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# Misreaction

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## Abstract

To learn about investors' information processing, we examine the issuances of trust preferred stock, a leverage-neutral hybrid security. Specific benefits of trust preferred stock issuance have become focal points for issuers. These focal benefits include tax and financial distress avoidance, for example. We find these benefits are associated with short-run stock price misreactions. For those issuers that do not have a focal issuance benefit, mean short-run abnormal returns tend to be negative but long-run abnormal returns tend to be positive. Unanticipated changes in long-run profit opportunities, not short-run operating profits, appear to be the key to the misreaction.

## I. Introduction

Recent studies document anomalous long-run returns following financing announcements and reject the null hypothesis of market efficiency. Secondary equity offerings, debt, and convertible debt issues are all associated with both zero-to-negative announcement period abnormal returns and long-run abnormal performance that continues in a negative direction.[1] Thus, investors apparently underreact at the time of equity or debt issue announcements. Similar patterns of announcement period underreaction have been documented for other events with capital structure implications.[2] Examination of post-issue financial statements suggests that unanticipated deterioration in operating performance can explain

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[1] See Masulis and Korwar (1986) for evidence on market reaction to equity issues, Eckbo (1986) and Mikkelson and Partch (1986) for debt issues, and Dann and Mikkelson (1984) for convertibles; Jung, Kim, and Stulz (1996) provide more recent evidence. See Loughran and Ritter (1995) and Spiess and Affleck-Graves (1995) for evidence on long-run returns following SEOs and Spiess and Affleck-Graves (1999) for debt and convertibles.

[2] For example, Ikenberry, Lakonishok, and Vermaelen (1995) document underreaction to stock repurchases, and Ikenberry and Ramnath (2002) document underreaction to stock splits.

the underreaction.[3] Others have postulated more formal behavioral explanations that include investor conservatism (Barberis, Shleifer, and Vishny (1998)), heterogeneity of investor beliefs (Hong and Stein (1999)), and categorical thinking (Mullainathan (2002)).

If stock risk is expected to change given the announcement of an issue, then post-issue returns patterns might merely reflect event-induced risk changes. With equity and debt issues, leverage changes post-issue, and hence, stock risk can be expected to change as well. When the event itself implies a change in stock risk level, then risk benchmarks based on pre-issue data are invalidated, leading to spurious long-run abnormal returns measurements. Eckbo, Masulis, and Norli (2000) demonstrate that existing results on long-run returns after seasoned equity issues can be explained in this manner. They also document the problems in benchmarking the market responses to debt issues induced by risk change.

Our goal in this paper is to gain additional understanding about the sources of abnormal stock returns around financing events. Toward this end, we examine the announcement period stock reaction and the subsequent long-run returns around the issuances of a hybrid security, trust preferred stock, which has not been previously researched in the long-run returns literature. Trust preferred stock is essentially redeemable preferred stock with deferrable dividend obligations, issued in such a way that dividends are tax deductible to the issuer. Why do we choose trust preferred stock issuances as our laboratory setting?

First, as a debt-equity hybrid, trust preferred stock provides a natural control for spurious, risk-change induced long-run abnormal stock performance as it is roughly leverage neutral by construction. Accounting standards at the time of our sample stipulate that trust preferred stock should be listed on the mezzanine of the issuer's balance sheet, between debt and equity (Frischmann, Kimmel, and Warfield (1999)). Ratings agencies agree: when assessing credit ratings, Standard & Poor's historically accords trust preferred stock substantial, but not complete, equity credit. There is little by way of increased financial distress likelihood, at least for a substantial period (as with debt), and there are no obligations to control implications of new shareholders (as with equity). Therefore, there is no a priori reason to expect any leverage change-induced stock risk changes with the issuance of trust preferred, alleviating the potential for spurious long-run abnormal returns. In the absence of leverage change, Barber and Lyon (1997) and Lyon, Barber, and Tsai (1999) provide extensive simulation support for control-firm techniques similar to the ones we use, so we can be confident that empirical post-trust preferred abnormal returns patterns are not spurious.

Second, if stock risk does change for reasons ancillary to the issue of this debt-equity hybrid, we can observe the likely direction of the change a priori. For example, bank issues of trust preferred stock are classified as equity for regulatory purposes because the Federal Reserve holds that trust preferred provides an additional loss-absorbing cushion, so risk might be reduced. Similarly, issuers who swap trust preferred for debt reduce financial distress risk. On the other hand, issuers who swap trust preferred for equity add a more senior security to their balance sheet, and thus, if anything, increase risk, even though they avoid tax obli-

[3]See Loughran and Ritter (1997) for SEOs and Lewis, Rogalski, and Seward (2001) for convertibles.

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gations. Issuers who use trust preferred proceeds to fund acquisitions avoid the cost of signaling overvalued stock (i.e., compared to funding with new equity), but also inform the market of their plans to undertake possibly risk-increasing outside projects. In these instances, any change in stock risk would likely be an increase. If the post-issue long-run abnormal returns pattern turns out to be the same irrespective of the likely direction of stock risk change, then we can be more confident that the pattern is not due to the stock risk change.

Third, trust preferred stock is a security that allows us to cleanly identify certain desired benefits of each issue event, from the point of view of the issuer. Our reading of company press releases and press reports around trust preferred issuance events over the full history of the security tells us that the sorts of benefits mentioned above are focal to investment banks in that they are very prominent in the design and marketing of trust preferred stock to issuers, and are similarly prominent in issuers' decisions to finance with trust preferred (Engel, Erickson, and Maydew (1999)). For example, as mentioned, banks issue trust preferred stock because it is classified as equity for regulatory purposes, but has lower issuance costs and no dilution or control effects relative to equity. We refer to such desired benefits as focal benefits.

Clean identification of various categories of focal benefits is important to our design in two ways. First, we need categories of issues that stratify ancillary risk changes, as discussed above. Second, we hypothesize that these issuance benefits, if clearly delineated and brought to the attention of investors, become important in influencing market reaction at the time of announcement. Our evidence shows that these focal benefits are in fact important to the market at the time trust preferred issues are announced and, more surprising, that a lack of focal benefits is a source of systematic stock price misreactions.

Our central empirical finding is a pattern of risk-adjusted short- and long-run reactions to trust preferred issues in which investors bid up (down) the stock prices of issuers that have (do not have) focal benefits at the time of announcement. The short-run mean abnormal returns are statistically as well as economically significant at about 1% in absolute value over a three-day event window for issues that exhibit many of the focal benefits. Similar results obtain for issues with various narrower sets of focal benefits. For issues with focal benefits, the market is efficient from the point of view of post-issue abnormal returns: long-run abnormal stock price performance is insignificantly different from zero. However, for the issues that do not have many focal benefits, the initial stock price reactions are misreactions: the post-issue overall buy-and-hold abnormal return in the first year is more than 7% for issues that fail to exhibit most of the focal benefits. The post-issue second-year abnormal return is insignificantly different from zero. Thus, the long-run adjustment appears to be complete after one year. Similar findings obtain for issues that have various narrower sets of focal benefits.

The most striking elements of this pattern are that the long-run risk-adjusted stock price return is in the opposite direction of the announcement period return, and that the pattern is connected to the focal benefits in an extremely consistent manner.

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We investigate whether unanticipated operating performance can explain the patterns we document for trust preferred issuances, and find that it does not.[4] We find, however, that issuers that do not have focal issuance benefits at the time of issue tend to experience sharp increases in their post-issue market-to-book ratios, a proxy for the firm's growth opportunities and future profitability. Thus, investors properly evaluate complex costs and benefits of issuance once they have been named and become focal, but they fail to anticipate long-term value creation in cases where such issuance benefits are not sharply delineated at the time of issue announcement. For those issues, investors react significantly negatively at the time of announcements of issues that appear to entail strongly positive changes in growth opportunities.

Why do investors react in this way? One possibility is categorical thinking, as developed by Mullainathan (2002) and Barberis and Shleifer (2003). When finer information is difficult to access or analyze, categorical thinkers economize by making assessments according to coarse information categories. Categorical investors update prices only when they have seen enough data to suggest that a different category better fits the data.[5] In the case of security issuance, asymmetric information encourages opportunism (Myers (1984), Myers and Majluf (1985), and Lee (1997)), and post-issue agency problems can arise because of the discretion that trust preferred stock affords (especially given its dividend deferral provisions) regarding the use of issue proceeds. Thus, it is possible that investors apply to trust preferred the same judgments as for another security that has similar features—equity—except where they have a focal reason to judge differently.[6] Issues with focal benefits would be assessed positively, while others would be assessed negatively. As time passes, the accumulation of information forces a category change for the latter group, confirming the misreaction.

Whether or not categorical thinking applies to our case, an implication of our work is that behavioral theories or other general explanations for long-run returns puzzles must account for patterns more complex than short-run underreactions followed by long-run continuations, and short-run overreactions in the right direction. Daniel, Hirshleifer, and Subrahmanyam (1998) and Fama (1998) express similar notions. Nonetheless, patterns of underreaction and overreaction have been the focus of modeling efforts, including the one by Daniel, Hirshleifer, and Subrahmanyam.[7] Simple underreactions and overreactions have also been the focus of normative analyses of market inefficiency and advice for managers (e.g., Stein (1995)). Our evidence suggests that misreactions may occur when investors focus only on subsets of the available information. In our sample, pric-

[4]That operating performance is not the explanation is perhaps not surprising given that Lewis, Rogalski, and Seward (2001) document that the pattern of accounting performance after issues of another hybrid security, convertible debt, is markedly different than after seasoned equity offerings.

[5]The distinction between categorical thinking and a pooling equilibrium is, most fundamentally, that categorical thinkers do not consider the full set of posterior probabilities. Therefore, rather than prices adjusting smoothly as news develops, they adjust discretely as category assignments change.

[6]Trust preferred stock itself is simpler to value than equity, so opportunism in terms of issuing an overvalued security may be limited. In that case, discretion in the use of proceeds would be the main analog with equity issues.

[7]Theoretical models of overreaction include the overconfidence and biased self-attribution model of Daniel, Hirshleifer, and Subrahmanyam (1998), the momentum trader model of Hong and Stein (1999), and the investor representativeness model of Barberis, Shleifer, and Vishny (1998).

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ing is correct when investors are presented with an obvious focus on the value-relevant subset of information. Pricing is incorrect when such focal information is not prominent. In terms of normative suggestions, our results imply that it behooves managers to credibly articulate the focal benefits expected from issuing any security.

Because investors may focus only on certain subsets of all available information even when researchers cannot cleanly identify what those subsets are, and because the effects of changing stock risk could muddy the effects of focus, there are reasons to suspect that misreaction due to over-focus may be present but masked in other situations. Moreover, since trust preferreds state specific dividend rates and are generally issued by investment-grade entities, this security is not considered difficult to price. With the issue itself fairly priced, the full value effect of the issue accrues to common equity. That may be one reason why we find such large misreactions.

Although we use trust preferred issuance as a laboratory to better understand investors' information processing at the time of events, a study of stock returns around trust preferred issuance is important in its own right because trust preferred stock has become a widely issued security.[8] It is a major source of Tier I capital for banks, having completely displaced traditional redeemable preferred stock. Nonbank issues of trust preferred lead-managed by Goldman Sachs alone account for more than $65 billion outstanding as of January 2000 (Irvine and Rosenfeld (2000)). It is a major source of backing for collateralized debt obligations, with about $3 billion in trust preferred-backed collateralized debt obligations issued during 2001 (High Yield Report (2002)), and more than $1 billion in trust preferred-backed collateralized debt obligations issued during the first six months of 2002 (Hurst (2002)). Trust preferreds have become an important source of financing in the insurance industry and for real estate investment trusts ($6 billion issued in 1997 (Morgan Keegan (1998)). Overall, our search of the SDC Platinum database for trust preferred stock and its trade names turned up more than $94 billion in issues between 1995 and 2000. Kimmelman (2002) estimates the outstanding market value of publicly issued trust preferred and closely related securities at more than $200 billion. Thus, understanding returns patterns around the issuances of trust preferred stock is important, per se.

The remainder of the paper is organized as follows. The following section describes the security, our focal issuance benefit categories, and our sample. Section III documents investor misreaction by examining the announcement period market reaction and the subsequent long-run stock returns. Section IV seeks the economic rationale for post-issue performance. Section V discusses the implications of our results and concludes.

[8]For studies of announcement period returns, see Irvine and Rosenfeld (2000) and Benston, Irvine, Rosenfeld, and Sinkey (2003).

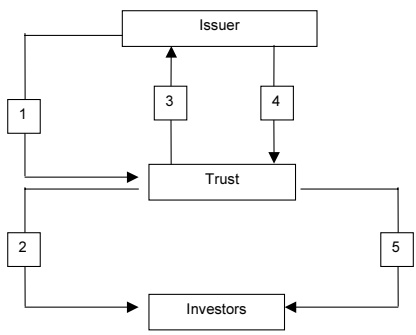
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# II. The Security, the Categories, and the Sample

## A. The Security

We begin by describing the trust preferred stock security and the prominent reasons for its issue. Trust preferred stock was first issued in 1993 as Monthly Income Preferred Stock. It has since been issued under many specific names, with various terms, such as public and private issues, in straight and convertible versions, by both single issuers and pools of issuers. Despite the variations, this security is, in essence, redeemable preferred stock, often with a 30-year term. It is typically priced at a spread (often 100 to 300 basis points) over the appropriate maturity Treasury note to sell at par. Figure 1 provides a diagram of the cash flow and ownership relations. To issue trust preferred stock, an issuer establishes and owns all the equity of a special purpose trust, which issues preferred stock to investors. The proceeds are loaned to the issuer, which pays debt service to the trust for pass-through to investors as preferred dividends.

FIGURE 1
Structure of a Typical Trust Preferred Stock (TPS) Deal




A firm (issuer) first organizes a business trust or other special purpose entity (trust) for the sole purpose of selling and administrating the Trust Preferred Stock (TPS). The TPS issued by the trust represents undivided beneficial interests in the assets of the trust. The trust's only assets are junior subordinated deferrable interest debentures of the issuer, which are purchased from the issuer with the proceeds from the sale of the preferred securities. The issuer makes periodic interest payments on the subordinated debentures to the trust. The interest paid to the trust is tax deductible. The interest income received by the trust is not taxable income since the subsidiary is organized as a tax free entity. The trust uses this interest income to pay periodic dividends on the TPS to investors. The issuer executes a guarantee of the obligations of the trust to pay distributions on the TPS (to the extent of available funds of the trust), in addition to an agreement to indemnify third parties for other expenses and liabilities incurred by the trust.

1. Issuer creates the trust and holds entirely its common stock.
2. Trust sells the TPS to investors via a reputed investment bank.
3. Trust purchases debentures of the issuer with the proceeds from the sale of the TPS.
4. Issuer makes payments to the trust, deducting them as interest payments for tax purposes.
5. Trust pays dividends to holders of the TPS from the interest payments from the issuer.

A dividend deferral feature (usually five years) combined with the issuer's equity control ensures that trust preferred presents, at most, very mild financial distress risk for quite some time. Historically, trust preferred and similar securities have usually been listed separately on the issuer's balance sheet, between debt and equity (Frischmann, Kimmel, and Warfield (1995), (1999)).[9] In view of

[9]This treatment was changed in 2003 after the time of our sample.

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this structure and considering the temporally fungible nature of cash payments, debt ratings agencies—Standard & Poor's, for example—accord substantial equity credit for trust preferred, often in the neighborhood of 40% (Standard & Poor's *Creditweek* (1996)). Given this hybrid nature, trust preferred stock is a roughly leverage-neutral security for the issuer.

The tax deductibility of the interest on these securities has become gradually, but firmly, established (see IRS Revenue Ruling 93-7 (1993)). The industry press and our informal discussions with bankers suggest that trust preferred stock is often chosen over straight debt or equity because issue costs, and perhaps even the all-in cost of capital, are lower. For example, direct floatation costs for sizable trust preferred stock issues are often only half those of equity issues (*Corporate Financing Week* (2002)). In October 1996, the Federal Reserve qualified trust preferred as Tier I (core) capital for bank holding companies. As a result, bank holding companies have been dominant issuers since that time. Trust preferred stock has replaced other forms of preferred in bank financing and become a mainstay method of raising external finance for the industry (see Benston, Irvine, Rosenfeld, and Sinkey (2003)).

In addition to direct floatation costs, any equity issuer faces the likelihood of negative stock price effects due to adverse selection (Myers (1984) and Myers and Majluf (1985)). Such adverse selection costs should be a concern for all issuers. [10] Applying pecking order thinking, trust preferred would be one way for a firm that is not overvalued to fund its plans without bearing adverse selection costs. Similarly, trust preferred would be a way for a firm to fund its plans without bearing the financial distress costs associated with risky debt issues. Though professorial terminology is not employed, company press releases and analyst discussions sometimes suggest this benefit (see, e.g., *Plain Dealer* (1998)).

Some of the discussion above has focused on the practical transactions costs of an issuance. The lower bound for trust preferred stock issues large enough to be cost effective has varied over time, from about $15 million to $25 million, with $250 million being a more typical range for issue size (*Investment Dealers Digest* (1998), Jordan (2000)). Almost all of our sample trust preferred issues are well above this bound, but there are reasons to believe that the market might expect the most value creation when issue size is relatively limited. First, there are substantial information-theoretic reasons to expect that the cost of funds is convex in the issue size (Stein (1998), Kashyap and Stein (1994), and Froot, Scharfstein, and Stein (1993)). Second, agency costs of excess cash holdings under management discretion are also limited when issue size is limited. Jensen's (1986) free cash flow reasoning suggests this might be an issue; Blanchard, Lopez-de-Silanes, and Shleifer (1994), Harford (1999), and Harford and Haushalter (2000) provide empirical evidence that managerial motives influence the use of one-time influxes of cash.

In summary, given the way trust preferred stock is treated by accounting, ratings, tax, and regulatory authorities, it is not hard to see why investment banks

[10] Lee (1997) provides evidence that CEOs of seasoned equity issuers do in fact know whether their stock is overvalued. Cornett, Mehran, and Tehranian (1998) show that negative abnormal returns to bank seasoned equity issues tend to be most severe when they are not required to issue stock for capital adequacy purposes.

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have been able to market this security to issuers as a security with the tax benefits of debt and the balance sheet benefits of equity (i.e., low financial distress risk).[11] Moreover, it has some attractiveness from the point of view of issue costs and signaling value. Press releases and analyst comments when issues are announced often refer to the benefits we have discussed. In essence, our study investigates whether the market becomes unduly focused on such benefits. Therefore, these benefits delineate our categories of focal event-time information that are discussed next.

## B. Focal Benefits Categories

We want to know whether the benefits of trust preferred stock noted above condition announcement period market reaction, and if so whether the conditioning information makes the market more efficient. We follow the above reasoning very closely to establish six categories of conditioning information, which we refer to as Benefits-of-Issue categories.

1. *Bank Regulatory Benefit.* This category is comprised of issues with primary SIC code 60–69 on COMPUSTAT.
2. *Tax Reduction Benefit.* This category is comprised of issuers that specifically state in the prospectus that issue proceeds will be used to repurchase equity.
3. *Financial Distress Reduction Benefit.* This category is comprised of issues that specifically state in the prospectus that issue proceeds will be used to pay off nonbank debt. These issuers should benefit from a reduced likelihood of financial distress. Unlike firms that undertake an equity-for-debt exchange offer, these firms also avoid any signal of impending financial trouble. We exclude firms that plan to pay down bank debt, as returns for those firms may be additionally influenced by the loss of any monitoring service performed by banks (see James (1987) and for evidence in the context of trust preferred stock see Irvine and Rosenfeld (2000)).
4. *Use Cheaper External Financing Benefit.* This category is defined to include issuers that state in the prospectus that they will use trust preferred issue proceeds for expansion through acquisitions. By using trust preferred, these firms hope to obtain the funding to implement their desired acquisition plans without bearing either the asymmetric information costs that the use of equity can entail or the higher financial distress costs that the use of debt can entail.
5. *Self-Imposed Managerial Discipline Benefit.* This category includes all issues that are less than 2% of asset value, the sample median. Given that issues of trust preferred need to be of a certain minimum size to be attractive from the perspective of issue and agency costs (see the discussion above), we form

[11] Other sources provide additional detail. Engel, Erickson, and Maydew (1999) provide a more detailed description of trust preferred structure and history and an empirical analysis of the reasons for issue. Frischmann, Kimmel, and Warfield (1999) provide a description of the accounting treatment of trust preferreds. Standard & Poor's *Creditweek* (1996) discusses the ratings agency treatment. Hariton (1994) and Gergen and Schmitz (1997) discuss tax issues. Benston, Irvine, Rosenfeld, and Sinkey (2003) analyze trust preferreds with a focus on regulatory treatment.

this category of relatively small issues. The category definition is not based on the sort of specific prospectus information as for others, and so provides for a robustness check. On the other hand, it involves our judgment as to the size cutoff, so we use this category in only a limited way that we describe below.

6. *Total Benefits.* To facilitate summaries of our results for all focal categories, we construct a binary variable, Total Benefits, which is equal to one for issues that are at or above our sample median in terms of the integer number of focal categories to which they correspond (i.e., for each issue, we count the number of the above-mentioned benefit categories for which "In-Category" requirements are satisfied). The Total Benefits category captures the essence of issues that had clearly delineated and prominent benefits of issues at the time of announcement. Total Benefits is our summary measure. We exclude the Self-Imposed Managerial Discipline Benefit category in constructing this measure, since it is constructed based partly on our judgment, but we verify that our conclusions do not change if we include it. With this convention, the median number of specific benefit categories that apply to an issue is two out of a possible four.

## C. The Sample

Our sample comprises trust preferred stock issue announcements since their inception in 1993 through the early months of 2001. The initial sample is obtained by searching the SDC Platinum database, using keywords related to trust preferred securities. That search yields several thousand candidate issues. We manually screen these issues to identify actual trust preferred issues; 467 issues survive this screening. We aggregate into a single case all multiple announcements made on the same day by the same issuer. The sample is further limited by the availability of requisite data from the CRSP files and the COMPUSTAT quarterly files. We require quarterly COMPUSTAT data that appropriately measure characteristics just prior to issue announcements. We collect prospectuses or related SEC filings for public issues, and these documents are the source of focal benefit category definitions that are based on the intended use of funds. Our final sample comprises 210 trust preferred issues.

Table 1 displays the composition of our sample by year. Only a few issues are observed in the earliest years, prior to the Federal Reserve's blessing of trust preferred stock as Tier I capital. The Fed's ruling, along with marketing efforts of investment banks and law firms suggesting that the benefit might be rescinded, result in a scramble to issue in the middle years of our sample. That initial scramble has abated somewhat in later years.[12]

Table 2 displays the composition of our sample by Benefits-of-Issue categories. Each category has enough issues both inside and outside to allow meaningful statistical tests. The Bank Regulatory Benefit category contains the greatest number of observations, consistent with the prominent role of trust preferred stock in bank finance. The Tax Reduction Benefit category has the fewest observations, perhaps because banks and other businesses are generally growing their equity

[12]The sample ends in early 2001. Our few issues from early 2001 are consolidated with 2000 in the table to avoid the impression of a sharply lower issue rate.

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TABLE 1

Composition of Trust Preferred Stock Issuance Announcements by Year

| Year | No. of Observations |
|---|---|
| 1993 | 1 |
| 1994 | 3 |
| 1995 | 19 |
| 1996 | 43 |
| 1997 | 51 |
| 1998 | 49 |
| 1999 | 25 |
| 2000 | 19 |
| Total | 210 |

Table 1 shows the number of issuance announcements of trust preferred security each year. The initial sample is obtained from the SDC Platinum database, and then is screened for the availability of additional data from the CRSP files and the COMPUSTAT quarterly files. Multiple announcements made on the same day by the same issuer are aggregated into a single observation.

bases during this period, and thus would not be inclined to swap out one equity security for another as they would be to retain both.

TABLE 2

Sample Composition by Benefits-of-Issue Category

| Benefits-of-Issue Category | No. of Observations |
|---|---|
| Bank Regulatory | 124 |
| Tax Reduction | 31 |
| Financial Distress Risk Reduction | 75 |
| Use Cheaper External Financing | 76 |
| Self-Imposed Managerial Discipline | 105 |
| Total Benefits | 89 |
| Full Sample | 210 |

Table 2 reports the number of sample trust preferred stock issues announced each year from 1993–2000, segregated by the following categories.

Bank Regulatory Benefit. The issuer is a bank or bank holding company;

Tax Reduction Benefit. Issues for which the proceeds will be used to repurchase equity securities;

Financial Distress Risk Reduction Benefit. Issues for which the proceeds will be used to pay off nonbank debt;

Use Cheaper External Financing Benefit. Issues for which the proceeds will be used for expansion through acquisitions;

Self-Imposed Managerial Discipline Benefit. Issues for which relative issue size (measured by issue proceeds divided by total assets) is smaller than 2%;

Total Benefits. A summary category consisting of issues that are above the sample median in terms of a count of the categories, not including the Self-Imposed Managerial Discipline benefit category, to which an issue belongs. The sample median count is 2.

For most Benefits-of-Issue categories, information from the prospectus is required for an In-Category designation. Our sample contains 41 private issues, or about 20% of the total sample. In our work below, we are careful to show that the lack of In-Category designations for private issues does not drive our results.

In the next section, we report on the announcement period market reaction and subsequent long-run stock returns focusing on the Benefits-of-Issue categories.

## III. Short-Run Reaction and Subsequent Long-Run Returns

In this section, we document that while the stock market properly evaluates the value impact of the costs and benefits of issuance for issues in our focal benefit categories, it does not properly anticipate long-term value creation for out-

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of-category issues, namely, where the focal issue benefits are not delineated at the time of issue announcement. For such issues, investors react significantly negatively at the time of issue announcement, but the subsequent risk-adjusted abnormal returns turn out to be significantly positive. We find patterns that have rarely been documented: significantly positive announcement period risk-adjusted returns for issues with focal issue benefits at the time of the announcement and economically and statistically significant positive post-issue abnormal performance for trust preferred issues without focal issue benefits at the time of the announcement.

## A. Announcement Period Returns

### 1. Results

Announcement period abnormal stock returns are calculated using returns data from the daily CRSP tapes. Following standard event-study methodology, we compute market-adjusted announcement period returns from the day before the announcement date through the day after the announcement date. We call this the cumulative market-adjusted return. We choose a three-day window because (as usual) some investors might receive information in advance of the formal announcement, and because the market might sometimes become informed with a lag of a filing notice. Filing notices are not always available on the Dow Jones News Service until a day after filing (see Irvine and Rosenfeld (2000)).

Table 3 shows abnormal returns for trust preferred issues sorted according to whether they fall In-Category or Out-of-Category with respect to the Benefits-of-Issue categories developed in the previous section and provides standard test statistics and difference of means tests between In- and Out-of-Category abnormal returns.[13]

Most striking, the mean In-Category abnormal returns are positive for every category and statistically significant in every category. Significant positive mean In-Category market-adjusted returns ranging from 0.52% to 0.94% are observed for issuers in all benefit categories. For the summary Total Benefits category, the mean market-adjusted return is 1.01%, with a cross-sectional $z$-statistic of 3.20. The breadth of the pattern of positive returns—comprising every category—is unusual. Consistent with our earlier evidence that trust preferred issuers focus on the benefits of issue identified above, the evidence in Table 3 shows that the stock market also focuses on these categorical benefits and values them positively.

Conversely, the mean Out-of-Category market-adjusted returns are always negative and significantly negative for the summary Total Benefit category. A significantly negative mean Out-of-Category market-adjusted return of below $-1\%$ is observed for the Bank Regulatory category, for example. For the Total Benefits category, the average Out-of-Category market-adjusted return is $-0.84\%$, with a $z$-statistic of $-3.20$. The stock market thus reacts negatively to issues that

[13]Table 3 includes two types of $z$-statistics to test the null hypothesis of zero mean market-adjusted returns. In addition to the usual event-study $z$-statistic, a cross-sectional $z$-statistic is listed. The purpose is to compare the two because we depend on cross-sectional test statistics for other tests later in the paper. Note that the event-study $z$-statistics and cross-sectional $z$-statistics are of similar magnitude.

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TABLE 3

Announcement Period Market Reaction to Trust Preferred Issues

| Benefits-of-Issue Category | Market-Adjusted Returns (MAR) | | | Certifier-Adjusted Difference ($\delta$) ($t$-statistic) |
|---|---|---|---|---|
| | In-Category ($z$-statistic) | Out-of-Category ($z$-statistic) | Difference ($z$-statistic) | |
| Bank Regulatory | 0.63 (2.19, 2.30)* | −1.04 (−2.38, −1.70)* | 1.67 (3.24)** | 1.62 (2.93)** |
| Tax Reduction | 0.94 (1.83, 1.96)* | −0.22 (−0.12, −0.82) | 1.16 (2.10)* | 1.12 (1.58) |
| Financial Distress Risk Reduction | 0.78 (2.49, 2.14)* | −0.52 (−1.11, −1.62) | 1.30 (2.56)** | 1.46 (2.82)** |
| Use Cheaper External Financing | 0.81 (2.10, 2.21)* | −0.54 (−0.83, −1.69) | 1.35 (2.66)** | 1.20 (2.27)* |
| Self-Imposed Managerial Discipline | 0.52 (2.22, 1.83)* | −0.63 (−1.38, −1.57) | 1.15 (2.33)* | 1.16 (2.30)* |
| Total Benefits | 1.01 (2.92, 3.20)** | −0.84 (−1.73, −3.20)** | 1.85 (3.94)** | 1.73 (3.34)** |

The left side of Table 3 reports the equally weighted CRSP market-adjusted returns, in percentage points, over a three-day announcement period, averaged within various subsamples of trust preferred issues. The first two columns show the mean In-Category market-adjusted returns and the Out-of-Category market-adjusted returns. The categories are the Benefits-of-Issue categories that are defined in Table 2. In-Category issues are those that fall into a category and Out-of-Category issues are those that do not fall into the category. Event-study $z$-statistics and cross-sectional $z$-statistics are shown in parentheses (in that order). Column 3 shows the difference in the mean In-Category market-adjusted returns and Out-of-Category market-adjusted returns, along with the cross-sectional $z$-statistics that test the equality of In- vs. Out-of-Category market-adjusted returns. The right side of the table reports the difference between the In- vs. Out-of-Category market-adjusted returns, controlling for the certifier effects using the following regression equation, $\text{MAR} = \beta_0 + \beta_1\text{UR} + \beta_2\text{AR} + \beta_3\text{SP} + \delta\text{IC}$, where MAR is the announcement period market-adjusted returns, UR is the Carter Manaster lead underwriter reputation rank as modified by Jay Ritter and made available at his Web site (http://bear.cba.ufl.edu/ritter/), AR is an indicator variable equal to one if the issuer's auditor of record in the quarter prior to issue is one of the Big 5, SP is an indicator variable equal to one for issuers with S&P debt ratings of A− or better in the quarter before issue, and IC is an In-Category indicator variable. The coefficient $\delta$ measures the MAR difference between In- and Out-of-Category issuers net of the regression adjustment for the certifier variables.

* (**) denotes different from zero at the 5% (1%) confidence level, based on the event-study $z$-statistic (for In- and Out-of-Category), or the cross-sectional $z$-statistic or $t$-statistic (for Difference), as appropriate.

do not have at least the sample median level of focal issue benefits. The difference between the In- and Out-of-Category market-adjusted return is positive and highly statistically significant for all categories. For the Total Benefits category, this difference is 1.85% with a $z$-statistic of 3.94. The stock market clearly values In-Category designations over Out-of-Category designations.

Previous studies show that certifiers associated with an issue can influence announcement period market reaction. These certifiers are the lead underwriters (Carter, Dark, and Singh (1998)), the auditors (Tubbs, Messier, and Knechel (1990)), and the ratings agencies. Certification provides investors with assurance that the issue is appropriate. Since our focal issuance benefits categories are at least partly statements about the appropriateness of a trust preferred issue, we check whether they provide similar information. We control for lead underwriter reputation, auditor reputation, and ratings using the following regression equation,

$$\text{MAR} = \beta_0 + \beta_1\text{UR} + \beta_2\text{AR} + \beta_3\text{SP} + \delta\text{IC}, \quad (1)$$

where MAR is the market-adjusted return, UR is the Carter-Manaster lead underwriter reputation rank as modified by Jay Ritter and made available on his Web site,[14] AR is an indicator variable equal to one if the issuer's auditor of record

[14]We extend our thanks to Jay Ritter for making this information available at http://bear.cba.ufl.edu/ritter/.

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in the quarter prior to issue is one of the Big 5, SP is an indicator variable equal to one for issuers with S&P debt ratings of A− or better in the quarter before issue, and IC is an In-Category indicator variable. With this regression setup, the coefficient $\delta$ measures the difference between the In- and Out-of-Category market-adjusted returns after controlling for the extraneous certifier effects for a given Benefits-of-Issue category. The estimate and *t*-value of the $\delta$ coefficient for each Benefits-of-Issue category are reported in the fourth column of Table 3. This mean difference after controlling for the certifier effects is positive, statistically significant except for the Tax Reduction Benefit category, and of roughly the same size as the raw difference between the In- and Out-of-Category market-adjusted returns. For the Total Benefits category, the $\delta$ estimate is 1.73% with a *z*-statistic of 3.34. Clearly, the pattern of announcement period market reactions we uncover is separate from the previously known certification effects. In fact, the certifier effects are not very influential for trust preferred issues.

Our main results, so far, are that: i) abnormal returns to trust preferred issues within focal benefit categories—the In-Category market-adjusted returns—are strongly positive; and ii) abnormal returns for Out-of-Category issues are always negative and strongly negative when an issue falls outside several benefit categories (i.e., outside of the summary Total Benefits category).

## 2. Discussion: Signaling and Financial Distress Reduction

Given that there are manifest benefits to issuing within the focal benefits categories, the question arises: Why do not all issuers signal focal benefits? We answer that the costs of credibly claiming the benefits can be prohibitive. In the case of banks, this is obvious, in that only a bank can credibly claim to be a bank. For other focal benefit categories, an issuer would need to expressly declare specific uses for the funds in the prospectus and/or limit the size of the issue. The cost of making statements in the prospectus is that the company must either follow through on the statement or bear the possible regulatory/reputational costs of failing to do so. The cost of limiting the size of the issue is that the larger transactions costs go with smaller issues.

A possible alternative explanation for our results is that In-Category issuers might be different from Out-of-Category issuers in terms of operating or financial characteristics that are important to the market. This may be a motivation for issuers to signal focal benefits to the market and thereby experience a positive market reaction to a financing event that would shore up their financial position. To investigate this possibility, we check whether In-Category issuers have different characteristics prior to issue than do Out-of-Category issuers. We examine three broad business aspects of issuers: recent profitability (as measured by annualized gross return on assets (ROA) based on operating income before depreciation), market-to-book value of equity ratio (MB), and leverage (as measured by debt-to-equity capital (DE)).

In the quarter prior to issue, business characteristics of issuers are unremarkable on average. ROA is about 7.5%, the ratio of market-to-book value of equity (MB) is about 2.25, and debt-to-equity capital (DE) is about 0.66. To assess whether In-Category issuers are unusually weak in terms of any of these performance indicators, we follow the general suggestion of Barber and Lyon

(1996) and the practice of other studies of abnormal accounting performance (e.g., Loughran and Ritter (1997) and Lewis, Rogalski, and Seward (2001)). Specifically, we measure ROA, MB, and DE, respectively, for each trust preferred issuer as deviations from the same characteristics for a nonissuing firm that is performance-matched to each issuer in the quarter prior to the issue announcement. The matched firm is identified in the pre-issue quarter as the nonissuing firm on the COMPUSTAT quarterly database that has ROA closest to the issuing firm, is between 0.7 and 1.3 times as large in terms of book value of assets, and is in the same two-digit SIC industry. If no matched firm is found, we search for a match in the same one-digit SIC industry or if necessary drop the industry match requirement altogether.

On all three characteristics, In- and Out-of-Category firms are insignificantly different from their matched firms. Only for the Self-Imposed Managerial Discipline category is there a significant mean deviation from the matched firm. In that one case, the mean ROA is below average and the mean DE is above the matched benchmark. Since an occasional significant statistic is likely when so many comparisons are made, we conclude that In- and Out-of-Category issuers are similar to their matched firms and are not different in operating and financial characteristics across categories. Nonetheless, this finding might hint at an explanation rooted in the firm's ability to satisfy its obligations—low ROA and high DE make that more difficult.

For a subset of our issuers, we can perform an additional check. For nonbanks, we can measure Interest Cover, the ratio of interest expense to operating income before depreciation. This ratio focuses specifically on the current debt-paying ability of the issuers, which might be shored up by an In-Category trust preferred stock issue in the Tax Reduction, Financial Distress Reduction, and Cheaper External Financing categories. Panel A of Table 4 hints that In-Category firms might have lower match-adjusted Interest Cover. While no statistics are significant, average match-adjusted Interest Cover is negative for all In-Category groups and positive for all Out-of-Category groups.

For this subset of 86 nonbank issuers, do differences in Interest Cover explain cross-category market-adjusted returns instead of, or in addition to, our Benefit-of-Issue categories? Panel B of Table 4 shows that they do not. Panel B reports the mean market-adjusted return for subcategories of each Benefit-of-Issue category, according to whether Interest Cover is high or low. In all cases, there is no significant difference between high vs. low Interest Cover issuers. Moreover, Out-of-Category issuers often (six of eight cases) have significantly negative mean market-adjusted returns while In-Category issuers never do. Finally, though the small sample size precludes finding significant In- vs. Out-of-Category differences for the narrow categories, for the Total Benefits summary category, the In-Category mean market-adjusted return is significantly higher than the Out-of-Category market-adjusted return for both high Interest Cover ($t = 2.72$) and low Interest Cover subcategories ($t = 1.77$). The dominant explanation for cross-firm differences in market-adjusted return is the Benefit-of-Issue categories.

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TABLE 4

Announcement Period Market Reaction, Distress, and Focal Benefits

*Panel A. Interest Coverage Ratios*

| Benefits-of-Issue Category | Mean Matched Firm-Adjusted Interest Cover One Quarter before Announcement: In-Category (*z*-statistic) | Out-of-Category (*z*-statistic) | Difference (*z*-statistic) |
|---|---|---|---|
| Tax Reduction | −0.53 (−0.45) | −0.83 (−0.63) | 0.30 (−0.17) |
| Financial Distress Risk Reduction | −3.17 (−1.37) | 1.31 (1.96)* | −4.48 (−1.87) |
| Use Cheaper External Financing | −0.73 (−0.86) | −0.81 (−0.53) | 0.09 (0.05) |
| Total Benefits | −2.19 (−1.26) | 1.58 (1.77) | −3.77 (−1.96)* |

*Panel B. Market-Adjusted Return*

| Matched Firm-Adjusted Interest Coverage One Quarter before Announcement by Benefits-of-Issue Category | Market-Adjusted Return: In-Category (*z*-statistic) | Out-of-Category (*z*-statistic) | Difference (*z*-statistic) |
|---|---|---|---|
| *Tax Reduction* | | | |
| Matched firm-adjusted Interest Coverage < 0 or missing | −0.15 (−0.24) | −0.92 (−1.45) | 0.77 (0.87) |
| Matched firm-adjusted Interest Coverage > 0 | 0.85 (0.80) | −1.62 (−2.11)* | 2.47 (1.88) |
| Difference (*z*-statistic) | −1.00 (−0.81) | 0.70 (0.71) | |
| *Financial Distress Risk Reduction* | | | |
| Matched firm-adjusted Interest Coverage < 0 or missing | 0.07 (0.08) | −1.94 (−3.24)** | 2.01 (2.01)* |
| Matched firm-adjusted Interest Coverage > 0 | 0.23 (0.29) | −2.07 (−2.20)* | 2.30 (1.87) |
| Difference (*z*-statistic) | −0.16 (−0.14) | 0.13 (0.12) | |
| *Use Cheaper External Financing* | | | |
| Matched firm-adjusted Interest Coverage < 0 or missing | −0.90 (−1.79) | −0.75 (−1.02) | −0.15 (−0.16) |
| Matched firm-adjusted Interest Coverage > 0 | 0.37 (0.34) | −1.66 (−2.07)* | 2.03 (1.50) |
| Difference (*z*-statistic) | −1.27 (−1.05) | 0.91 (0.83) | |
| *Total Benefits* | | | |
| Matched firm-adjusted Interest Coverage < 0 or missing | −0.26 (−0.39) | −2.13 (−2.57)** | 1.87 (1.77) |
| Matched firm-adjusted Interest Coverage > 0 | 0.43 (0.72) | −3.17 (−2.68)** | 3.60 (2.72)** |
| Difference (*z*-statistic) | −0.69 (−0.72) | 1.04 (0.77) | |

Panel A reports the mean of matched firm-adjusted interest coverage ratios (Interest Cover) for the pre-issue quarter, calculated as the matched adjusted interest expense divided by operating cash flow, for nonbanks issuing trust preferred stock by Benefits-of-Issue category. These matched adjusted ratios are measured as the difference in the ratio between the issuer and a performance-matched nonissuing industry peer, in percentage point form. The *z*-statistics, in parentheses, test the null hypothesis that these matched adjusted performance measures are not statistically different from zero. The sample size is 81, the number of nonbanking issuers in the sample with non-missing Interest Cover based on quarterly COMPUSTAT data. Panel B reports the average announcement period market-adjusted returns with cross-sectional *z*-statistics shown in parentheses for In- and Out-of-Category issuers, further segregated according to whether the matched firm-adjusted Interest Coverage before announcement is negative/missing or positive. The sample size is 86, the number of nonbank issuers in our sample.

* (**) denotes significantly different from zero at the 5% (1%) confidence level.

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## 3. Robustness Check: Private Placements

Of our 210 trust preferred stock issues, 41 are private placements. These issues are not eligible for inclusion in most of our Benefits-of-Issue categories, which require information from the prospectus. As a result, it is possible that the strong short-run returns to In-Category issuers might be a public issue effect rather than being related to our categories. Such an effect might occur because of the greater transparency and information availability around public issues, which might help investors better understand the positive value of the issue.[15] In fact, our public issue sample displays a positive mean announcement period market-adjusted return of 0.50% ($n = 169$, $t = 1.92$).[16] Though private placement trust preferred stock issues would normally be reported on the public issuer's next 8-K or 10-Q filing with the SEC, it is plausible that the market is uninformed at the time of issue, leading to a zero reaction for the Out-of-Category firms. This possibility is somewhat muted by the fact that we can find many press releases at the time of issue for trust preferred stock private placements. Moreover, SEC rules proposed after the time of our sample would require immediate reporting of material financing events, suggesting that financing events were high on the list for judgment call immediate reporting during earlier periods. Also inconsistent with this no-information notion is the fact that the mean announcement period market-adjusted return is significantly negative, even though it is near zero ($-0.23\%$, $n = 41$, $t = -4.04$).[17]

One way to check whether our Benefit-of-Issue categories are core drivers of the stock market reaction is to use our sample of bank issues of trust preferred stock. For the Bank Regulatory Benefits category, we have a usable number of private placements that are also In-Category. The mean announcement period market-adjusted return for In-Category public issues is 1.02% ($n = 101$), while the corresponding statistic for Out-of-Category public issues is $-0.02\%$ ($n = 68$). The difference of 1.04% is statistically significant ($t = 2.52$). The mean market-adjusted return for In-Category private placements of trust preferred stock is $-1.08\%$ ($n = 23$) vs. $-3.90\%$ ($n = 18$) for Out-of-Category private placements. As for public issues, the difference in mean market-adjusted returns for private placements is positive and significant (2.82%, $t = 2.62$). So, it is clear that In-Category issues are associated with larger market-adjusted returns than Out-of-Category issues even after controlling for the private placement effect. In summary, while private vs. public issues display a small but significant announcement period reaction overall, the evidence does not suggest that this effect is the driver of our category effects.

[15] Such an effect would, however, not be in keeping with the existing evidence on private placements of equity, which are associated with positive stock price reactions motivated by enhanced monitoring and information provision (Wruck (1989), Hertzel, and Smith (1993)).

[16] As for the full sample, the median number of focal benefits for the public issue sample is two, indicating that the public sample does share some broad characteristics with the full sample.

[17] Though the difference between the mean public and private announcement effects is significant, its size is only about two-thirds that of the smallest analogous difference from Table 3, and less than half that for the Total Benefits summary category.

## B. Long-Run Returns

### 1. Methodology

Next, we investigate whether the market's initial assessment of the value of trust preferred issues is correct from a long-run perspective. We estimate long-run performance as the post-announcement long-run abnormal returns for each post-issue year.

To assess long-run abnormal performance, we use a control firm approach. Following Daniel, Grinblatt, Titman, and Wermers (1997) and others, a matched nonissuing firm is found for each issuer based on size, book-to-market, and momentum. In addition, we also match on industry to account for differences in stock performances across industries, following the suggestion of Lyon, Barber, and Tsai (1999) for situations where cross-correlation by industry might be an issue. Specifically, we first identify a portfolio of matched nonissuing firms for each trust preferred issuer in our sample, based on the time-matched quintile cut-off points for size and book-to-market portfolios from Ken French's Web site. [18]

From this portfolio, we select one risk-matched nonissuing firm for every issuer as the nonissuing firm that is in the same industry (using the two-digit SIC code) as the issuer and with the closest momentum (based on returns calculated over the preceding 12 months) to the issuer. If we do not find a matched firm in the same two-digit industry, we attempt to use a one-digit industry criterion; if necessary, we eliminate the industry criterion. In all but 46 cases, we find a two-digit match. Of those 46 cases, we find a one-digit match in all but seven cases. In nine cases, we have more than one issue sharing the same matched firm. Generally, this is due to multiple issues by the same issuer. However, in six of those nine cases, the issuance announcements are more than two years apart. Since we generally measure stock returns over two years, the actual sharing of any matched firm stock price data is minimal.

For each of our sample issues, we next compute the buy-and-hold abnormal return as the compounded return on an arbitrage portfolio of the sample stock and the matched stock (i.e., the compounded difference of the monthly returns). Though this implies rebalancing over time, it guards against the possibility that outcomes are disproportionately influenced by a divergence of the risks of issuers and matched firms.

Barber and Lyon (1997) present evidence that control firm approaches like ours are less prone to bias than other methods for benchmarking long-run stock performance. In particular, the procedure reduces the skewness in the resulting abnormal returns vs. control portfolio approaches, and yields appropriate standard cross-sectional *t*-statistics. We therefore report standard *t*-statistics, but as a safeguard we also report skewness-adjusted *t*-statistics and compare them to bootstrapped critical values to assess significance. In computing the skewness-adjusted *t*-statistics and bootstrapping the critical values, we follow exactly the procedures suggested by Lyon, Barber, and Tsai (1999) and use 10,000 bootstrap replications of the statistic under the null hypothesis that each mean return is zero. We also report standard cross-sectional *t*-statistics, since they are useful

[18] We thank Ken French for making this information available (http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/).

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in benchmarking some of the regressions we report later. In all cases, we use event-study precision weights in forming averages and test statistics for long-run returns because one-year event-study results indicate that some issuers' abnormal returns are more precise than others. Our precision weights are proportional to the variance of matched firm cumulative abnormal returns.

Other studies on long-run stock performance report buy-and-hold abnormal returns because they are the most relevant for an investor, however, Fama (1998) raises a set of concerns about the use of this computation in long-run stock performance studies. Initial small differences can be exaggerated through compounding and time period overlap can introduce cross-sectional correlations. To add robustness to our conclusions, we follow the practice of Teoh, Welch, and Wong (1998a), (1998b) and others in reporting results based not only on post-event buy-and-hold abnormal returns, but also on matched firm-adjusted cumulative abnormal returns (i.e., without compounding). We denote the buy-and-hold abnormal return as BHAR and the cumulative abnormal return as CAR.

We report BHARs and CARs over several specific event-time periods following the event. We denote time period-specific measures as $\text{BHAR}(i,j)$ or $\text{CAR}(i,j)$, where $i$ is the starting month and $j$ the ending month. In particular, for the first-year post-issue returns, we report $\text{BHAR}(1,12)$ and $\text{CAR}(1,12)$. These 11-month returns cover the entire post-announcement year except the month of announcement. To include information for that first month, we also report the difference between the 12-month BHAR, denoted by $\text{BHAR}(0,12)$, and the announcement period market-adjusted return as well as the difference between the 12-month CAR, denoted by $\text{CAR}(0,12)$, and the announcement period market-adjusted return. These net returns cover the entire year starting just after the announcement period. We then move to the second year. We choose these time periods because we are primarily interested in observing any correction after the initial stock market reaction.

## 2. Results

Table 5 displays the mean BHARs and mean long-run CARs following trust preferred issues, organized according to Benefits-of-Issue categories. Results and test statistics are computed as described above.

There are several strong regularities. First, the mean first-year post-issue In-Category abnormal returns are essentially zero. Recall that the In-Category announcement period market-adjusted returns were significantly positive. In no case are the one-year post-announcement returns measures greater than about 2% in absolute value, and in no case are these measures statistically significant, as both the skewness-adjusted *t*-statistics and the standard cross-sectional *t*-statistics reveal. The evidence shows that the market manages to properly value the focal Benefits-of-Issue (such as ease of bank regulatory burdens and reduction of financial distress risk) at the time of an issuance announcement,[19] with no need for the market to adjust its initial judgment in the long run.

[19]We note that while bank regulation benefits are clearly important in our sample, this is not a bank-driven result. We present evidence later in the paper that focal benefits, not any one specific type of focal benefit, are what is crucial.

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Second, the mean first-year post-issue Out-of-Category BHARs and CARs are strongly positive and much larger in absolute value than any of the short-run abnormal returns. The long-run correction swamps the announcement period effect, and in the opposite direction. Depending on the reference category and the performance measure, the long-run performance measures range from 3.66% to 8.10%. Statistical significance is also strong. Standard *t*-statistics are always 1.90 or above, almost always above 2.00, and often above 2.30. Skewness-adjusted *t*-statistics are high as well. For the summary category, Total Benefits, the difference between the Out-of-Category BHAR$(0, 12)$ and announcement period market-adjusted return, is 7.18%, with a standard *z*-statistic of 2.68 and a skewness-adjusted *t*-statistic of 3.13. Both *t*-statistics are significant at the 5% level.

Third, there are economically and statistically significant differences between the Out-of- and the In-Category BHARs or CARs. The economic significance of the across-category differences is evident in a comparison of the first two columns of Table 5: Out-of-Category performance is much stronger, as implied above. We document these differences in returns along with standard cross-sectional *z*-statistics (reported in column 3 for each type of long-run return). Within the specific Benefit-of-Issue categories, the difference between the In- and Out-of-Category BHAR$(0, 12)$ adjusted for the announcement period market-adjusted returns ranges from $-5.29\%$ to $-8.23\%$, with standard *t*-statistics ranging from $-1.24$ to $-2.68$. For Total Benefits, this difference in returns is $-9.82\%$ with a *z*-statistic of $-3.61$.

The implication is clear. For Out-of-Category issues, that is, those that do not have sharply delineated focal benefits at the time of issue, announcement period returns are negative and sometimes significantly so. They are followed by strong significantly positive post-issue stock return in the first year after the issue, indicating that the market does not anticipate that post-issue shareholder value will be created. For the summary Total Benefits measure (for issues that fall outside several benefits categories), the market assessment at the time of issue announcement is that post-issue shareholder value will actually be destroyed. Figure 2 pictorially displays this.

Our analysis thus far focuses on returns in the first year following the issue announcement. Conceptually, it is possible that abnormal performance persists for a longer period. We now show that this is not the case. Abnormal performance is zero beyond the first-year, post-issue.

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TABLE 5

## Long-Run Abnormal Performance in the First Year Following Trust Preferred Announcements

*Panel A. Buy-and-Hold Abnormal Returns*

| | BHAR(0, 12) − MAR | | | BHAR(1, 12) | | |
|---|---|---|---|---|---|---|
| Benefits-of-Issue Category | In-Category | Out-of-Category | Difference | In-Category | Out-of-Category | Difference |
| Bank Regulatory | 0.11 | 7.09 | −6.98 | 1.62 | 6.38 | −4.76 |
| | (0.07) | (2.08)* | (−2.27)* | (1.01) | (1.90) | (−1.79) |
| | [0.09] | [2.43]* | | [1.07] | [2.21] | |
| Tax Reduction | −2.07 | 3.80 | −5.87 | 1.19 | 3.96 | −2.77 |
| | (−0.63) | (2.20)* | (−1.24) | (0.36) | (2.11)* | (−0.59) |
| | [−0.68] | [2.30] | | [0.31] | [2.41] | |
| Financial Distress Risk Reduction | −0.28 | 5.01 | −5.29 | −0.95 | 6.46 | −7.41 |
| | (−0.17) | (2.01)* | (−1.78) | (−0.63) | (2.59)** | (−2.65)** |
| | [−0.16] | [2.28]* | | [−0.61] | [3.00]** | |
| Use Cheaper External Financing | −1.71 | 5.64 | −7.35 | −0.48 | 5.89 | −6.37 |
| | (−0.99) | (2.32)* | (−2.33)* | (−0.26) | (2.46)* | (−2.22)* |
| | [−0.86] | [2.66]** | | [−0.20] | [2.84]** | |
| Self-Imposed Managerial Discipline | −0.89 | 7.34 | −8.23 | −0.40 | 8.10 | −8.50* |
| | (−0.61) | (2.38)* | (−2.68)** | (−0.29) | (2.63)** | (−2.92)** |
| | [−0.58] | [2.77]** | | [−0.27] | [3.06]** | |
| Total Benefits | −2.64 | 7.18 | −9.82 | −1.35 | 7.28 | −8.63 |
| | (−1.86) | (2.68)** | (−3.61)** | (−0.92) | (2.73)** | (−2.59)** |
| | [−1.80] | [3.13]** | | [−0.91] | [3.21]** | |

*Panel B. Cumulative Abnormal Returns*

| | CAR(0, 12) − MAR | | | CAR(1, 12) | | |
|---|---|---|---|---|---|---|
| Benefits-of-Issue Category | In-Category | Out-of-Category | Difference | In-Category | Out-of-Category | Difference |
| Bank Regulatory | 0.64 | 5.92 | −5.28 | 1.90 | 5.53 | −3.63 |
| | (0.43) | (2.01)* | (−1.81) | (1.50) | (1.94) | (−1.62) |
| | [0.44] | [2.03]* | | [1.56] | [2.02]* | |
| Tax Reduction | −2.31 | 3.66 | −5.97 | 1.61 | 3.68 | −2.07 |
| | (−0.55) | (2.29)* | (−1.41) | (0.40) | (2.50)* | (−0.53) |
| | [−0.69] | [2.46]* | | [0.26] | [2.81]** | |
| Financial Distress Risk Reduction | 0.20 | 4.45 | −4.25 | −0.59 | 5.93 | −6.52 |
| | (0.13) | (2.03)* | (−1.47) | (−0.39) | (2.97)** | (−2.73)** |
| | [0.13] | [2.06]* | | [0.39] | [3.13]** | |
| Use Cheaper External Financing | −0.81 | 4.88 | −5.69 | 0.12 | 5.27 | −5.15 |
| | (−0.49) | (2.26)* | (−1.92) | (0.08) | (2.66)** | (−2.13)* |
| | [−0.48] | [2.30]* | | [0.10] | [2.79]* | |
| Self-Imposed Managerial Discipline | −0.36 | 6.41 | −6.77 | 0.64 | 6.52 | −5.88 |
| | (−0.26) | (2.38)* | (−2.35)* | (0.52) | (2.58)* | (−2.48)* |
| | [−0.26] | [2.41]* | | [0.53] | [2.71]** | |
| Total Benefits | −1.84 | 6.31 | −8.15 | −0.79 | 6.55 | −7.34 |
| | (−1.27) | (2.69)** | (−2.73)** | (−0.58) | (3.04)** | (−2.66)** |
| | [−1.28] | [2.73]** | | [−0.58] | [3.22]** | |

Table 5 reports mean long-run abnormal returns following trust preferred stock issue announcements in percentage points by Benefits-of-Issue category designation. Long-run abnormal returns are measured as long-run buy-and-hold abnormal returns (BHAR) in Panel A, and cumulative abnormal returns (CAR) in Panel B for a period of one year or one month less than a year, depending on the method used. Market-adjusted announcement period returns (MAR) are subtracted if the long-run return period overlaps the announcement period, so that the reversal is always net of the announcement period effect. Each issuer's long-run abnormal performance is calculated relative to a risk-matched nonissuer, as described in the text. Returns are precision weighted using the event-study variance when calculating averages. The category indicators are the same as in Table 2. Two *t*-statistics are reported for mean returns, and one for differences in returns. In parentheses, the table reports standard cross-sectional *t*-statistics. In brackets, the table reports skewness-adjusted *t*-statistics. Following Lyon, Barber, and Tsai (1999), the significance levels of the cross-sectional *t*s are assessed by comparison with critical values from the tabulated *t*-distribution, and the significance levels of the skewness-adjusted *t*s are assessed by comparison with critical values from 10,000 bootstrapped replications of the statistic under the null hypothesis.

* (**) denotes different from zero at the 5% (1%) confidence level.

FIGURE 2

Stock Return Measures for Out-of-Category Issues

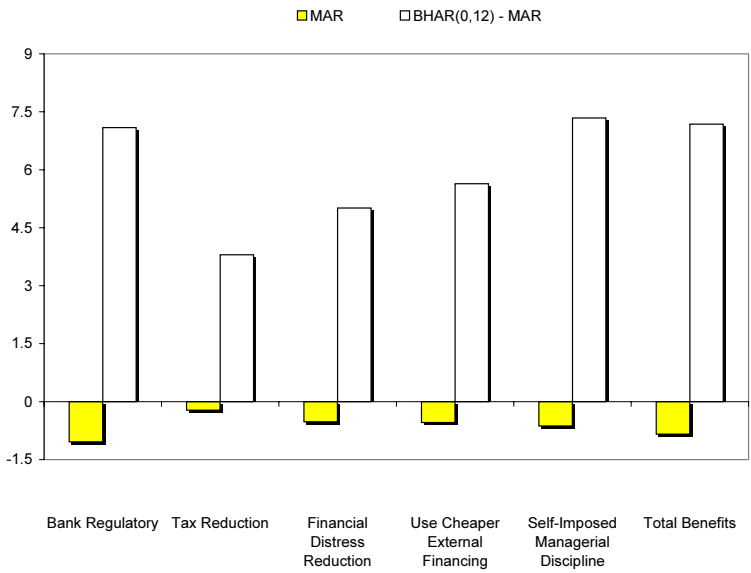



Figure 2 shows the sample weighted-average values of the equally weighted CRSP index-adjusted cumulative announcement period returns, MAR and the post-issue 12-month buy-and hold-abnormal returns, BHAR$(0, 12)$ − MAR. These two returns measures are averaged across issues that are not in each Benefits-of-Issue category, i.e., the Out-of-Category issues, and are plotted side-by-side. The category indicators are the same as in Table 2. All figures are expressed as percentages.

Table 6 displays the weighted-mean BHARs and CARs for the period beginning in the 13th month after issue announcement and ending in the 24th month after issue announcement, organized according to Benefit-of-Issue categories. BHAR$(13, 24)$ and CAR$(13, 24)$ are computed using the same procedures we use for the first-year post-issue measure. Standard cross-sectional *t*-statistics are reported in parentheses and skewness-adjusted *t*-statistics are reported in brackets. As before, the significance of each skewness-adjusted *t*-statistic is assessed by comparison with critical values from 10,000 bootstrap replications of the statistic under the null hypothesis.

Table 6 shows that the mean In- and Out-of-Category abnormal stock returns and the difference between the mean In- and Out-of-Category abnormal stock returns are essentially zero in the second year. Recall that the In-Category abnormal returns in the first year are zero, while the Out-of-Category abnormal returns in the first year are strongly positive. Since the second-year abnormal stock returns are insignificantly different from zero, the implication is that stock prices have adjusted to efficient levels by the end of the first year following issue announcements for Out-of-Category issues. Therefore, while analyzing the post-issue returns, we stop at the second year.

To summarize our findings, the market properly evaluates the complex costs and benefits of issuance that are often focal to issuers in deciding whether to use trust preferred stock, but the market fails to anticipate long-term value cre-

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TABLE 6

Abnormal Performance in the Second Year Following Trust Preferred Announcements

| | Buy-and-Hold Abnormal Returns BHAR(13, 24) | | | Cumulative Abnormal Returns CAR(13, 24) | | |
|---|---|---|---|---|---|---|
| Benefits-of-Issue Category | In-Category | Out-of-Category | Difference | In-Category | Out-of-Category | Difference |
| Bank Regulatory | −0.95 | 1.01 | −1.96 | −0.34 | 0.64 | −0.98 |
| | (−0.44) | (0.32) | (−0.54) | (−0.16) | (0.22) | −0.98 |
| | [−0.42] | [0.38] | | [−0.16] | [0.22] | |
| Tax Reduction | −5.89 | 0.94 | −6.83 | −4.57 | 0.90 | −5.47 |
| | (−1.85) | (0.46) | (−1.35) | (−1.37) | (0.46) | (−1.11) |
| | [−2.22] | [0.55] | | [−1.80] | [0.53] | |
| Financial Distress Risk Reduction | 0.40 | −0.47 | 0.87 | 0.26 | −0.04 | 0.30 |
| | (0.14) | (−0.20) | (0.24) | (0.10) | (−0.19) | (0.09) |
| | [0.19] | [−0.18] | | [0.12] | [−0.22] | |
| Use Cheaper External Financing | −4.40 | 2.61 | −7.01 | −3.93 | 2.60 | −6.53 |
| | (−1.59) | (1.11) | (−1.90) | (−1.40) | (1.17) | (−1.82) |
| | [−1.41] | [1.19] | | [−1.35] | [1.16] | |
| Self-Imposed Managerial Discipline | 2.01 | −3.04 | 5.05 | 3.02 | −4.06 | 7.08 |
| | (1.05) | (−0.94) | (1.38) | (1.62) | (−1.29) | (2.01)* |
| | [1.10] | [−0.85] | | [1.65] | [−1.27] | |
| Total Benefits | −1.06 | 1.97 | −3.03 | −0.83 | 2.01 | −2.84 |
| | (−0.48) | (0.63) | (−0.78) | (−0.39) | (0.65) | (−0.76) |
| | [−0.48] | [0.66] | | [−0.38] | [0.64] | |

Table 6 reports the percent average abnormal stock returns in the second year following trust preferred stock issue announcements by various benefits-of-issue categories. Long-run abnormal returns are measured as buy-and-hold abnormal returns (BHAR(13, 24)), and cumulative abnormal returns (CAR(13, 24)) for the period beginning the 13th month after issue announcement and ending the 24th month after issue announcement. Long-run abnormal returns of the issuer are calculated relative to a nonissuer that is risk-matched to the issuer based on size, book-to-market ratio, momentum, and industry as described in the text. Returns are precision weighted using the event-study standard deviation when calculating averages. The category indicators are the same as in Table 2. Two *t*-statistics are reported for mean returns, and one for the difference in mean returns. Standard cross-sectional *t*-statistics are reported in parentheses, and skewness-adjusted *t*-statistics are reported in brackets. Both sets of *t*-statistics test the null hypothesis that each mean return (difference in mean returns) is zero. Following Lyon, Barber, and Tsai (1999), the significance of the cross-sectional statistics is assessed in comparison with the critical values from the tabulated *t*-distribution, while the significance of the skewness-adjusted *t*-statistics is assessed by comparison with 10,000 bootstrapped replications of the statistic under the null hypothesis.

* (**) denotes significantly different from zero at the 5% (1%) level.

ation in cases where the issue benefits are not sharply delineated at the time of issue announcement. For such issues, investors react negatively at the time of issue announcement, but the first-year post-issue abnormal returns are significantly positive. By the end of the first year, however, these stocks appear to attain their long-run valuations because the second-year post-issue abnormal returns are insignificantly different from zero.

## 3. Marginal Category Effects

Thus far, we study trust preferred issues by segregating our sample issues into those that fall into each specific Benefits-of-Issue category from those that do not, as well as by segregating issues that fall into a specific summary category. Results are consistent across categories, lending credence to our conclusion that focal benefits categories are the key to valuation, but an issue may fall into more than one specific benefit category. For instance, an issuer can state more than one use of issue proceeds in the prospectus: an issuer can use the issue proceeds both to pay off nonbank debt and fund acquisitions, which would seem to open the possibility that one category is really the key. This concern is partially alleviated because it is also true that issues may be designated as In-Category with respect to some benefit categories and Out-of-Category with respect to others. Nonethe-

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less, to more completely address this concern, we examine the marginal effects of membership in Benefits-of-Issue categories for one-year post-issue abnormal performance. Since we already show that abnormal stock returns show up only in the first-year post-issue, and that all abnormal performance measures yield similar results, we perform this analysis only for $\mathrm{BHAR}(0, 12)$ minus the market-adjusted announcement period returns.

Table 7 shows the marginal effect attributable to an issue displaying $n$ specific Benefits-of-Issue as compared to $m$ Benefits-of-Issue, where $n > m$ and $m$ varies from one to three, given that we have four specific Benefit-of-Issue categories.[20] These marginal effects are measured using a series of weighted least squares regressions of the form,

$$\mathrm{BHAR}(0, 12) - \mathrm{MAR} \quad = \quad \mu_0 + \sum_{n=m+1}^{4} \mu_n D_n, \tag{2}$$

where $m = 1$, 2, or 3, $D_n$ is an indicator variable for the number of specific benefits an issue displays ($n = m+1, \ldots, 4$), and MAR is the announcement period market-adjusted return. Because each regression includes only an intercept and indicator variable regressors, each regression coefficient $D_n$ captures the marginal effect on post-issue long-run returns of membership in the additional number of benefits categories. Standard $t$-statistics test the null hypothesis that the marginal effect on long-run returns is zero.

TABLE 7

Marginal Effects of Benefits-of-Issue Category Memberships on Long-Run Abnormal Returns

| Marginal Effect of Membership in $n$ Categories above that of Membership in $m$ Categories | | | | |
|---|---|---|---|---|
| | $n = 1$ | $n = 2$ | $n = 3$ | $n = 4$ |
| $m = 0$ | −19.38 | −19.14 | −28.39 | −24.32 |
| | (−3.20)** | (−3.05)** | (−4.48)** | (−2.53)* |
| $m = 1$ | | −3.58 | −12.82 | −8.76 |
| | | (−0.88) | (−3.10)** | (−1.03) |
| $m = 2$ | | | −11.51 | −7.44 |
| | | | (−2.99)** | (−0.89) |
| $m = 3$ | | | | −4.47 |
| | | | | (−0.53) |

Table 7 shows the marginal effects on one-year abnormal stock returns associated with issues displaying $n$ Benefits-of-Issue as compared to $m$ Benefits-of-Issue, where $n > m$. Benefits-of-Issue categories are the same as defined in Table 2. The abnormal performance is measured as 12-month buy-and-hold abnormal returns ($\mathrm{BHAR}(0, 12)$) minus the market-adjusted announcement period returns, MAR. The issuer's long-run return is calculated relative to a non-issuer that is risk matched to the issuer based on size, book-to-market ratio, momentum, and industry as described in the text. Marginal effects are measured as the coefficients $\mu_n$ from a weighted least squares regression of the form, $\mathrm{BHAR}(0, 12) - \mathrm{MAR} = \mu_0 + \sum_{n=m+1}^{4} \mu_n D_n$, for $m = 1$, 2, or 3, where $D_n$ is an indicator variable for the number of specific benefits an issue displays ($n = m + 1, \ldots, 4$). Because each regression includes only an intercept (not reported) and indicator-variable regressors, each regression coefficient $\mu_n$ captures the marginal effect on post-issue long-run returns of membership in the additional number of benefits categories. Standard $t$-statistics are reported in parentheses and test the null hypothesis that the marginal effect on long-run returns is zero.

* (**) denotes different from zero at the 5% (1%) confidence level.

The entries show that the marginal effect on post-issue abnormal performance due to additional issuance benefits is always negative and almost always

[20] As before, we exclude the Self-Imposed Managerial Discipline Benefit category from results depending on summary Total Benefits. Consistent with our general statements that this choice does not affect our conclusions, we verify that this choice does not affect the specific conclusions of the current analysis.

strongly significant. The implication is that if an issue has one or more prominent and clearly delineated benefit(s) at the time of issue announcement, the positive post-issue abnormal returns are partially or completely reversed. The greater is the number of benefit categories that apply, the greater is this canceling effect. The analysis supports our conclusion that focal benefits in the aggregate lead to misreactions, and shows that no one category is the overwhelming driver of the results.

## 4. Robustness Check: Private Placements

As discussed above, 41 of our 210 trust preferred stock issues are private placements. These issues are not eligible for inclusion in most of our Benefits-of-Issue categories, which require information from the prospectus. We provided evidence in the previous section that Benefits-of-Issue categories, not private placement designations, are the source of our announcement period results. A priori, if private placements drive our long-run returns results, the importance of Benefits-of-Issue categories is not put in doubt per se. The reason is that material private placement financings must be reported in a company's 10-Q filing, and thus become public with a one-quarter lag at most. If there is an information lag, it is resolved long before the end of our long-run returns window. So, if our categorical thinking is correct, there is no reason to expect a difference in long-run returns to trust preferred stock public issues vs. private placements. However, if private placements drive our results, there would seem to be additional factors at work that we have not investigated. Therefore, we now establish that private placements alone do not drive our long-run performance results.

Table 8 presents Out-of-Category long-run abnormal returns, measured in each of the four ways we use in previous tables, for public issues of trust preferred stock in Panel A and for private placements of trust preferred stock in Panel B. The fundamental result is that both public issues and private placements appear to be associated with positive abnormal performance in the long run. When we split the sample in this way, the size of each subsample is rather small, and so the statistical significance is reduced vs. the full sample results shown in earlier tables. Though the table does not show the *t*-statistics on the differences across public vs. private trust preferred stock financing announcements, we can report that the differences are not ever near to significantly different from zero. This "no-difference" result holds for every category.

Given that all private issues are Out-of-Category with respect to uses specified in the prospectus, Row 2 in Panel B displays the mean long-run abnormal returns for the sample of all private issues. The corresponding numbers for the sample of all public issues are 1.60%, 2.18%, 1.51%, and 2.02%, respectively. The no-difference result holds for public vs. private issues overall. For our four measures of long-run abnormal returns, the *z*-statistics against the null hypothesis that private and public issues have the same mean are 1.48, 1.53, 1.58, and 1.83, respectively.

In a number of instances, it appears that the private placement Out-of-Category performance might be stronger than for the corresponding public issue case. For example, for nonbanks private placements in Panel B, BHAR(0,12) in excess of the announcement period market-adjusted return is 9.84%, whereas for public

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TABLE 8

Public Issues and Private Placements Subsamples: Long-Run Abnormal Stock Performance for Out-of-Category Issuers

| Benefits-of-Issue Category | Out-of-Category *N* | BHAR(0, 12) – MAR | BHAR(1, 12) | CAR(0, 12) – MAR | CAR(1, 12) |
|---|---|---|---|---|---|
| *Panel A. Public Issues: Out-of-Category Long-Run Abnormal Returns* | | | | | |
| Bank Regulatory | 68 | 6.50<br>(1.93) | 5.29<br>(1.64) | 5.47<br>(1.89) | 4.31<br>(1.52) |
| Tax Reduction | 138 | 2.47<br>(1.20) | 2.41<br>(1.20) | 2.41<br>(1.42) | 2.12<br>(1.32) |
| Financial Distress Risk Reduction | 94 | 3.54<br>(1.16) | 5.38<br>(1.79) | 2.85<br>(1.07) | 4.69<br>(1.96)* |
| Use Cheaper External Financing | 93 | 4.59<br>(1.56) | 4.57<br>(1.62) | 3.62<br>(1.40) | 3.74<br>(1.59) |
| Self-Imposed Managerial Discipline | 82 | 6.43<br>(1.97)* | 7.02<br>(2.19)* | 5.54<br>(1.96)* | 5.23<br>(1.98)* |
| Total Benefits | 80 | 6.93<br>(2.02)* | 6.61<br>(1.98)* | 5.73<br>(1.93) | 5.56<br>(2.06)* |
| *Panel B. Private Placements: Out-of-Category Long-Run Abnormal Returns* | | | | | |
| Bank Regulatory | 18 | 9.84<br>(0.88) | 12.41<br>(1.05) | 8.41<br>(0.84) | 12.21<br>(1.30) |
| Any Specified Use of Issue Proceeds | 41 | 7.56<br>(1.74) | 8.30<br>(1.85) | 7.19<br>(1.85) | 8.07<br>(2.23)* |
| Self-Imposed Managerial Discipline | 23 | 10.01<br>(1.34) | 11.99<br>(1.44) | 9.54<br>(1.34) | 11.18<br>(1.67) |
| Total Benefits | 41 | 7.56<br>(1.74) | 8.30<br>(1.85) | 7.19<br>(1.85) | 8.07<br>(2.23)* |

Table 8 reports mean long-run abnormal returns following trust preferred stock public issues and private placements announcements in percentage points by Benefits-of-Issue category. Panel A reports on public issues and Panel B reports on private placements. For private placements, the Any Specified Use of Issue Proceeds category includes all three specific uses of issue proceeds: Tax Reduction, Financial Distress Risk Reduction, and Use Cheaper External Financing, because private placements have no issue prospectuses that are our source for determining use of issue proceeds. The table reports the Out-of-Category sample sizes used in computing the long-run abnormal returns. Long-run abnormal returns are measured as long-run buy-and-hold abnormal returns (BHAR), and cumulative abnormal returns (CAR) for a period of one year or one month less than a year, depending on the method used. Market-adjusted announcement period returns (MAR) are subtracted if the long-run return period overlaps the announcement period, so that the reversal is always net of the announcement period effect. Each issuer's long-run abnormal performance is calculated relative to a risk-matched nonissuer, as described in the text. Returns are precision weighted using the event-study variance when calculating averages. In parentheses, the table reports standard cross-sectional *t*-statistics for mean returns and for differences in returns.

* (**) denotes different from zero at the 5% (1%) confidence level.

issues in Panel A the corresponding figure is 6.50%. However, the private placement *t*-statistic is much smaller (0.88 vs. 1.93), so we are not inclined to assign any strong interpretation to the comparison.

## IV. Economic Sources of Misreactions

In previous sections, we establish statistical evidence of market misreaction to trust preferred issues. In this section, we inquire whether there is economic rationale for the misreactions. We have already shown that several prominent operating and financial characteristics, including some related to financial distress, are similar before-issue for our In- and Out-of-Category firms.

We continue to focus on the same three characteristics as before. Short-run profitability (ROA) and long-term profit generation potential (as proxied by MB) are two measures relating to value creation, changes which could explain stock price movements. We also look at leverage because of the link between

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expected leverage changes and long-run returns patterns that we discuss earlier. In measuring DE, we count preferred stock as equity—so a trust preferred issue, in itself, would tend to slightly depress our measure of DE.

For the fourth quarter following the quarter of the trust preferred stock announcement, Table 9 displays matched firm-adjusted ROA (Panel A), MB (Panel B), and DE (Panel C), where ROA and DE are measured in percentage points and MB is measured as the level of the ratio times 100. For ease of exposition, we refer to all three units of measure as "percent" below.

TABLE 9

Post-Issue Performance of Trust Preferred Issuers: Profitability, Long-Run Expected Profitability, and Leverage

| | Fourth Quarter after the Announcement | | |
|---|---|---|---|
| Benefits-of-Issue Category | In-Category (*z*-statistic) | Out-of-Category (*z*-statistic) | Difference (*z*-statistic) |
| *Panel A. Return on Assets (ROA)* | | | |
| Bank Regulatory | −0.20 (−1.61) | 0.07 (0.25) | −0.27 (−0.95) |
| Tax Reduction | −0.20 (−0.84) | −0.06 (−0.36) | −0.14 (−0.50) |
| Financial Distress Risk Reduction | −0.12 (−0.64) | −0.06 (−0.29) | −0.06 (−0.23) |
| Use Cheaper External Financing | −0.13 (−0.66) | −0.05 (−0.25) | −0.08 (−0.31) |
| Total Benefits | −0.21 (−1.09) | 0.01 (0.05) | −0.21 (−0.80) |
| *Panel B. Market-to-Book Ratio (MB)* | | | |
| Bank Regulatory | 22.61 (1.28) | 22.06 (1.25) | 0.55 (0.95) |
| Tax Reduction | 15.11 (1.06) | 64.67 (2.79)** | −49.56 (−1.82) |
| Financial Distress Risk Reduction | −18.57 (−0.81) | 46.96 (3.24)** | −65.53 (−2.54)* |
| Use Cheaper External Financing | 3.71 (0.15) | 32.83 (2.40)* | −29.12 (−1.10) |
| Total Benefits | −12.89 (−0.54) | 47.21 (3.54)** | −60.10 (−2.36)* |
| *Panel C. Leverage (DE)* | | | |
| Bank Regulatory | 5.46 (2.40)* | 3.75 (1.12) | 1.71 (0.43) |
| Tax Reduction | 10.40 (1.99)* | 3.76 (1.81) | 6.64 (1.22) |
| Financial Distress Risk Reduction | 5.82 (2.57)** | 4.10 (1.50) | 1.72 (0.48) |
| Use Cheaper External Financing | 6.71 (2.12)* | 3.63 (1.49) | 3.08 (0.77) |
| Total Benefits | 6.09 (2.23)* | 3.81 (1.43) | 2.28 (0.65) |

Table 9 reports the post-issue matched firm-adjusted Return on Assets (ROA), the Market-to-Book Value of Equity ratio (MB), and the Debt-to-Equity ratio (DE) for trust preferred stock issuers by Benefits-of-Issue category. The categories are the same as in Table 2. As described in the text, these matched adjusted ratios are measured as the difference in the ratio between the issuer and a performance-matched nonissuing industry peer in percentage point form. Panel A reports ROA, calculated as the matched adjusted operating cash flow divided by assets. Panel B reports MB, calculated as the matched adjusted ratio of the market value of equity to the book value of equity. Panel C reports DE measured as the matched adjusted ratio of long-term debt to equity, or when long-term debt is not available of all debt to equity. In each panel, the matched adjusted characteristics are presented for the fourth quarter following the announcement. The *z*-statistics, in parentheses, test the null hypothesis that these matched adjusted performance measures are not statistically different from zero.

* (**) denotes significantly different from zero at the 5% (1%) confidence level.

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Three results stand out. First, in Panel A, it is clear that for all issuers, ROA remains insignificantly different from that of nonissuing firms. It does not appear that unanticipated, poor near-term operating performance is the reason for the initial misreactions. This contrasts with findings for seasoned equity offerings, where unanticipated poor near-term operating performance appears to the source of initial underreactions to issues.

Second, in Panel B, it is clear that many Out-of-Category issuers, especially those that fall outside most or all of the categories, experience increases in MB over the post-issue year that are above any changes in the matched firms' ratios. For the summary Total Benefits category, the abnormal MB ratio a year after issue is 47.21%, and is highly statistically significant ($z = 3.54$); in comparison, the abnormal MB is statistically indistinguishable from zero in the pre-issue quarter. Reasoning from the common interpretation of the market-to-book ratio as a proxy for Tobin's *q*, this is evidence that issuers outside of any focal Benefits-of-Issue category, the Out-of-Category issuers, experience strong increases in the market's assessment of their long-run profitability and growth potential.

Third, in Panel C, In-Category issuers experience increases in DE ratios (above any changes in the matched firms' ratio) over the post-issue year. For example, for the summary Total Benefits category, the abnormal DE ratio a year after issue is 6.09 percentage points, and is statistically significant ($z = 2.23$); in comparison, the abnormal DE is statistically indistinguishable from zero in the pre-issue quarter. In terms of static trade-off theories of capital structure, the value effects of abnormal DE are not clear. In this case, since increasing DE is associated with In-Category issuers, we suspect that the empirical effects are negative.[21]

Given that Out-of-Category issuers tend to experience systematic match-adjusted MB increases and In-Category issuers tend to experience systematic match-adjusted DE increases, we are motivated to assess the associated effects on long-run performance using regressions. For compactness of reporting, we use the 12-month BHAR net of the announcement period market-adjusted returns for our regression analysis, given that we have already shown that various long-run performance measures have similar magnitudes.

We estimate two versions of the regression specification,

$$(3) \qquad \text{BHAR}(0,12) - \text{MAR} \quad = \quad \gamma_0 + \gamma_1 \text{ROA} + \gamma_2 \text{MB} + \gamma_3 \text{DE} + \Delta \text{IC}.$$

Since IC is a dummy variable, the coefficient $\Delta$ measures the long-run performance difference between In- and Out-of-Category issues. We report estimates of a restricted benchmark version of this regression (called Specification A) in which $\gamma_1$, $\gamma_2$, and $\gamma_3$ are set to zero. We also report an augmented version, Specification B, which allows for the effects of the match-adjusted issuer characteristics four quarters after the issue. We estimate regressions with weighted least squares, using the same event-study precision weights as we used in calculating weighted averages earlier in the paper. The results are presented in Table 10, with Specification A on the left and Specification B on the right.

[21] For example, it is possible that increases in debt ratios are evidence of managerial entrenchment (North (2001)) or can prevent positive net present value investments when cash is tight (Stulz (1990)).

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TABLE 10

Economic Determinants of Long-Run Stock Performance

| | Specification A | | Specification B | | | | |
|---|---|---|---|---|---|---|---|
| Benefits-of-Issue Category | $\gamma_0$ | $\Delta$ | $\gamma_0$ | $\gamma_1$ | $\gamma_2$ | $\gamma_3$ | $\Delta$ |
| Bank Regulatory | 7.09 | −6.98 | 4.15 | 0.53 | 5.96 | −0.23 | −4.41 |
| | (2.70)** | (−2.06)* | (1.46) | (0.41) | (4.34)** | (−2.51)* | (−1.20) |
| Tax Reduction | 3.45 | −3.62 | 2.33 | 0.49 | 6.14 | −0.23 | −5.54 |
| | (1.90) | (−0.76) | (1.18) | (0.38) | (4.41)** | (−2.47)* | (−1.10) |
| Financial Distress Risk Reduction | 5.01 | −5.30 | 1.50 | 0.60 | 5.91 | −0.23 | 0.67 |
| | (2.33)* | (−1.55) | (0.63) | (0.47) | (4.16)** | (−2.45)* | (0.02) |
| Use Cheaper External Financing | 5.64 | −7.35 | 2.64 | 0.62 | 5.73 | −0.23 | −2.71 |
| | (2.69)** | (−2.13)* | (1.10) | (0.48) | (4.09)** | (−2.43)* | (−0.73) |
| Total Benefits | 2.17 | −9.82 | 3.14 | 0.60 | 5.67 | −0.23 | −3.71 |
| | (3.28)** | (−2.95)** | (1.29) | (0.47) | (4.66)** | (2.44)* | (−1.01) |

Table 10 reports regression coefficients (and *t*-statistics in parentheses) where the dependent variable is the long-run stock performance of trust preferred stock issuers, and regressors are matched adjusted firm characteristics four quarters after the trust preferred stock issue announcement as well as an In-Category (IC) indicator variable for Benefits-of-Issue categories. The Benefits-of-Issue categories are the same as in Table 2. The regression specification used is $\text{BHAR}(0, 12) - \text{MAR} = \gamma_0 + \gamma_1 \text{ROA} + \gamma_2 \text{MB} + \gamma_3 \text{DE} + \Delta \text{IC}$, where ROA, MB, and DE are the return on assets, market-to-book ratio, and debt-equity ratio as in Table 9. Specification A is a benchmark regression that includes only the intercept and an In-Category indicator, IC. Specification B also includes matched adjusted issuer characteristics four quarters after the announcement. In Specification A, the coefficient $\Delta$ measures the long-run performance difference between In- and Out-of-Category issuers. In Specification B, the coefficient $\Delta$ measures the same difference effect, but net of the regression adjustment for the post-issue characteristics.

* (**) denotes significantly different from zero at the 5% (1%) confidence level.

The first finding is that MB and DE have significantly positive and negative slope coefficients, respectively. Positive long-run performance is the statistical result of unanticipated changes in long-run profit growth and leverage. Our reasoning above, which is based on the examination of univariate firm characteristics in each Benefits-of-Issue category, stands up to a multivariate analysis.

The second finding is that in Specification A the coefficient $\Delta$ is negative and strongly statistically significant, consistent with the univariate results reported earlier. For example, $\Delta$ measured with respect to the Total Benefits summary category is $-9.82$ ($t=-2.95$). This coefficient compares with the analogous result from Table 5, which measures the difference between the In- and Out-of-Category long-run performance as a simple weighted average: $-9.82$ with a cross-sectional *z*-statistic of $-3.61$. Clearly, the regression coefficient $\Delta$ measures what it is intended to: the In- vs. Out-of-Category long-run returns difference.

The third and most important finding is that the firm characteristic regressors account for the same effects in the data as does the In-Category indicator, IC. For example, for the Total Benefits summary category, the slope coefficient $\Delta$ is $-3.71$ ($t=-1.01$) in Specification B, whereas in Specification A, without the inclusion of the business characteristics as regressors, it is about three times as large and highly statistically significant. Similar comparisons obtain for other Benefits-of-Issue categories. We conclude that unexpected changes in these profitability- and debt-related business variables are plausible candidates both as the factors that the market fails to anticipate and as the economic source of the misreactions we document.

To follow up and support our earlier discussion as to whether In- vs. Out-of-Category returns differences might be related to differences in the market's perceptions about financial distress, we investigate the survival of trust preferred

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stock issuers beyond the time period of our study. Though In- and Out-of-Category issuers are similar in terms of their distress-related characteristics at the time of issue, it is possible that In-Category issuers fail more often and Out-of-Category firms survive surprisingly well. If so, this would help explain the much stronger long-run returns for Out-of-Category issuers as compared to In-Category issuers. Searching the COMPUSTAT tapes for our issuer sample for the year 2003, we fail to find entries for 17 nonbank issuers and 32 bank issuers. We next search Lexis-Nexis to find all news announcements regarding the status of these firms. We find that none of these disappeared firms has gone bankrupt or otherwise failed. Rather, all either merged with or were acquired by other firms. This finding indicates the positive long-run returns for Out-of-Category issuers is not due to them having a different long-run survival rate than In-Category issuers.

## V. Discussion and Conclusion

This article studies the initial reaction of shareholders to security issue announcements and the subsequent systematic corrections to those initial reactions. For the event we study—issuance of trust preferred stock, a dominant debt-equity hybrid—we are able to cleanly categorize a set of benefits of issuance that is prominent for many issuers and, arguably, for investors. Categories include the potential to create value by easing regulatory constraints, reducing tax burdens, and reducing financial distress risk.

We find that announcement period reactions to issuance events are efficient when these issuance benefits apply. However, investors misreact when these focal benefits are not present. The misreactions we document are initial risk-adjusted reactions that turn out to be in the wrong direction—negative—considering the subsequent and much larger positive long-run risk-adjusted returns. Our results are robust to four different ways of measuring long-run abnormal performance, and two different ways of assessing the statistical significance of these long-run returns. Our results obtain for specific benefits of issue categories and also for a summary category that aggregates the specific benefits. They obtain whether measured as average effects or as marginal effects. The statistical and economic significance of return reversals from the short-run announcement period to the post-issue long run, and the robustness of our results, are striking. In short, where there is focus, the valuation is efficient. Where there is no focus, the valuation is not efficient and often in the wrong direction.

Mullainathan (2002) and Barberis and Shleifer (2003) suggest that investors may form coarse categories for assessing the value of new information and react later if they have enough data to change categories. Categorical thinking, they suggest, might be a way of economizing on information collection or processing costs. Our focal conditioning variables are examples of information that investors appear to use in making categorical judgments. When the benefits of a trust preferred issue are not sharply delineated at the time of announcement, there is no focal conditioning information. In such cases, investors react negatively at the time of announcement, similar to the case of seasoned equity offerings. Like equity, trust preferred stock accords managers broad discretion as to the use of funds, so the similarity of the reaction seems somewhat natural. Without fo-

cal benefits, investors do not seem to anticipate the subsequent shareholder value created following trust preferred issues (which is evidenced by later changes in price-to-book ratios). Consequently, the investors' initial reaction is in the wrong direction when compared to post-issue long-run returns. When investors have a focal reason to judge issuances, their valuation is efficient.

In summary, we uncover a pattern of short-run inefficiency in equity markets, with a subsequent long-term pull toward fundamentals. The pattern we uncover is different from the well-documented patterns of underreaction and overreaction. Here, the market misreacts. Our evidence suggests that investors may focus only on subsets of information that they use to sort stocks into categories, and price accordingly. Investors drive down the value of stocks that do not fall into the "right" categories—even though such stocks have other, non-focal characteristics that cause them to increase in value over a longer period.

Our results also serve to reinforce the importance of credible corporate communication about announcements with capital structure implications. The idea is old, but bears renewed emphasis in view of recent events that may have debased confidence in management. For example, Woolridge and Ghosh (1986) examine the case of two firms that cut dividends in the period 1983–1984. For one firm, the announcement period market reaction is significantly positive, while for the other the announcement period market reaction is harshly negative. The firm with the positive reaction preceded the announcement with extensive organized communication explaining that the old dividend policy was possibly out of synch with its current business strategy. Our results support a similar point. When the benefits of new financing are conveyed to the market in a focused manner, the announcement period market reaction is positive and stock valuation is efficient. If not, announcement period market reaction is negative and stock valuation is inefficient.

In the case of trust preferred stock, the focal information is easy to identify. Further, there is no obvious way in which stock risk is expected to change, if at all, at the time of the event. Hence, there is no reason to suspect that the returns patterns we uncover are spurious due to benchmarking difficulties as in Eckbo, Masulis, and Norli (2000). It is reasonable to suspect similar human behavior, and similar returns patterns, in other more common situations such as equity issuances, but it will be harder for researchers to cleanly identify focal information, and standard methods for measuring long-run abnormal performance are more likely to be contaminated with risk change effects. Nonetheless, future studies should attempt to see if misreaction patterns exist in other situations. As Daniel, Hirshleifer, and Subrahmanyam (1998) argue, behavioral theories deserving of consideration must explain a range of anomalous patterns in different contexts.

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