tests are conducted on a sample of firms consisting of all NYSE and AMEX listed companies as of December 31, 1985 with all measures of firm attributes calculated as of this date. The level of institutional ownership in a specific firm is measured by the number of shares held by institutions expressed as a fraction of total shares outstanding.\textsuperscript{11} Data on shares outstanding and number of shares held by institutions, as of December 31, 1985, are obtained from the January 1986 issue of the Standard and Poor's Corporation (S&P) publication Security Owner's Stock Guide. This ownership data reflects a survey of approximately 2,550 institutions, including investment companies, banks, insurers, college endowments, and "13F" money managers.

\textsuperscript{9}It is interesting to note that some researchers [e.g. Demsetz and Lehn (1985), Shleifer and Vishny (1986) and Brickley, Lease, and Smith (1988)] have assigned a monitoring role to institutions. Under this scenario, it is argued that the performance of a firm improves because of institutional ownership. The empirical implications of this theory would be similar to those proposed here.

\textsuperscript{10}The authors are grateful to an anonymous referee for suggesting this variable. For a discussion of the effects of exchange listing on stock prices, see Sanger and McConnell (1986).

\textsuperscript{11}Using the measure of institutional ownership suggested by Demsetz and Lehn (1985), the natural log of the ratio of fractional institutional ownership to one minus this fraction, led to virtually no change in the findings.
Firm size (TA), generally regarded as being positively related with quality, is measured by total assets. Trading liquidity (LIQ) is measured by the most recent year's annual trading volume in the firm's stock divided by the total number of shares outstanding. The ratio of debt to total assets is used to measure financial leverage. Data on number of years a firm is listed on the exchange (YR), total assets, trading volume, dividend yield (DY), and financial leverage (LEV) are taken from either the Quarterly or the Annual Compustat data files. Equity beta (β), measuring the market risk of each firm, and the performance measure (π) are computed by regressing excess (over the risk-free rate) monthly security returns on the excess returns on CRSP value-weighted market index for the most recent 60-month period. The intercept term of this regression is the well-known performance measure suggested by Jensen (1969). The same period is used to determine firm volatility (σ), as measured by the standard deviation of monthly equity returns. The monthly security returns are obtained from the CRSP Monthly Returns data files. Only those firms for which at least 30 months of data were available are included in the analysis.

Finally, to proxy the external certification variable which is crucial to the safety-net hypothesis, the ranking assigned to a firm's stock by S&P is used. Recall that, according to the prevalent interpretation of the laws regarding prudent investment behavior, each security in a manager's portfolio is evaluated on an individual basis. In the case where a particular investment does poorly, the manager is held less responsible if he or she can demonstrate that the investment in that specific stock would have been considered reasonable by others in the profession. This need for external validation could be satisfied by selecting only those securities which are ranked highly by an external agency such as S&P.

Through their monthly publication, Security Owner's Stock Guide, S&P provides investors with independent assessments of relative firm quality derived from a proprietary computerized scoring system based on firm characteristics including size, and earnings and dividend history. Those firms which are not amenable to the ranking process or, more typically, have insufficient data, are not ranked and thus labeled NR. A description of the various rankings is as follows:

---

12 All the tests were repeated with market value of equity and sales as the size variables with no appreciable change in the results.
13 The tests were also conducted using the firm's float in place of shares outstanding and yielded, qualitatively speaking, the same results. The float data were obtained from the January 6, 1986 issue of Daily Graphs published by William O'Neil and Company.
14 In legal cases, instances can be found in which S&P rankings were indeed considered to be indicators of prudence. For example, in Chase vs. Peever (see footnote 7), the court was of the opinion that "... an investment should not automatically be held improper because of . . . ratings by services such as Moody's or Standard and Poor's . . ." however, "... we think the elements referred to may properly be taken into account as factors in determining prudence."
In a note of explanation on the ranking computation, S&P states:

The investment process involves assessment of various factors—such as product and industry position, corporate resources and financial policy—with results that make some common stocks more highly esteemed than others. In this assessment, Standard and Poor’s believes that earnings and dividend performance is the end result of the interplay of these factors and that, over the long run, record of this performance has a considerable bearing on relative quality. The rankings, however, do not pretend to reflect all of the factors, tangible or intangible, that bear on stock quality.15

Thus, the inclusion of the ranking variable serves two distinct functions. First, it captures the effect of those variables which, as mentioned earlier, could affect firm quality, but were not explicitly considered. Second, as confirmed by discussions with portfolio managers, these rankings are widely used and generally accepted as relative measures of market esteem.16 Therefore, it serves the important function of capturing the safety-net potential level of a particular stock.17

Summary Statistics

Summary statistics for the above-described firm attributes, broken down by S&P rankings are presented in Table 1.18 The universe of firms is separated into three groupings: non-utilities and non-financials, utilities, and financials.19 Inspection of panel (a), All Firms less Utilities and Financials, suggests that the level of fractional institutional ownership is positively related to rankings. This is an interesting finding because it provides at least weak support for the safety-net hypothesis. Other interesting observations can be drawn from Table 1. There seems to be a direct correspondence between rankings and total assets, the performance measure, and annual share trading volume. The positive relationship with size is to be expected since, according

<table>
<thead>
<tr>
<th>Quality Ranking</th>
<th>Description</th>
<th>Quality Ranking</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A+</td>
<td>Highest</td>
<td>B-</td>
<td>Lower</td>
</tr>
<tr>
<td>A</td>
<td>High</td>
<td>C</td>
<td>Lowest</td>
</tr>
<tr>
<td>A-</td>
<td>Above Average</td>
<td>D</td>
<td>In Reorganization</td>
</tr>
<tr>
<td>B+</td>
<td>Average</td>
<td>NR</td>
<td>Not Rated</td>
</tr>
<tr>
<td>B</td>
<td>Below Average</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

16Discussions with a ranking committee member at Standard and Poor’s Corporation revealed that both firms and portfolio managers do follow these rankings quite seriously. Firms often call in to inquire why their rankings are not higher, while portfolio managers often complain how they have been “now forced to sell” a stock following its loss of ranking.
17Interestingly, it is found that, in a recent class action suit involving beneficiaries of approximately 1,250 trusts, evidence was introduced by the bank’s board of directors that one of the minimum standards for the purchase of stocks for the trust accounts was an S&P ranking of B+ or better. [First Alabama Bank of Montgomery, N.A. vs. Martin, 425 So.2d 415 (Ala. 1983)].
18Fourteen firms ranked D, implying that they were in reorganization, were omitted from the analysis.
19The sample of utilities consists of those firms with two-digit SIC codes of 48 and 49. Financials have two-digit SIC codes ranging from 60 to 64.
<table>
<thead>
<tr>
<th>Quality Ranking</th>
<th>No. of Firms</th>
<th>Fraction of Institutional Ownership</th>
<th>Total Assets (10^4)</th>
<th>Jensen's Monthly Performance Measure</th>
<th>Standard Deviation of Returns</th>
<th>Dividend Yield</th>
<th>Annual Share Volume (10^4)</th>
<th>Annual Share Turnover</th>
<th>Debt/ Total Assets</th>
<th>Years Listed</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Firms less Utilities and Financials*</td>
<td>90</td>
<td>.491</td>
<td>395</td>
<td>0.894</td>
<td>.012</td>
<td>.074</td>
<td>.034</td>
<td>42.40</td>
<td>.350</td>
<td>.347</td>
</tr>
<tr>
<td>A+</td>
<td>115</td>
<td>.491</td>
<td>367</td>
<td>1.026</td>
<td>.006</td>
<td>.082</td>
<td>.022</td>
<td>35.26</td>
<td>.608</td>
<td>.287</td>
</tr>
<tr>
<td>A</td>
<td>147</td>
<td>.415</td>
<td>237</td>
<td>1.120</td>
<td>.007</td>
<td>.091</td>
<td>.025</td>
<td>19.64</td>
<td>.545</td>
<td>.305</td>
</tr>
<tr>
<td>B+</td>
<td>324</td>
<td>.335</td>
<td>104</td>
<td>1.118</td>
<td>.014</td>
<td>.101</td>
<td>.024</td>
<td>12.28</td>
<td>.541</td>
<td>.281</td>
</tr>
<tr>
<td>B</td>
<td>261</td>
<td>.329</td>
<td>84</td>
<td>1.325</td>
<td>.001</td>
<td>.113</td>
<td>.030</td>
<td>12.51</td>
<td>.633</td>
<td>.293</td>
</tr>
<tr>
<td>B–</td>
<td>209</td>
<td>.203</td>
<td>43</td>
<td>1.321</td>
<td>.001</td>
<td>.134</td>
<td>.033</td>
<td>8.39</td>
<td>.547</td>
<td>.300</td>
</tr>
<tr>
<td>C</td>
<td>162</td>
<td>.165</td>
<td>36</td>
<td>1.118</td>
<td>-.012</td>
<td>.146</td>
<td>.029</td>
<td>8.36</td>
<td>.472</td>
<td>.303</td>
</tr>
<tr>
<td>NR</td>
<td>135</td>
<td>.156</td>
<td>129</td>
<td>1.092</td>
<td>-.007</td>
<td>.120</td>
<td>.027</td>
<td>7.33</td>
<td>.356</td>
<td>.286</td>
</tr>
<tr>
<td>ALL</td>
<td>1462</td>
<td>.307</td>
<td>139</td>
<td>1.129</td>
<td>.001</td>
<td>.111</td>
<td>.028</td>
<td>15.33</td>
<td>.536</td>
<td>.296</td>
</tr>
</tbody>
</table>

Utilities

<table>
<thead>
<tr>
<th>No. of Firms</th>
<th>Fraction of Institutional Ownership</th>
<th>Total Assets (10^4)</th>
<th>Jensen's Monthly Performance Measure</th>
<th>Standard Deviation of Returns</th>
<th>Dividend Yield</th>
<th>Annual Share Volume (10^4)</th>
<th>Annual Share Turnover</th>
<th>Debt/ Total Assets</th>
<th>Years Listed</th>
</tr>
</thead>
<tbody>
<tr>
<td>A+</td>
<td>18</td>
<td>.376</td>
<td>593</td>
<td>0.628</td>
<td>.008</td>
<td>.062</td>
<td>.024</td>
<td>28.58</td>
<td>.464</td>
</tr>
<tr>
<td>A</td>
<td>43</td>
<td>.310</td>
<td>359</td>
<td>0.589</td>
<td>.009</td>
<td>.060</td>
<td>.026</td>
<td>28.31</td>
<td>.514</td>
</tr>
<tr>
<td>A–</td>
<td>63</td>
<td>.206</td>
<td>330</td>
<td>0.458</td>
<td>.010</td>
<td>.057</td>
<td>.026</td>
<td>27.35</td>
<td>.431</td>
</tr>
<tr>
<td>B+</td>
<td>21</td>
<td>.216</td>
<td>175</td>
<td>0.580</td>
<td>.007</td>
<td>.063</td>
<td>.040</td>
<td>13.72</td>
<td>.493</td>
</tr>
<tr>
<td>B</td>
<td>7</td>
<td>.364</td>
<td>214</td>
<td>1.169</td>
<td>-.004</td>
<td>.097</td>
<td>.043</td>
<td>21.35</td>
<td>.514</td>
</tr>
<tr>
<td>B–</td>
<td>2</td>
<td>.251</td>
<td>47</td>
<td>0.893</td>
<td>.002</td>
<td>.117</td>
<td>.052</td>
<td>2.32</td>
<td>.318</td>
</tr>
<tr>
<td>C</td>
<td>1</td>
<td>.113</td>
<td>184</td>
<td>1.704</td>
<td>-.010</td>
<td>.143</td>
<td>.000</td>
<td>51.03</td>
<td>.201</td>
</tr>
<tr>
<td>NR</td>
<td>21</td>
<td>.216</td>
<td>279</td>
<td>0.335</td>
<td>-.001</td>
<td>.098</td>
<td>.013</td>
<td>31.91</td>
<td>.717</td>
</tr>
<tr>
<td>ALL</td>
<td>176</td>
<td>.258</td>
<td>331</td>
<td>0.607</td>
<td>.007</td>
<td>.067</td>
<td>.027</td>
<td>26.36</td>
<td>.520</td>
</tr>
</tbody>
</table>

Financials

<table>
<thead>
<tr>
<th>No. of Firms</th>
<th>Fraction of Institutional Ownership</th>
<th>Total Assets (10^4)</th>
<th>Jensen's Monthly Performance Measure</th>
<th>Standard Deviation of Returns</th>
<th>Dividend Yield</th>
<th>Annual Share Volume (10^4)</th>
<th>Annual Share Turnover</th>
<th>Debt/ Total Assets</th>
<th>Years Listed</th>
</tr>
</thead>
<tbody>
<tr>
<td>A+</td>
<td>15</td>
<td>.475</td>
<td>3005</td>
<td>1.019</td>
<td>.013</td>
<td>.079</td>
<td>.020</td>
<td>29.22</td>
<td>.587</td>
</tr>
<tr>
<td>A</td>
<td>26</td>
<td>.418</td>
<td>2038</td>
<td>0.885</td>
<td>.014</td>
<td>.080</td>
<td>.027</td>
<td>22.98</td>
<td>.519</td>
</tr>
<tr>
<td>A–</td>
<td>31</td>
<td>.454</td>
<td>1376</td>
<td>1.116</td>
<td>.010</td>
<td>.088</td>
<td>.025</td>
<td>16.73</td>
<td>.514</td>
</tr>
<tr>
<td>B</td>
<td>11</td>
<td>.432</td>
<td>2723</td>
<td>1.434</td>
<td>.004</td>
<td>.113</td>
<td>.031</td>
<td>40.05</td>
<td>.794</td>
</tr>
<tr>
<td>B–</td>
<td>8</td>
<td>.339</td>
<td>898</td>
<td>1.894</td>
<td>.005</td>
<td>.136</td>
<td>.051</td>
<td>18.84</td>
<td>.886</td>
</tr>
<tr>
<td>C</td>
<td>6</td>
<td>.163</td>
<td>373</td>
<td>1.957</td>
<td>-.001</td>
<td>.154</td>
<td>.050</td>
<td>8.33</td>
<td>.761</td>
</tr>
<tr>
<td>NR</td>
<td>14</td>
<td>.156</td>
<td>1039</td>
<td>1.467</td>
<td>.004</td>
<td>.143</td>
<td>.036</td>
<td>13.27</td>
<td>.494</td>
</tr>
<tr>
<td>ALL</td>
<td>123</td>
<td>.376</td>
<td>1647</td>
<td>1.241</td>
<td>.009</td>
<td>.103</td>
<td>.029</td>
<td>22.32</td>
<td>.619</td>
</tr>
</tbody>
</table>

*Utilities include 2-digit SIC codes 48 and 49, and Financials include codes 60, 61, 62, 63 and 64.
to the S&P ranking process, larger firms are assigned relatively higher rankings. Interestingly, even though S&P claims that rankings are not to be taken as future stock price performance measures, the average value of Jensen's performance measure (of historical performance) is increasing with ranking. The positive relationship between share volume and institutional ownership, though intuitively appealing, must be interpreted with caution because it may simply reflect the size effect. The relationship between rankings and the standard deviation of returns is negative, that is, firms with lower returns volatility receive higher quality rankings. This is not surprising given that the rankings process places substantial emphasis on the stability of a firm's earnings. Finally, the relationships of rankings with beta, dividend yield, trading liquidity, financial leverage, and years exchange-listed are somewhat unclear.

As mentioned earlier, the positive relationship between fractional institutional holding and quality rankings is consistent with the safety-net hypothesis. This observation should be considered with caution as both ranking and fractional institutional ownership are functionally dependent on some common variables, and it is not yet clear that this positive relationship will hold after removing the effects of these common variables. However, a comparison of the attributes of the non-ranked (NR) firms with others offers striking support for this conjecture. In terms of size, the NR firms are larger on average than all but the A +, A, and A− ranked securities. In addition, the performance and volatility measures for the NR firms are better than or as good as firms ranked B− or C. However, despite this superiority in firm attributes, the level of fractional institutional ownership is the lowest for NR firms, indicating that a ranking per se appears to attract institutional investors, thus supporting the safety-net hypothesis. This conjecture is further supported by the lower trading liquidity of NR stocks.

Panels (b) and (c) of Table 1 contain summary statistics for utilities and financials, respectively. The observations made regarding firms in panel (a), except for trading liquidity, can generally be drawn for these groups though the distinctions are less sharp. It is noteworthy that utilities have lower average fractional institutional ownership than firms in the non-utilities and non-financials group. Financials, on the other hand, have larger institutional ownership than either of the other two groups. Additionally, a perusal of the variable values, in particular total assets, highlights the importance of separating utilities and financials from the other firms in conducting the empirical analysis.

**Cross-Sectional Determinants of Institutional Investments**

To provide further support for the safety-net hypothesis and to investigate the cross-sectional determinants of institutional investment, the following cross-sectional regression is estimated:

---

20Given the ranking assignment requirements of S&P, as expected, NR firms are relatively more recently exchange-listed.
\[ Y_i = \gamma_0 + \gamma_1(D_i) + \gamma_2(\ln TA_i) + \gamma_3(\sigma_i) + \gamma_4(\beta_i) + \gamma_5(\pi_i) \\
+ \gamma_6(LIQ_i) + \gamma_7(YR_i) + \mu_i \]  

(1)

where \( Y_i \) is the fractional institutional ownership in firm \( i \), \( D_i \) is a dummy variable which takes the value one when the firm is ranked and zero otherwise, and \( \mu_i \) is the random disturbance term.21 The heteroscedasticity-corrected results of the above regression for each of the three industry groupings are presented in Table 2.22

The regression results for the non-utilities and non-financials group offer strong support for the safety-net hypotheses. It is observed that the coefficient for the dummy variable is significant (\( t = 6.70 \)), indicating that a ranking influences institutional holding levels even after taking into account the other variables. The positive sign of the coefficient provides further support to the external validation role of S&P rankings and the safety-net hypothesis. The coefficients for the size, liquidity, performance measure, and years exchange-listed are significantly positive indicating the level of institutional holding is an increasing function of each of these variables. The relationship with the volatility measure is significantly negative (\( t = -8.21 \)). The coefficient on the \( \beta \) variable is positive and significant (\( t = 6.93 \)), indicating that the positive effect of a change in beta discussed in the earlier section dominates the negative effect.

The results for the utilities and the financial groups are not quite as supportive of the hypothesis. The effects of size and trading liquidity are, as before, significantly positive in both groups. The dummy variable coefficient, while not statistically significant, is of the correct sign. The relationship with the volatility measure is negative in both groups, and is significant only for the financials. The sign of the coefficient for \( \beta \) is positive and significant for utilities but negative for financials. With regard to the performance and years exchange-listed measures, the effects are insignificant for utilities, but significant for the financials.

It is conceivable that the above results are driven purely by industry effects, i.e., NR firms may be dominated by one industry and that, for some reason, this industry does not attract institutional interest. To check for such an industry effect, the two-digit SIC codes found most frequently in the NR category are first determined, and then the above regression equation is

\[ Y_i = -0.224 + 0.133 (\ln TA_i) + 0.035 (\ln TA_i) - 2.168 (\sigma_i) + 0.099 (\beta_i) + 1.420 (\pi_i) \]

\[ (-2.82) \quad (5.74) \quad (7.29) \quad (-7.59) \quad (6.80) \quad (4.29) \]

\[ + 0.138 (Liq_i) + 0.0016 (YR_i) - 0.0008 (DY_i) + 0.00001 (LEV_i) \]

\[ (7.60) \quad (1.59) \quad (-0.54) \quad (0.05) \]

Adjusted \( R^2 = 0.492 \), Breusch-Pagan Chi-Squared statistic = 29.69. DY and LEV denote dividend yield and leverage, respectively. The t-values in parentheses are calculated using White (1980) heteroskedasticity corrected standard errors.22

The Breusch-Pagan Chi-Squared values were 46.72, 42.60, and 10.89 for the three industry groupings, respectively.
Table 2
Test Results for Significance of a Ranking in Providing a Safety-Net

<table>
<thead>
<tr>
<th>Group</th>
<th>$\gamma_0$</th>
<th>$\gamma_1$</th>
<th>$\gamma_2$</th>
<th>$\gamma_3$</th>
<th>$\gamma_4$</th>
<th>$\gamma_5$</th>
<th>$\gamma_6$</th>
<th>$\gamma_7$</th>
<th>Adj. $R^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>(i) All Firms less Utilities and Financials (N = 1237)</td>
<td>-0.251</td>
<td>0.128</td>
<td>0.038</td>
<td>-2.187</td>
<td>0.092</td>
<td>1.125</td>
<td>0.142</td>
<td>0.0014</td>
<td>0.501</td>
</tr>
<tr>
<td></td>
<td>(-3.72)$^c$</td>
<td>(6.70)$^c$</td>
<td>(9.42)$^c$</td>
<td>(-8.21)$^c$</td>
<td>(6.93)$^c$</td>
<td>(3.48)$^c$</td>
<td>(8.81)$^c$</td>
<td>(1.73)$^c$</td>
<td></td>
</tr>
<tr>
<td>(ii) Utilities (N = 147)</td>
<td>-0.488</td>
<td>0.068</td>
<td>0.041</td>
<td>-0.263</td>
<td>0.144</td>
<td>0.062</td>
<td>0.096</td>
<td>-0.0004</td>
<td>0.429</td>
</tr>
<tr>
<td></td>
<td>(-3.88)$^c$</td>
<td>(1.58)$^c$</td>
<td>(4.75)$^c$</td>
<td>(-0.38)$^c$</td>
<td>(2.61)$^c$</td>
<td>(0.04)$^c$</td>
<td>(2.87)$^c$</td>
<td>(-0.30)$^c$</td>
<td></td>
</tr>
<tr>
<td>(iii) Financials (N = 76)</td>
<td>-0.345</td>
<td>0.105</td>
<td>0.044</td>
<td>-2.045</td>
<td>-0.019</td>
<td>3.657</td>
<td>0.110</td>
<td>0.0063</td>
<td>0.372</td>
</tr>
<tr>
<td></td>
<td>(-1.58)$^c$</td>
<td>(1.20)$^c$</td>
<td>(4.00)$^c$</td>
<td>(-2.24)$^d$</td>
<td>(-0.33)$^d$</td>
<td>(2.08)$^d$</td>
<td>(1.87)$^c$</td>
<td>(1.59)$^c$</td>
<td></td>
</tr>
</tbody>
</table>

*Sample includes NYSE and AMEX listed securities as of December 31, 1985.

Regression model:

$$Y_i = \gamma_0 + \gamma_1(D_i) + \gamma_2(\text{lnTA}_i) + \gamma_3(\sigma_i) + \gamma_4(\beta_i) + \gamma_5(\pi_i) + \gamma_6(\text{LIQ}_i) + \gamma_7(\text{YR}_i) + \epsilon_i,$$

where $Y_i$ = fractional institutional ownership of firm $i$; $D_i = 1$ if firm $i$ is ranked and zero otherwise; $\text{TA}_i$ = total assets ($\times 10^8$) of firm $i$; $\sigma_i$ = standard deviation of returns for firm $i$; $\beta_i$ = beta of firm $i$; $\pi_i$ = Jensen's monthly performance measure for firm $i$; $\text{LIQ}_i$ = annual share turnover for firm $i$, and $\text{YR}_i$ = years exchange listed for firm $i$. t-statistics, corrected for heteroscedasticity [White (1980)], in parentheses.

*Utilities include 2-digit SIC codes 48 and 49, and Financials include 60, 61, 62, 63, and 64.

$^c$Significantly different from zero at the .10 significance level.

$^d$Significantly different from zero at the .05 significance level.

$^c$Significantly different from zero at the .01 significance level.
estimated only for firms with those industry codes. In results not reported, it is found that the above relationships still hold.\footnote{Four 2-digit SIC codes appear a little more frequently, though not disproportionately so, than others in the NR category. The regressions for the four codes are repeated and the results are found to remain unchanged. For example, the regression equation for SIC code 36 (electrical and electronic manufacturing) was:  
\begin{align*}
Y_i = -0.473 & + 0.329 (1_{i1}) + 0.041 (\ln \TA_i) - 2.225 (\sigma_i) + 0.079 (\beta_i) + 0.849 (\pi_i) \\
& (-2.23) \quad (3.54) \quad (3.94) \quad (-3.76) \quad (2.22) \quad (0.80) \\
& + 0.120 (\LIQ_i) + 0.0027 (\YR_i), \\
& (3.48) \quad (1.12) \\
\text{Adjusted } R^2 = 0.553. \quad \text{The number of observations used in the regression is 145, which represents the number of code 36 firms in the entire sample.}
\end{align*}

\footnote{The Breusch-Pagan Chi-Squared value is 63.45 indicating the presence of heteroscedasticity. The t-values in parentheses are corrected for heteroscedasticity.}

Distinctions by Individual Rankings

The above analysis does not distinguish the rankings that firms were assigned. It is conjectured that higher-ranked firms provide more safety-net potential than those assigned a lower rank. To investigate this conjecture, the earlier regression equation is first re-estimated on the non-utilities and non-financial grouping with a vector of seven binary dummy variables, $D_{ij}$, $j = 1,2, \ldots, 7$, where $D_{ii}$ is the dummy variable associated with the ranking $A+$, $D_{i2}$ with $A$, and so on. The regression results are:\footnote{The Breusch-Pagan Chi-Squared value is 63.45 indicating the presence of heteroscedasticity. The t-values in parentheses are corrected for heteroscedasticity.}

\begin{align*}
Y_i &= -0.198 + 0.190(D_{i1}) + 0.196(D_{i2}) + 0.166(D_{i3}) + 0.125(D_{i4}) + 0.117(D_{i5}) \\
& \quad (-3.04) \quad (7.97) \quad (7.88) \quad (6.22) \quad (5.51) \\
& + 0.069(D_{i6}) + 0.088(D_{i7}) + 0.030(\ln \TA_i) - 1.748(\sigma_i) + 0.083(\beta_i) \\
& \quad (3.34) \quad (4.14) \quad (7.42) \quad (-6.44) \quad (6.05) \\
& + 0.404(\pi_i) + 0.151(\LIQ_i) + 0.0018(\YR_i), \quad \text{Adjusted } R^2 = 0.517 \\
& \quad (1.31) \quad (9.32) \quad (2.24)
\end{align*}

The above results provide very strong support for the safety-net hypothesis. The coefficients of all the dummy variables are significantly positive, indicating that firms in each ranking have significantly higher levels of institutional holdings than firms which are not ranked. Even the worst-ranked firms, i.e. those in the C category, attract significantly higher institutional interest ($t = 4.14$) than non-ranked firms even after taking into account other relevant firm attributes.

Next, to determine whether there are significant differences and/or patterns between the seven rankings, significance tests are conducted on the paired differences of the coefficients of the seven dummy variables. Using the variance-covariance matrix from the above regression, t-values are calculated to determine whether these differences are statistically significant. The results of this investigation are presented in Table 3.

A perusal of Table 3 indicates some clear patterns of institutional investment behavior vis-à-vis safety-net rankings. It appears that institutional
Table 3
Test Results for Differences in Safety-Net Potential of S&P Rankings.a,b

<table>
<thead>
<tr>
<th>Ranking</th>
<th>A+</th>
<th>A</th>
<th>A-</th>
<th>B+</th>
<th>B</th>
<th>B-</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>-0.006</td>
<td>0.024</td>
<td>0.024</td>
<td>0.065</td>
<td>0.073</td>
<td>0.121</td>
<td>0.190</td>
</tr>
<tr>
<td></td>
<td>(-0.31)</td>
<td>(1.27)</td>
<td>(1.45)</td>
<td>(3.92)</td>
<td>(3.93)</td>
<td>(2.66)</td>
<td>(4.44)</td>
</tr>
<tr>
<td>A-</td>
<td>0.073</td>
<td>0.079</td>
<td>0.049</td>
<td>0.008</td>
<td>(2.47)</td>
<td>(0.58)</td>
<td>(3.99)</td>
</tr>
<tr>
<td>B</td>
<td>0.073</td>
<td>0.079</td>
<td>0.049</td>
<td>0.008</td>
<td>(2.47)</td>
<td>(0.58)</td>
<td>(3.99)</td>
</tr>
<tr>
<td>B-</td>
<td>0.121</td>
<td>0.127</td>
<td>0.097</td>
<td>0.056</td>
<td>(3.70)</td>
<td>(0.83)</td>
<td>(3.92)</td>
</tr>
<tr>
<td>C</td>
<td>0.102</td>
<td>0.108</td>
<td>0.078</td>
<td>0.037</td>
<td>(3.12)</td>
<td>(1.21)</td>
<td>(3.91)</td>
</tr>
<tr>
<td>NR</td>
<td>0.190</td>
<td>0.196</td>
<td>0.166</td>
<td>0.125</td>
<td>(6.22)</td>
<td>(5.51)</td>
<td>(4.14)</td>
</tr>
</tbody>
</table>

*aSample includes non-utility and non-financial NYSE and AMEX listed securities as of December 31, 1985. Utilities include 2-digit SIC codes 48 and 49, and Financials include 60, 61, 62, 63, and 64.

*bNumbers in table represent differences in coefficients of dummy variables in the regression:

\[ Y_i = \delta + \sum_{j=1}^{7} \delta_j D_{ij} + \delta_a (\ln TA_i) + \delta_\mu (\mu_i) + \delta_\sigma (\sigma_i) + \delta_\pi (\pi_i) + \delta_\tau (\tau_i) + \delta_\gamma (\gamma_i) + \epsilon_i \]

where \( Y_i \) = fractional institutional ownership of firm i; TA = total assets (x100) of firm i; \( \sigma_i \) = standard deviation of returns for firm i; \( \mu_i \) = beta of firm i; \( \pi_i \) = Jensen's monthly performance measure for firm i; \( \tau_i \) = annual share turnover for firm i; \( \gamma_i \) = years exchange listed for firm i; and \( D_{ij} = 1 \) if firm i is of ranking j, j = 1, . . . , 7 (where 1 is the dummy associated with ranking A+ and 7 is the dummy associated with C), and zero otherwise. t-statistics, corrected for heteroscedasticity [White (1980)], in parentheses.

*cSignificantly greater than zero at the .05 significance level.

dSignificantly greater than zero at the .01 significance level.

investors do not discriminate between the safety-net potential of stocks as individual rankings might prescribe. For example, the diagonal elements of the matrix suggest that institutions are indifferent among A+ and A, A and A-, B+ and B, and B- and C. However, for pairs A- and B+, and B and B- the differences are significant and in the expected direction. This would indicate that institutions divide the spectrum of rankings into three categories: high, medium, and low. Evidence for this is available from the off-diagonal elements of the matrix. Rankings A+ and A- constitute the high category. This is plausible since the difference between A+ and A- is also insignificant (t = 1.27). The medium category consists of the two rankings B+ and B. Not only is the difference between these two rankings insignificant (t = 0.58), but
institutional holdings are also always significantly less than those rankings in
the high category, and always greater than those in the low category consisting
of rankings B- and C. Institutional interest in any ranking is significantly
greater than the NR category, as indicated in the bottom row of the table.
Based on the above results, it is claimed that institutions do place emphasis on
the safety-net characteristics of securities in their investment choices.

Further Evidence on the Safety-Net Hypothesis
and its Asset Pricing Implications

A conclusion from the above tests is that NR (not ranked) firms, despite
possessing superior firm attributes relative to many firms which were ranked,
have significantly lower levels of institutional interest. This finding, together
with the fact that the dummy variables in the cross-sectional regressions are
significant and positive, supports the notion that portfolio managers do
consider the safety-net provided by S&P rankings. Therefore, it is conjectured
that the mere assignment of a ranking to a hitherto NR firm will elicit
significant responses from institutional investors. In addition, given that
institutions account for nearly 40 percent of all trading activity on the NYSE
and AMEX, it is also quite possible that the assignment of a ranking induces
a change in the pricing structure of the stock. This may occur because a
portfolio manager’s perceived risk of a stock includes a unique component
attributable to the risk of that investment’s being considered imprudent. When
a firm’s stock is assigned a ranking by S&P, this component of risk, the risk of
legal liability, is reduced which, in turn, should be reflected in the returns
distribution of the stock.

The following tests also shed light on the important issue of the direction of
causality in the determination of institutional ownership patterns vis-a-vis the
safety-net potential of S&P rankings. It can be argued that the results of the
erlier cross-sectional tests, particularly those with respect to firm-specific
attributes, obtain not because institutional investors react to firm-specific
attributes, but because the firm’s management changes its behavior in
response to the first moves of institutions. However, in discussions with
persons at S&P responsible for computing these rankings, the authors have
been assured that institutional ownership is not, and never was, an input into
the ranking process. In addition, in the tests to follow, changes in
institutional activity and market pricing following the initial assignment of an
S&P ranking are investigated where any significant results should corroborate
the position that the institutions respond to the assignment of an S&P ranking
because of the safety-net it provides and not vice versa.

25 Neither is past stock price performance an input in the ranking process.
26 Similar tests to determine the direction of causality with respect to the other determinants such
as performance and volatility are beyond the scope of this article. It has been argued that
institutions perform a monitoring role and hence better performance is caused by institutional
investment and not vice versa. While this is indeed a reasonable possibility, it does not necessarily
negate the cross-sectional regression result that better performing firms tend to attract more
Institutional Response to Initial Ranking Assignments

To investigate the conjecture regarding institutional response, the simplest, and probably the most robust test, is to analyze the impact of an initial S&P ranking on institutional investment activity. In this regard, for the period December 1980 to December 1985, from monthly issues of the S&P Security Owner’s Stock Guide, a list of all NYSE and AMEX listed firms which were assigned their initial quality ranking is constructed. December 1980 is selected as the starting date for this analysis owing to a substantial expansion in institutional coverage by S&P in September 1980. In addition, from the information available in these publications, three measures of changes in institutional interest are computed: number of institutional shareholders, total number of shares held by institutions, and the institutional shareholdings expressed as a fraction of the total number of shares outstanding. Changes in these three variables are computed for a ten-month window, ranging from three months preceding the month of ranking assignment to six months after. A ten-month window is chosen to help capture reporting lags by institutions. For example, portfolio managers with greater than $100 million in assets under management are required to make filings with the SEC regarding portfolio holdings only quarterly and, in addition, are given a filing period of 45 days following the quarter-end. Also, institutions may require some time before altering their portfolios in response to a ranking assignment.

Institutional Response for All Rankings: The results of this analysis for the 126 firms in our sample with complete data are presented in Table 4. The results are supportive of the conjecture that initial ranking assignments elicit significantly higher institutional activity. For example, an average increase of 1.85 (t = 2.24) institutions per firm was observed by the end of the sixth month following month zero. However, if comparison is made with month -1, that is the month prior to the ranking assignment, the average increase is 3.17 institutions per firm as shown in the last column of the table. When attention is shifted to the changes in the number of shares held by institutions, the increase by the sixth month is 260,000 shares (374,000 when compared to month -1) which is approximately an increase of 1.61 percent (2.59 percent when compared to month -1) of the number of shares outstanding. It is important to note that the assignment of a quality ranking, given the S&P ranking process, does not change any of the underlying variables of the firm. Therefore, any change in institutional activity is likely attributable to the fact that the ranking provides a safety-net to portfolio managers.

institutional investors. To see this, consider two hypothetical firms neither of which initially has any institutional owners. Now suppose that, for some reason, institutional investors purchase stakes in the two firms. According to the monitoring theory, the performance levels of both firms will increase. However, unless the firms' responses to the institutional moves, as measured by their post-institutional-investment performance, are linear in the institutional stake, a positive cross-sectional relationship between institutional ownership and performance need not be a consequence of the monitoring theory. The tests in this article shed light on this cross-sectional aspect and suggest that better performing firms attract higher institutional holding.
Table 4

Average Changes in Measures of Institutional Ownership in Months Surrounding the Initial Assignment of an S&P Quality Ranking to Unranked Firms During the Period December 1980–December 1985

<table>
<thead>
<tr>
<th>Ownership Measure</th>
<th>Months Relative to Assignment of Ranking</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>-3</td>
</tr>
<tr>
<td>Changes in Number of Institutional Shareholders</td>
<td>-1.54</td>
</tr>
<tr>
<td></td>
<td>(-1.62)</td>
</tr>
<tr>
<td>Changes in Shares (0000) held by Institutions</td>
<td>-195</td>
</tr>
<tr>
<td></td>
<td>(-1.47)</td>
</tr>
<tr>
<td>Changes in Institutional Shareholdings as a Percent</td>
<td>-1.42</td>
</tr>
<tr>
<td>of Shares Outstanding</td>
<td>(-2.95)</td>
</tr>
</tbody>
</table>

\textsuperscript{a}With exception of last column, average changes are measured relative to month zero. Number of firms with available data equals 126. t-statistics in parentheses.

\textsuperscript{b}Significantly greater than zero at the .05 significance level.

\textsuperscript{c}Significantly greater than zero at the .01 significance level.
To investigate the possibility that the results are not driven by a general increase in institutional ownership, levels of institutional ownership are analyzed over the above period. From monthly figures reported by Media General in their publication *Industrioscope*, the fractional institutional ownership for the portfolio of firms is calculated from their coverage which is large enough to draw inferences for the market. For the period September 1980 through April 1982, their coverage consisted of 1,800 firms. The average change in fractional institutional ownership during this period was only 0.095 percent per month with eight months showing negative changes, nine months positive, and two months indicating no change. From May 1982 through December 1985, the coverage was expanded to approximately 3,100 firms during which the average change in institutional ownership was again only 0.046 percent per month with 24 months negative, 18 months positive, and one month indicating no change. These results support the notion that the above results regarding increases in institutional activity following ranking assignments cannot be attributed to a general increasing trend in institutional ownership.

**Institutional Response by Individual Ranking:** To examine whether the institutional response detected above is similar across initial ranking assignments, the changes in each of the three measures of institutional interest for individual ranking assignments are examined. A and A- rankings, however, are grouped together because there are only eight observations for the two rankings together and because there are no A+ initial rankings in the sample. Since the results for all the three measures are almost identical, Table 5 reports only the changes in the measure shares held by institutions for each individual ranking assignment.

The results in Table 5 indicate that the impact on institutional activity is not uniform across rankings. The most pronounced results occur for ranking B+ where institutional shareholdings increase by an average of 913,000 shares per firm after six months. It is also interesting to point out that if the change in institutional shareholding in month +6 is measured relative to month -1, the average increase jumps to 1,516,000 shares per firm. Similarly, changes in shareholding for ranking B, while not as large as for ranking B+, are typically significant. For example, there was an increase of 295,000 shares per firm after six months. Results for ranking groups A and A-, B-, and C were insignificant. These results regarding B+ and B ranked firms are consistent with our safety-net hypothesis. The insignificant results for the other rankings are somewhat surprising but may be explained as follows. Note that a ranking does not provide any new information to the market. Rankings are based on public information and the primary criterion for being assigned a ranking is that the firm have at least a ten-year earnings and dividends history in addition to being amenable to the S&P ranking process. Therefore, it is easy to assert that the market can easily anticipate the assignment of a ranking. However, owing to the proprietary nature of the ranking process of which the market knows only the inputs, the market’s estimate of the actual ranking may contain some noise. The effect of this noise manifests in significant
<table>
<thead>
<tr>
<th>Quality Ranking</th>
<th>Number of Firms</th>
<th>Months Relative to Assignment of Ranking</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>-3</td>
<td>-2</td>
</tr>
<tr>
<td>A, A-</td>
<td>8</td>
<td>-1876</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.96)</td>
</tr>
<tr>
<td>B+</td>
<td>25</td>
<td>-423</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(-1.36)</td>
</tr>
<tr>
<td>B</td>
<td>48</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.02)</td>
</tr>
<tr>
<td>B-</td>
<td>27</td>
<td>-7</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(-0.23)</td>
</tr>
<tr>
<td>C</td>
<td>18</td>
<td>-37</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(-0.45)</td>
</tr>
<tr>
<td>All</td>
<td>126</td>
<td>-195</td>
</tr>
<tr>
<td>Rankings</td>
<td></td>
<td>(-1.47)</td>
</tr>
<tr>
<td>Rankings</td>
<td>108</td>
<td>-223</td>
</tr>
<tr>
<td>A to B-</td>
<td></td>
<td>(-1.44)</td>
</tr>
<tr>
<td>Rankings</td>
<td>81</td>
<td>-296</td>
</tr>
<tr>
<td>A to B</td>
<td></td>
<td>(-1.43)</td>
</tr>
</tbody>
</table>

*a*With exception of the last column, average changes are measured relative to month zero. t-statistics in parentheses.

*b*Significantly greater than zero at the .05 significance level.

*c*Significantly greater than zero at the .10 significance level.
institutional and other market responses only for those firms which are eventually ranked as marginally investment grade (B+ or at times even B), or medium-quality firms. On the other hand, the amount of noise in the ranking forecast is not of a magnitude sufficient to cause surprises in the case of high-quality and low-quality firms.

Implications for Asset Prices

The conjecture that the assignment of a ranking to an NR firm induces a change in the pricing structure of the security is next investigated. This change occurs because the assignment of a ranking reduces the legal liability risk associated with a security as perceived by a portfolio manager. Securities ranked NR offer safety-net potential only on the basis of their existing firm-specific attributes and lack the external validation, which is crucial in the determination of prudence, provided by a ranking. It is therefore conceivable that firms with marginal levels of satisfactory attributes are perceived as imprudent investments by portfolio managers simply because they have no ranking. The assignment of an investment grade ranking to these firms may, therefore, attract sufficient institutional activity so as to be reflected in their pricing structure.

To investigate, all firms which received an initial ranking from October 1974 through December 1985 are identified. Monthly returns for each firm are calculated for a 62-month window surrounding the month of the ranking assignment. Eliminating firms with missing data in this period resulted in a final sample of 132 firms. For each firm, the following regression is estimated:

\[ R_{jt} - R_{ft} = \alpha_j + \beta_j (R_{mt} - R_{ft}) + \gamma_j D_t + \delta_j D_t (R_{mt} - R_{ft}) + \epsilon_{jt} \]

(2)

where \( R_{jt} \) is the monthly return for firm \( j \) in month \( t \), \( R_{ft} \) is the risk-free rate in month \( t \), \( R_{mt} \) is the monthly return on the CRSP equally-weighted market index in period \( t \), and \( D_t \) is a dummy variable which is equal to one if the return is from the period after the ranking assignment. The term \( (R_{mt} - R_{ft}) \) is included to control for market risk, while the term \( D_t (R_{mt} - R_{ft}) \) is included to account for changes in market risk, if any, following the assignment of a ranking.

The major variable of interest is \( \gamma_j \), the coefficient of the dummy variable, \( D_t \). If indeed the perceived risk of the security decreases following the assignment of a ranking, or equivalently, if the assignment of a ranking lends

27 For this analysis the study need not be restricted by the December 1980 starting date used in the previous subsection. October 1974 is chosen owing to a significant change which occurred in the S&P ranking process. S&P began to require a ten-year earning history instead of eight years, and also computerized the ranking process.

28 Months -1, 0 , and +1 are omitted from the analysis. However, the analysis was replicated by including months -1 and +1 with identical results.

29 Since the conjecture is that a change in the structure of the investor's required rate of return on the security following the assignment of a ranking, standard event study methodology is not applicable. In addition, since the assignment of a ranking does not provide any new information affecting the firm's cash flows, it may not be appropriate to classify it as an event.
safety-net potential to a security over and above its specific attributes, the coefficient should be negative. For each ranking classification, standardized estimates of \( y_j \), were computed and averaged across firms to obtain \( \gamma^* \). As shown in Malatesta (1986), \( \gamma^* \) is distributed asymptotically Normal (0,1/N). Multiplying \( \gamma^* \) by N yields the t test statistic. Values for \( \gamma^* \) and t are reported in Table 6. In addition, the number of firms with positive and negative \( y_j \) is reported. As shown in the table, the coefficient of the dummy variable is negative (\( \gamma^* = 0.0114 \)) and significant (t = -2.01) for the B+ firms, and insignificant for the other rankings. These results are consistent with the findings above that institutional activity after an initial ranking assignment is most significant for the B+ ranking.

Table 6
Regression Results for Significance of Safety-Net Factor
Provided by S&P Quality Rankings for NYSE and AMEX Firms
Receiving Initial Ranking During October 1974-December 1985.a,b

<table>
<thead>
<tr>
<th>Quality Ranking</th>
<th>Number of ( y_j )</th>
<th>Average ( \gamma_j )</th>
</tr>
</thead>
<tbody>
<tr>
<td>( \Lambda^+ , \Lambda , \Lambda^- )</td>
<td>Positive 5</td>
<td>Negative 4</td>
</tr>
<tr>
<td>( \Lambda^+ , \Lambda , \Lambda^- )</td>
<td>( (N = 9) )</td>
<td></td>
</tr>
<tr>
<td>( B^+ )</td>
<td>Positive 11</td>
<td>Negative 31</td>
</tr>
<tr>
<td>( B^+ )</td>
<td>( (N = 42) )</td>
<td></td>
</tr>
<tr>
<td>( B^- )</td>
<td>Positive 21</td>
<td>Negative 29</td>
</tr>
<tr>
<td>( B^- )</td>
<td>( (N = 50) )</td>
<td></td>
</tr>
<tr>
<td>( B^- )</td>
<td>Positive 11</td>
<td>Negative 10</td>
</tr>
<tr>
<td>( B^- )</td>
<td>( (N = 21) )</td>
<td></td>
</tr>
<tr>
<td>( C )</td>
<td>Positive 5</td>
<td>Negative 5</td>
</tr>
<tr>
<td>( C )</td>
<td>( (N = 10) )</td>
<td></td>
</tr>
</tbody>
</table>

aNumbers in table pertain to estimates of \( y_j \) from the following regression:

\[
R_{jt} - R_{ft} = \alpha_j + \beta_j(R_{mt} - R_{ft}) + \gamma_jD_i + \epsilon_i
\]

\( R_{jt} \) is the monthly return on security \( j \) in period \( t \), \( R_{ft} \) is the monthly risk-free rate in period \( t \), \( R_{mt} \) is the CRSP monthly equally-weighted market index return in period \( t \), and \( D_i \) is a dummy variable with value 1 in the post-ranking assignment period and value 0, otherwise. t-statistic in parentheses.

bT-statistic computed according to \( \gamma^* \sqrt{N} \) where \( \gamma^* = \left( \sum y_j/\alpha_j \right)/N \), where \( \alpha_j \) is the standard deviation of the estimate \( \gamma_j \).

cSignificantly less than zero at the .025 significance level.

While these results may not appear to be excessively strong, they have important implications. Recall that an S&P ranking does not in any way alter the fundamental characteristics of the underlying stock. Thus, the finding that the assignment of a B+ ranking is a factor that is reflected in pricing, is almost certainly attributable to the response of institutional investors, who must take into account the safety-net potential of a security. Given that
institutions are major participants in the markets and the fact that they consider the safety-net potential of securities in their investment decisions, it may be advisable to include a safety-net variable in standard asset-pricing models and tests thereof.

**Concluding Remarks**

This article analyzes the patterns of institutional ownership of common stock. In particular, the effects of security characteristics such as the safety-net potential and market risk on a manager's portfolio choices are analyzed. The former characteristic, the safety-net potential, is unique to a manager's portfolio choice because, in the manager's fiduciary capacity, the manager is continually monitored. During times of inferior portfolio performance, the manager faces a cost resulting from possible client loss, a change in remuneration scheme, or penalties under common law or ERISA if the manager's actions are deemed to be imprudent. Therefore, a portfolio manager not only considers the usual criteria in making investment choices, but also pays attention to whether the investment choices would be considered by others to be those made by a well-informed and prudent individual.

On a sample of all NYSE and AMEX listed firms, the empirical tests indicate that: larger firms tend to attract higher levels of institutional ownership; firms with a better history of past performance have higher levels of institutional ownership; higher volatility generally implies lower institutional interest; the relationship between CAPM beta and level of institutional ownership is positive; the relationship between trading liquidity of a security and institutional ownership is positive; the relationship between the number of years of exchange listing for the firm and institutional ownership is positive; and, most importantly, the safety-net hypothesis is strongly supported by the data.

The safety-net hypothesis offers another possible explanation for the observation that, despite the passage of ERISA which induced more diversification in the portfolios of private pension plans, the levels of diversification in pension fund portfolios were still considerably lower than those possible by investing in the market portfolio [Cummings and Westerfield (1981)]. By introducing costs to managers in the event of poor performance and by making it easier to bring legal action against them, ERISA has implicitly discouraged managers from making investments which may be deemed imprudent. This may have resulted in institutional investors shying away from investing in firms with lower levels of safety-net attributes. Given our finding that institutional capital is significantly attracted to larger more liquid firms, a Department of Labor claim that ERISA would not be an obstacle to satisfying the capital needs of small and new firms is probably not borne out. Given the monetary clout of institutions, prudence laws may have made it more difficult for smaller firms to raise funds or start-up firms to attract venture capital.
With respect to investment practices of fund managers, it is noted that insurers typically hold three types of portfolios: those subject to ERISA guidelines, to separate account treatment, and those subject to neither of these. Policies which overly emphasize individual security characteristics, as opposed to their portfolio properties, may cause managers to concentrate investment in stocks of only a sub-set of the universe of firms to the detriment of the overall portfolio performance. While this implication applies to all the three types of portfolios, it has particular relevance to the first two types. These findings may also be of interest to managers of property and casualty insurers who provide professional or fiduciary liability insurance to portfolio managers. The patterns of institutional investment behavior detected in these empirical tests should aid them in their underwriting and pricing functions.

Finally, these findings have important implications for researchers. Given the result on the importance of safety-net attributes for institutional portfolio managers, and the fact that institutions play a major role in U.S. capital markets, traditional asset pricing models, which generally consider only the risk-return characteristics of securities, have perhaps omitted an important variable, the safety-net potential of a particular security. To see this, note that if the safety-net potential of an asset is high, then institutions will want to hold that asset, and, thus for markets to clear, the expected return on that asset will have to fall below the traditional Security Market Line. The asset pricing tests conducted in this study provide some preliminary evidence that this may indeed be the case. Reasoning along these lines, it is also possible to argue that empirical tests, using traditional valuation frameworks, will find that mutual funds that must invest in securities with high safety-net potential, perform less well than individual investors' portfolios. Thus, these results could potentially offer an added dimension to research on capital markets.

References

Managerial "Safety-Net" Hypothesis


