Impact of the TARP Financing Choice on Existing Preferred Stock

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October 13, 2010

JEL Classification: G32, G34, G39

Key Words: priority, TARP, preferred stock, bankruptcy

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Abstract

The October 14, 2008 TARP program mandated a *forced* issuance of TARP preferred stock by the largest U.S. banks. Soon after, many smaller banks were *not forced* but chose to issue TARP preferred stock after being approved for issuance. We investigate the impact of TARP preferred on two different types of outstanding preferred stock. These two different types of preferred stock are (1) trust preferred stock, which is senior to TARP preferred stock, and (2) non-trust preferred stock, which has equal claim to TARP preferred stock. Consistent with the priority rule, we find that trust preferred enjoyed greater benefits from TARP issuance than did non-trust preferred for both forced and non-forced banks on October 14. In contrast, there is no clear priority rule effect on the approval dates for non-forced banks.

Introduction

On October 14th, 2008, the U. S. Treasury announced that the largest U.S. banks would necessarily receive TARP capital through *forced* issuance of preferred stock and that other (smaller) banks could later apply to issue TARP preferred stock but would *not be forced* to issue preferred stock. The financing choice, *preferred stock*, was surprising and anticipated by very few if any. According to Landler and Dash (2008), even the bank CEOs present at the meeting were surprised and some had to be coaxed into the plan to issue preferred stock.

Pre-existing preferred stockholders would seem obviously affected by TARP preferred issuance. Interestingly, Veronesi and Zingales (2009) estimate that there was a greater absolute total impact upon existing preferred stock than upon common stock in the forced banks.[1] In their analysis of preferred, Veronesi and Zingales (2009) correctly maintain that many shares of preferred stock do not trade frequently enough to make a credible analysis of the change in value of each outstanding preferred stock and thus their estimate of the impact upon total preferred stock valuation of a firm is based only upon the *most recently issued* preferred stock of the bank that was actively traded. In contrast, we find trading in numerous other preferred shares was quite active thus allowing us to analyze important differential preferred valuation impacts described below.

Many banks issuing TARP preferred had various different issues of preferred stock outstanding with widely varying features. For example, among forced banks, Bank of America had 56 issues outstanding where there was great variation in features. One broad and important way to classify preferred is trust preferred (TP) versus non-trust preferred (NTP). Trust preferred stock is a relatively new and controversial instrument that has been a popular way for banks to raise capital in recent years.

The purpose of this research is to determine the impact of the largest government

[1] The large banks in their study were Bank of America, Bank of NY Mellon, Citigroup, Goldman Sachs, JPMorgan Chase, Merrill Lynch, Morgan Stanley, State Street Corporation, Wachovia, and Wells Fargo.

financial intervention ever upon different types of existing bank preferred stock. Fundamental theory says that any security issuance should be a concern to those with claims on the firm's cash flows where one may be particularly concerned about claims of similar seniority. We focus upon the above two classes of preferred. That is, what were the differential impacts of TARP upon the value of pre-existing 1.) trust preferred (TP) and 2.) non-trust preferred (NTP) of banks issuing TARP preferred stock? We present alternative theory and hypotheses for the impact of TARP on these two classes of preferred stock. TP may have the strongest reaction because the issuance of TARP preferred created more assets financed by a *lower* priority claim. There is no such clear positive priority effect for NTP because TARP preferred had *equal* seniority to NTP. Alternatively, NTP may exhibit the stronger reaction because the announcement of TARP preferred issuance may have more strongly reduced the near term probability of runs and loss due to default for lower priority claims such as NTP.

As pointed out by Myers and Majluf (1984) and Miller and Rock (1985), new issuance may convey unfavorable endogenous information thus confounding tests of the priority rule. New information suggested by issuance of a particular type of security affects other security prices by revising investor forecasts about the value of the issuing firm. For example, issuance of junior debt may convey unfavorable information about the value of the firm, thereby negatively affecting the value of senior debt. In such a setting, priority rule effects will not be cleanly tested since it is very difficult to separate the priority rule effect from the endogenous information effects. Therefore, previous studies that have investigated the impact of the issuance of a type of security on the other type of security might fail to separate the priority rule effect from the information effect.

Our study overcomes this problem by *comparing* the impacts of the issuance of TARP preferred stock on the two types of existing preferred stock with different priorities of claims.

Any potential differential impacts on TP and NTP result from the difference in seniority of TP and NTP. Therefore, comparing the differential impacts of TARP preferred stock issuance on TP versus NTP provides an ideal setting to purely test the impact of the priority rule on the values of individual classes of claims.

Of course, one may ask the same questions of both *forced and non-forced* banks. Additionally, did the impact of TARP issuance on *non-forced* smaller banks *differ* from that of forced banks? We ask this because conditions surrounding TARP issuance for non-forced were much different than for forced banks. Obviously, non-forced banks had to be approved, and had a choice of whether to issue or not issue.

Making the situation even more interesting, the news that a non-forced bank applied and was approved to issue reflected very complex information.[2] That is, some investors may have perceived approval to issue as a sign of weakness (the bank needed special access to capital) while other investors may have seen the approval as a strong indication that the bank was healthy enough to be *permitted* to issue TARP preferred. Furthermore, some investors may have seen TARP as a smart, inexpensive subsidized way to raise capital while, on the other hand, other investors may have seen it as an unwelcome opportunity for the government to impose undesirable restrictions and regulations on the bank which would reduce future flexibility and profitability.

Relatively little attention has been paid to preferred equity issuance in the finance literature. However, according to Kallberg, Liu, and Villupuram (2008), from 1999 to 2005 U.S. firms issued over $868 billion in preferred stock while raising only $374 billion through common equity IPOs and only $590 billion through seasoned equity offerings. TARP preferred stock substantially increased the amount of outstanding bank preferred stock. For example, the TARP plan increased the outstanding preferred stock of JPMorgan Chase from

[2] The public was not informed that a bank had applied and not been approved. Only eventual acceptance of an application was public.

$8.1 billion (third quarter of 2008) to $31.94 billion (fourth quarter of 2008). Furthermore, State Street bank had no preferred stock outstanding. We note that the impact of preferred stock issuance on the banking firm's capital structure had become an important issue even before October 2008. Kwan (2009) notes that due to economic conditions occurring before October 2008, many banks were raising capital by issuing preferred stock. Salutric and Wilcox (2009) report a very strong growth in number of bank holding companies with preferred stock outstanding in the last decade.

We find that consistent with the priority rule, TP for forced banks clearly enjoyed greater returns than NTP for forced banks on October 14. TP appears to have benefited more from the forced TARP preferred issuance than NTP because the TARP issuance provided an additional asset base for TP. Any potential greater reduction in default risk for NTP was not strong enough to dominate this effect. In addition, weaker forced banks realized greater benefits from TARP.

With regard to the difference between TP and NTP for non-forced banks, TP had a stronger positive return for the October 14 TARP announcement but not for the approval announcement. It appears that the market expected some banks to apply for and receive TARP upon the October 14 announcement. For non-forced banks the evidence regarding TP and NTP pooled is that there was a positive return for *the announcement of approval* to issue TARP preferred. That is, the market seems to have perceived approval to issue TARP preferred as net favorable information. Like weaker forced banks, we find that weaker non-forced banks realized greater benefits.

Section one describes the financial crisis that peaked in 2008 and alternative hypotheses about the impact of TARP preferred upon previously existing preferred. We include financial theory and hypotheses for why announcement effects may differ due to firm-specific and security-specific characteristics such as TP and NTP, and, also, why the

pattern of TARP announcement effects may differ across forced and non-forced banks. The second section describes the data and the results are reported in the third section. We present conclusions in the last section.

1. The Crisis and Hypotheses

In 2008 the U. S. financial system was frequently in turmoil where one of the most important events was the September 15 Chapter 11 bankruptcy of Lehman Brothers. It was the largest bankruptcy filing in U. S. history and made some suspect that the world's financial system was at risk of failing. A few days later, September 18, in an effort to convince world markets that the U.S. financial system would not fail, the U. S. Treasury proposed a $700 billion system wide plan to provide any needed rescue where the plan was called TARP (Troubled Asset Relief Program). Previous (summer 2008) preliminary plans had frequently advocated using the rescue funds for government purchase of troubled assets, such as stressed mortgage backed securities, from banks. The plan was very controversial in numerous ways and on September 30, the House of Representatives defeated President Bush's TARP plan. On October 3, 2008, TARP finally passed Congress assuring that $700 billion of some type of aid was forthcoming. However, this legislation did not designate how the aid would be administered. The U.S. stock market did not seem impressed with the TARP plan as stock indices declined dramatically in the week after the October 3 TARP passage; for example, the S&P 500 declined more than 10%.

How would the $700 billion of aid be administered and how would it affect bank balance sheets? Purchase of troubled assets was allowed by the October 3 passage of TARP but was very controversial. Some suggested the Treasury should buy common stock of banks but this was strongly criticized partially because, for example, common stock ownership would give a strong appearance of government-owned banks due to common stock holder

voting rights.

The surprising final form of the TARP program for banks turned out to be U. S. Treasury purchase of bank preferred stock. More specifically, the preferred was NTP stock paying a 5% dividend for the first five years where, after five years, the rate would be reset at 9%. The TARP preferred stock had no maturity date (perpetuity) and qualified as Tier 1 capital. Importantly, the priority ranking of payment was *equal* to NTP but *junior* to TP.[3] There were no voting rights except for authorization of shares senior to senior preferred.[4] Warrants to purchase common stock (with a term of 10 years) having aggregate market price of 15% of TARP preferred were attached. Redemption rules were complex as it was not redeemable for three years except from a qualified common equity offering which resulted in gross proceeds to the bank of not less than 25% of the issue price of TARP preferred. After three years, it was redeemable in whole or in part at any time.

1.1 Hypotheses on the Impact of TARP Preferred Issuance: Forced Banks

Previously existing preferred stock on bank balance sheets (before October 2008) was heterogeneous with regard to seniority. See Table I for seniority variation of bank claims. Rose and Hudgins (2010) report that preferred stock had increased its share of bank financing in the early part of the century partially due to the emergence of TP which is a hybrid security. To issue a trust preferred stock, a firm creates a trust. The trust issues preferred stock to investors and loans the proceeds to the issuing firm who, in turn, issues junior subordinated debt to the trust. This process explains why TP stock has higher priority than NTP stock. Very importantly, TP was considered Tier 1 capital and was particularly popular for large banks. Classification as Tier 1 was controversial where many analysts suggested it should be disallowed where we note that Dodd-Franks legislation passed in 2010 does not permit TP to

[3] See http://bankbryancave.com/tarp-capitial-faq/

[4] Also, there were voting rights for amendments to the rights of senior preferred and mergers and other events which could adversely affect rights of senior preferred.

be considered Tier 1 capital.

It is clear that bank preferred stockholders had much to fear in the fall of 2008 as many preferred stockholders suffered large losses when firms failed or were reorganized just prior to October 2008. Lehman Brothers, Washington Mutual, Fannie Mae and Freddie Mac were all cases where preferred claims were essentially erased by the resolution of firm failure.[5]

Numerous researchers have empirically examined the impact of an issuance of one type of security on the value of common equity. For example, with respect to the impact of security issuance on common equity, Mikkelson and Partch (1986) and Eckbo (1986) document an insignificant common equity price reaction to debt issuance. Spiess and Affleck-Graves (1999) find that straight and convertible debt issuance lead to significantly negative abnormal common equity returns in the long-term.[6] In contrast, the impact of security issuance *upon existing preferred stock* is scarce.[7]

Relative to our first hypothesis, given below, and the impact of security issuance on outstanding debt, Linn and Stock (2005) investigate the impact of the issuance of a lower priority claim, junior debt, upon a higher claim, senior unsecured debt. First, they hypothesize that if junior debt is issued to replace bank debt, senior unsecured is enhanced because claims of higher standing (bank debt) are eliminated. Second, and particularly relevant to our analysis of preferred issuance, they hypothesize that if junior debt is issued for investment purposes, the new issue provides an additional asset base for the senior unsecured

[5] See Spence (2008) and Bary (2009).

[6] According to the signaling theory of Ross (1977) and the pecking order theory of Myers and Majluf (1984), issuances of securities disclose information on the value of the issuing firm. For example, the signaling model of Ross (1977) predicts that leverage-increasing announcement conveys favorable information. On the other hand, the pecking order theory of Myers and Majluf (1984) suggests that external financing announcements convey unfavorable information. Denis (2004) argues that managers signal their confidence in the firm's prospects by agreeing to issue a senior claim like preferred stock.

[7] Harvey, Collins, and Wansley (2003) find positive impacts of trust-preferred issuance on both equity and debt. Kallberg, Liu, and Villupuram (2008) also investigate the impact of preferred issuance on both equity and debt.

debt, thus enhancing the value of senior unsecured debt.[8]

We present four hypotheses where the first and second apply to forced banks and the third and fourth apply to non-forced banks.

Hypothesis 1a. Trust preferred (TP) stock of forced banks should have greater returns than non-trust preferred (NTP) stock.

Table I shows the seniority of claims on banks where TP is senior to NTP. If the priority rule holds, TP stockholders may benefit more from the October 14th announcement than NTP stockholders because the issuance of TARP preferred stock, which is junior to TP, provides an additional asset base. That is, there are more assets to a.) generate greater revenue to service TP and b.) distribute to TP in event of bankruptcy. This effect is similar to an issuance of common stock reducing the risk of the firm's debt because the firm has greater assets and is less levered. [9]

Hypothesis 1b. Non-trust preferred (NTP) stock should have greater returns than trust preferred (TP) stock.

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[8] Of course, numerous studies examine the impact of capital structure changes on the relationships among different classes of securities that hold claims on firm value. Masulis (1980) considers the impact of an exchange of debt for existing preferred stock on existing preferred stockholder wealth. He argues that existing preferred stockholders could be better off by the conversion of preferred stock claims into debt claims. This is because the existing preferred stockholders replace lower priority claims with higher priority claims. In contrast, given incomplete protective covenants, existing debt holders could be hurt because lower priority claims are elevated to equal priority claims. Relatedly, Nash, Netter and Poulsen (2003) point out that issuing higher priority debt weakens an existing bondholder's position in the stakeholder pecking order.

[9] Another reason for TP returns to be greater than NTP returns is that conditions surrounding TARP preferred issuance may be viewed as roughly similar to the conditions describing debt overhang (underinvestment). Related to this, Veronisi and Zingales (2009) refer to a co-insurance effect. Banks were highly levered in October 2008 and economic conditions suggested potential future scenarios where debt holders would not be paid in full. Many U.S. Treasury and Federal Reserve economists likely hoped the banks would issue more common equity to reduce the turmoil in financial markets but banks would certainly have to sell common equity at depressed prices if they could sell common equity at all. A common equity issuance would likely have benefitted claims on bank debt more than bank common equity claims; in other words, common equity would potentially transfer wealth to bond holders and the value of existing common equity may have declined. The same logic can be applied to existing NTP stock as NTP is, like common equity, a lower claim than debt. Thus the value of existing preferred NTP could have declined upon TARP issuance whereas TP would not be affected in such a process. In fact, TP may have benefitted at the expense of NTP in this process as TP is a higher claim. The fact that the U.S. government intervened may have reduced the magnitude of debt overhang effects upon returns but not eliminated debt overhang effects.

Given the uncertainty about the soundness of the financial system and how effective TARP would be, we suggest there was very significant default (bankruptcy) and "run" risk for both types of preferred stock before the October TARP plan was announced. In general, one might expect lower priority claims to likely be more sensitive to changes in the firm's outlook. For example, common stock is typically thought to be more sensitive to changes in a firm's outlook than the firm's debt and, furthermore, junior debt is typically thought more sensitive to changes in the firm's outlook than senior debt. Similarly, if the October 14 TARP announcement reduced the overall default (run) risk of banks, then lower priority (NTP) preferred stock claims may be more enhanced than higher priority (TP) preferred stock claims.

To provide more details of how the default risk of NTP could be more reduced by TARP, consider Figure 1 which gives comparative distributions of the value of the banking firm first before (V_B) and then after (V_A) the October 14 announcement. Consistent with Table I, we include the priority of different claims below the distributions. Before the announcement (upper distribution) we suggest the expected value of the firm was lower and the distribution had greater variance than after (lower distribution). Consider that before the October announcement, any realized value of the firm below V_{NTP}^* meant a loss on NTP and any value of the firm below V_{TP}^* meant a loss for TP. Of course, the probability of a loss for NTP is greater. The *difference* in areas (area below V_{NTP}^* compared to the area below V_{TP}^*) is the difference in default risk and this is Area (1) in the upper distribution. When these critical values of the firm are applied to the lower (after announcement) distribution, which has greater expected value and lower variance, the *difference* in probability of a loss has declined to something less as given by Area (2). Thus, default and bankruptcy risk has declined more on NTP than TP.

Figure 2 further illustrates the situation where, reflecting Area (1) above, we suggest

the difference in default risk between NTP and TP is $D_{NB} - D_{TB}$ before the October 14 announcement. After the announcement, default risk declines to D_{NA} for NTP and D_{TA} for TP. NTP default risk may have declined more such that D_{NB}-D_{TB} > D_{NA}-D_{TA} reflecting Area (1) being greater than Area (2) in the prior figure. As given in the figure, the default discount of NTP relative to TP has declined and NTP may thus enjoy a greater return from the announcement that TARP preferred stock would be issued by the forced banks.

As evidence that default risk could potentially decline more for NTP than TP, we consider a day where assumedly favorable news reducing the likelihood of default was released. As mentioned above, on September 18, 2008 the Treasury announced that the government was very willing to provide an injection of funds into the financial system to prevent widespread panic but, as stated above, did not specify the nature of the injection. This was apparently received as very positive news because bank stock prices rose dramatically soon after September 18.

We gathered matching pairs of September 18, 2008 TP and NTP raw returns. For the match, we first required the two matched preferred stocks to have the same issuer. Second, the matches were required to have similar maturities and dividend yields. We allowed a maximum of one year's difference for maturity. For a perpetuity, our match required at least 59 years maturity. Regarding dividend yield, we allow a maximum of one percent difference.

These criteria resulted in sixteen TP/NTP pairs as given in panel A of Table II. In nine of these pairs, the raw return for NTP was greater than TP and, also, the average return (0.137) for NTP was greater than the average return (0.102) for TP in panel B of Table II. Furthermore, we additionally treated each firm's preferred stock as a portfolio of individual returns in which case there were four portfolios where NTP was greater and one portfolio where TP was greater. In summary, this table suggests that there clearly are cases where NTP returns can be stronger than TP returns due to news that can be construed as reducing credit

risk and default potential. Of course, unlike the October 14 announcement, this particular news event did not have an indication that preferred stock would be issued.

Hypothesis 2: The greater the Treasury OVERPAYMENT for TARP preferred stock, the greater the returns to pre-existing preferred stock.

There was strong agreement that the U.S. Treasury overpaid for TARP preferred stock by purchasing 5% dividend yield preferred. According to Wilson and Wu (2009), just prior to the government capital infusion, the preferred stock of many of the banks receiving TARP funds traded at yields between 9.62 percent and 11.7 percent.[10] The government's overpayment for TARP preferred stock thus led to a favorable, low cost of funds for the banks. Such a favorable funding source may have resulted in an increase in preferred stockholders' wealth. Table III shows average preferred stock yields and overpayment, defined as the difference in preferred yield just before TARP and the 5% of the TARP preferred.

We suggest that the degree of overpayment may be related to the idea that some forced banks voluntarily participated (VB banks) in TARP while others were largely involuntary participants (IVB banks). VBs are roughly represented by those associated with greater overpayment in Table III whereas IVBs are those with lesser overpayment. Preferred stock yields reflect risk premia and a bank paying a higher risk premium was more likely to benefit from the government rescue and overpaying for TARP preferred. Based on this reasoning, we classify Morgan Stanley, Citigroup, and Bank of America as VBs, and, in contrast, Goldman Sachs, JPMorgan Chase, Bank of NY Mellon, and Wells Fargo as IVBs. VBs may realize greater returns than IVBs as they more clearly needed the help and paid for the needed funding at below market yields.

[10] See Wilson and Wu (2009) and Veronesi and Zingales (2009).

1.2 Hypotheses on the Impact of TARP Preferred Issuance: Non-Forced Banks

Non-forced banks were also part of the TARP preferred stock program and some of the above theory and hypotheses obviously also applies to non-forced banks. However, we now note some important differences for analysis of non-forced banks. Smaller banks were *not forced* to issue preferred stock, i.e. they had an *option* of applying or not applying. Additionally, the U.S. Treasury announced that banks that were particularly weak and in danger of failing would not be approved. Some banks may have applied to issue TARP preferred stock in order to signal to the market that they were healthy enough to receive TARP. On the other hand, some banks likely took pride in not applying for TARP funds and thought that the lack of need for TARP signaled strength. If a bank did apply, the Treasury would grant (or not) preliminary approval. If a bank was denied, there was no public announcement. In summary, for non-forced banks, we observe that the timing of the non-forced TARP issuance was *not a surprise (exogenous) financing requirement forced on the bank.* Instead, for a non-forced bank, TARP financing was an endogenous *decision of the non-forced bank. A*ssumedly this decision was based on what was thought best for the non-forced bank in a complex economic environment where factors exogenous to the particular bank were important.

For purposes of brevity, we call our sample of smaller banks with actively traded existing preferred stock outstanding that subsequently soon issued TARP preferred (before 2009) *non-forced* banks. Of course the same questions plus additional questions can be posed about their participation and the impact on their existing preferred stock.

Consideration of two obviously separate events for non-forced banks (that ultimately issued TARP preferred stock) leads to the following hypothesis. These two events are a.) the October 14 announcement and b.) the subsequent approval day for a non-forced bank. See Figure 3.

Hypothesis 3a: Any potential difference in returns between TP and NTP resulting from hypothesis 1a (priority effect) or hypothesis 1b (default effect) occurred on the October 14 TARP announcement date. That is, expectations were formed on October 14 with regard to which non-forced banks would apply for and receive TARP.

Simply put, the October TARP announcement contained information that TARP capital would also be available to other "healthy" banks that would apply for TARP. If the market *expected* a particular bank to apply for and receive TARP upon the October 14 announcement, the prices of TP and NTP would reflect this expectation on the October 14 announcement date.[11]

Hypothesis 3b: Any potential difference in returns between TP and NTP resulting from hypothesis 1a (priority effect) or hypothesis 1b (default effect) occurred on the date the bank was *approved to issue* TARP preferred.

That is, on October 14 the market for bank preferred stocks may have been slow to realize the application procedures for non-forced banks to issue TARP preferred. Furthermore, banks themselves may have been indecisive concerning the wisdom of applying for TARP. Thus, any potential impact on TP versus NTP, described in hypothesis 1a (priority effect) or hypothesis 1b (default effect), may have been delayed until approval date. In other words, only weak expectations were formed on October 14 with regard to which non-forced banks would be approved for TARP.

Given the complexities surrounding TARP issuance for non-forced banks, an important question is whether the announcement of TARP approval was good or bad news for existing preferred stockholders.

Hypothesis 4a: The approval day impact upon the pool of preferred stock (TP and

[11] O'Hara and Shaw (1990) examined how the announcement that some banks were "too big to fail" affected stock prices of banks. They find that investors reacted to *Wall Street Journal* reports of a list of banks that were expected to be announced as too big to fail by the Comptroller of the Currency. Curiously, the *Wall Street Journal* list turned out to be different from the Comptroller's list.

NTP pooled) was positive.

As mentioned above, announcement of approval could be construed as good news by investors if it meant the bank had passed a test as being healthy enough to issue TARP. Also, approval may be construed as good news because the bank may have found an inexpensive source of preferred financing where this is clearly related to the government overpayment for TARP preferred.

Hypothesis 4b: The approval day impact upon the pool of preferred stock (TP and NTP pooled) was negative.

On the other hand, the news of approval to issue TARP preferred may have been negative because investors may have perceived such an announcement as an admission that the bank needed help, and furthermore, the government would be inefficiently intervening in the management of the bank. More specifically, TARP issuance forced such banks to accept government regulations that could hinder future bank profitability and reduce returns for preferred stockholders. For example, banks taking TARP funds had to accept limits on employee pay where the common complaint was that banks could not retain and attract the best talent. According to Ertimur, Ferri, and Stubben (2010), firms receiving TARP funds must hold an annual advisory vote on executive compensation. Furthermore, the TARP program imposed complex dividend restrictions on preferred stock. Finally, the government had the right to change the terms of the TARP issuance at any time until the funds were repaid.[12]

[12] Yet another interesting question concerns the size of the issue relative to total assets for non-forced banks. For forced banks, the amount of TARP to be issued was prescribed and forced by the Treasury such that the banking firm had no choice on size of issue. We suggested above that some forced banks wanted to issue TARP preferred whereas others did not (voluntary versus involuntary). If a forced bank had been permitted to choose the size of issue and also clearly needed a preferred capital infusion (VB), it could well be that the more TARP preferred the better for the bank. On the other hand, if a forced bank did not want to issue any TARP preferred (IVB), the less the better. The scenario for non-forced banks was different. That is, it is logical to assume the bank, having an option, actually wanted to issue TARP preferred and also chose, up to the mandated limit, the amount thought optimal for the bank. Non-forced banks choosing to issue more TARP apparently foresaw greater benefit to the optional government program. However, size of issue for non-forced banks turned out to not have a significant effect in our empirical results.

2. Data and Methodology

The data for forced preferred stock prices, TP versus NTP classification, maturity, dividend yield, and rating were obtained from the Bloomberg information system. We restrict the sample to nonconvertible preferred stock that traded on more than 100 dates before TARP in the period November 1, 2007 to October 6, 2008 in order to assure credible pricing information. The forced-bank sample includes 121 preferred stocks of which 53 are TP while 68 are NTP. Maturities range from November 30, 2009 to perpetual maturity. Preferred stock ratings obtained from S&P preferred stock ratings range from upper medium class to very speculative class.

The forced sample with respect to issuing bank, TP versus NTP, callability, and dividend are summarized in Panel A of Table IV. Bank of America clearly had the most different preferred shares outstanding with 56 while Morgan Stanley had 22. Note that State Street had no preferred (neither TP nor NTP) outstanding. Bank of NY Mellon had only TP outstanding. The Bank of America preferred stock included preferred stock of Merrill Lynch while Wells Fargo preferred stock included preferred stock of Wachovia as it was announced Bank of America (Wells Fargo) would take over Merrill Lynch (Wachovia) before October 14, 2008.[13]

For non-forced banks, the data is similarly gathered from Bloomberg and given in Panel B of Table IV. The criteria for inclusion in the sample of non-forced banks were the same as for forced: traded on more than 100 dates before TARP in the period November 1, 2007 to October 6, 2008. The TARP preferred in the non-forced sample was announced as approved between October 24 and December 23, 2008.

[13] In regressions reported later, firm characteristics of Bank of America and Wells Fargo were combined with those of Merrill Lynch and Wachovia.

To measure returns or abnormal returns for each preferred stock we used raw returns, the mean-adjusted return, and the OLS market model returns.[14] Mean-adjusted returns, as described by Brown and Warner (1980, 1985) and others, are the returns over the event windows less the average returns from a recent extended time frame. For our analysis, we use the average of November 1, 2007 to October 6, 2008. The S&P *preferred* index was used as the market index. The beta was estimated using daily returns from November 1, 2007 to October 6, 2008. We calculated raw returns or abnormal returns for four different windows where we emphasize the two-day event window (-1,0); that is, the period from close October 12 to close October 14. This is because U.S. Treasury Secretary Henry Paulson held a meeting with the CEOs of the nine largest banks on October 13th and the Treasury announced its plan to purchase bank preferred stock on October 14th.[15]

Even though we report raw, mean-adjusted, and market model returns, we feel the following comment critical of market model returns is appropriate where we note market model returns are reported in the appendix. If one estimates the excess return on existing preferred with a market model, where betas are estimated, the positive impact of the October 14 announcement is clearly ***underestimated*** because the market return was strongly (positively) affected by the announcement. That is, the market model leads to biased results if the event study focuses on the impact of an event on abnormal returns ***and*** the event

[14] See Brown and Warner (1985) for a comparison between the mean-adjusted model and the market model. Linn and Pinegar (1988) used the mean-adjusted model in their examination of the effects of preferred stock issuance on preferred stock returns. On the other hand, Veronesi and Zingales (2009) used the market model based on the S&P 500 index in their event study on preferred stock. Our market model is based on the S&P *preferred* index. The S&P preferred index represents the U.S. preferred stock market by including all preferred stocks issued by U.S. corporations and those trading in major exchanges. To our best knowledge, no previous event study on preferred stock has been done using the S&P preferred index.

[15] U.S. Treasury Secretary Henry Paulson called the CEOs of the nine largest banks to a meeting at 3:00 p.m. on October 13th, and the CEOs turned in their time sheets by 6:30 p.m. According to the Dow Jones News Service, at 5:10 p.m. on October 13th, the *Wall Street Journal* reported that the nine largest banks would receive TARP capital through issuance of preferred stock. On October 14th, the Treasury announced its plan to purchase preferred stock of the nine largest banks.

influences the market index. If this is the case, it does not make sense to control for the market movement since the market movement was *also* affected by the event.[16] In light of the above, it would seem that using mean-adjusted returns and, also, using raw returns, are better approaches than the market model because they do not underestimate the response of our sample preferred stocks.

3. Empirical Results

We now examine the realized reaction of different preferred stock issues to the October TARP announcement in Tables V through IX with forced results reported in Tables V to VII and non-forced results reported in Tables VIII and IX. Did TP or NTP experience greater returns? We first report the event study for banks forced to issue TARP preferred. We immediately follow this event study with a cross-sectional regression of forced banks to help analyze how the effects may have varied due to firm and issue-specific effects such as TP versus NTP, Treasury overpayment for TARP preferred, and such control variables as callability, maturity, and credit rating.

After the analysis of forced banks, we then examine the reaction of non-forced banks that announced they had been approved to issue TARP preferred stock soon after the October TARP announcement. Did any difference in TP and NTP returns occur on the October 14 announcement, or the approval day, or both? Did the approval announcement have a positive or negative impact on non-forced returns? These questions about non-forced banks are answered with event studies (for *both* October 14 and approval day) followed by regression analysis of returns.

[16] We attempted to create an index consisting of only non-financial institutions. However, we note that non-financial institutions also showed high raw returns on Oct. 13 and Oct. 14. The average raw returns for non-financial institutions whose preferred stock price information was available on Bloomberg was 17.88% on [-1,0] while those for financial institutions was 20.74%.

3.1 Forced Bank Empirical Results

Table V represents the event study results for forced banks. There are four different windows (0,0), (-1,0) (-2,+2), and (-5,+5) where (0,0) is the close of October 13 to close of October 14 and (-1,0) is the close of October 12 to close of October 14. There are four panels composed of raw and mean adjusted returns. For each type of return there is 1.) *an equal weighted* return which is an average of all individual preferred stocks and 2.) a *portfolio-based return* which is the portfolio (all preferred of a particular bank) average return of all forced banks. In Panels B and D for portfolio returns, the ALL portfolio has only 13 portfolios where each bank (except Bank of New York Mellon) had a portfolio of both TP and NTP.[17] Thus, there are only 7 TP portfolios and 6 NTP portfolios in Panels B and D.

The first line in each of the four panels (All) does not distinguish between TP and NTP and thus reflects the generalized average reaction of all (TP and NTP pooled) preferred stock. For example, the raw returns for all preferred stock in the (-1,0) window of Panel A is 0.2467 (24.67%). Immediately below that line we give both the conventional T-statistics and, also, T-statistics using the crude dependence adjustment of Brown and Warner (1980, 1985). For the (-1,0) window the conventional T-statistic is 15.68 and the crude dependence adjustment T-statistic is 9.53 where both are clearly positive and significant. Thus the impact of the October 14 announcement upon TP and NTP treated as a combined pool of preferred stock is to enhance existing preferred stock value.[18]

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[17] As noted above, Bank of New York Mellon had only TP and State Street had no preferred outstanding.

[18] There are two reasons for expecting a pooled positive reaction. First, in early October 2008, the risk that some banks could become bankrupt thus causing default for some claim holders, including preferred stock, was significant. Veronesi and Zingales (2009) computed the probability of early bankruptcy less that of later bankruptcy and suggested the difference is an indicator of the likelihood of a run on the bank. Here a strong likelihood of a run suggests near term bankruptcy. In fact, for the forced banks, Veronesi and Zingales (2009) show that Citigroup, Wachovia and all three investment banks showed clear indications of a run. In our work, if TARP preferred issuance potentially reduces the near term risk of runs and early bankruptcy for existing preferred, then the impact could be positive. In other words, forestalled bankruptcy may have had a positive impact on existing preferred stock. A second reason to expect a positive reaction is that there was a strong agreement that the U.S. Treasury overpaid for TARP preferred stock. On the other hand, the effect could have been negative. That is, the requirement that large banks would have to issue preferred stock could be perceived as negative news for preferred stockholders because banks may have chosen alternative ways, mentioned above, to receive aid. Some may have wanted the Treasury to instead purchase troubled assets, as was commonly

3.2. Forced TP versus NTP Returns

The next lines in each panel show similar results for trust preferred (TP) returns (only). Below that, non-trust (NTP) returns (only) are shown. Finally, we report a T-statistic for the difference in mean between TP and NTP. For example, in the (-1,0) window, the T-statistic for the difference is 5.72 which is clearly significant suggesting that TP returns are stronger than NTP. Thus, hypothesis 1a is supported and hypothesis 1b is not supported. In other words, the results support the priority rule hypothesis that TARP issuance provided a significant additional margin of safety (asset base) for TP where this effect dominated any potential stronger reduction in default risk of NTP. Note that in Panels B and D the small sample sizes for the portfolio approach makes it extremely difficult to find statistical significance. Still, the signs are positive as in Panels A and C and there is a large positive difference in TP versus NTP.

Table VI represents cross-sectional regression results of returns. Firm specific characteristics are controlled by using dummy variables that refer to particular bank names. Wells Fargo is used as the benchmark. Since Wells Fargo is one of Involuntary Banks (IVBs), positive signs on Voluntary Banks (VBs) are expected. There are two panels consisting of raw (Panel A) and mean adjusted (Panel B) returns. There are three different regression specifications where certain independent variables are omitted. For our purposes, the most important factor is the TP / NTP dummy where TP has value one and NTP is zero.

We include numerous control variables that may affect returns where the most interesting control variable may be callability. That is, some preferred stock has an embedded call option where the firm can redeem the claim at a specified price. The value of preferred stock with a call will tend to decline with greater call value as the claim holder is short (issuer is long) in the call option. One might suggest that callable preferred stock had greater

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expected in the months before the October TARP program. Some forced banks were clearly not happy with the TARP preferred stock program and had to be coaxed to accept it.

returns than non-callable preferred stock due to the October 14 announcement. To support this suggestion, King (2002) maintains that there is a positive relationship between default risk and option value in bonds because of a higher volatility in the underlying instrument that occurs due to greater default risk. If TARP reduces default risk and related volatility on preferred stock, the call option value decreases and returns for callable preferred stock may thus be higher than returns for non-callable preferred stock.

Alternatively, callable preferred stock may have lower returns than non-callable preferred stock, as suggested by Lakshmivarahan, Stock, and Qian (2009). They note that the preferred stock and any call value is extinguished upon default. Therefore, if TARP reduces default risk, the call option value may increase and returns for callable preferred stock may thus be lower than non-callable preferred stock.

We also control for other factors in addition to callability. Remaining time to maturity is included as longer maturity securities would be expected to be more sensitive to news. Also, a zero dividend is a dummy variable where the value is 1 if no dividend exists. This is included as a volatility proxy because Bessembinder, Kahle, Maxwell, and Xu (2009) argue that zero-coupon bonds are more volatile. Some stocks are floating rate and a floating-rate dividend is a dummy variable equal to one although we have no particular expected sign. Upper medium credit quality is a dummy variable equal to one if the rating is A^+ , A or A^-. Medium is a dummy for middle range credit quality and H-Speculative is for B^+, B and B^-. We use no rating (NA) as the omitted class.

Consistent with results in the above event study, Table VI shows that TP enjoys greater returns than NTP. For example, the coefficients of TRUST in the three columns of Panel A based upon raw returns are 0.1064, 0.1080, and 0.1073, respectively where all are positive and clearly significant. Existing preferred stockholders of voluntary banks (VBs) enjoy higher returns (and VBs have larger coefficients) than those of involuntary banks

(IVBs). As previously mentioned, Morgan Stanley, Citigroup, and Bank of America are defined as VBs while Goldman Sachs, JPMorgan Chase, Bank of NY Mellon, and Wells Fargo are defined as IVBs. Consistent with the idea that VBs (weaker banks) enjoyed greater benefit, the coefficients on Morgan Stanley, Citigroup, and Bank of America are all significant and positive when Wells Fargo (an IVB) is used as a benchmark. This supports hypothesis 2.

Callable preferreds enjoyed greater returns than noncallable preferreds. This result is consistent with the idea that there is a positive relation between default risk and option value. That is, it seems likely that TARP strongly reduced default risk and volatility for preferred stock and therefore reduced call option values. Zero-dividend preferred stocks show higher returns than non-zero-dividend preferred stocks which is consistent with the idea that zero dividend preferred is more volatile than preferred with a dividend. Preferred stocks with longer maturity show higher returns, perhaps because preferred stock with longer maturity enjoyed the reduction in the overall default risk of forced banks more than preferred stock with shorter maturity; longer maturity instruments tend to be more sensitive to TARP.[19] The sign on the highest credit rating (upper medium) is negative suggesting that stronger credit quality securities did not need the capital infusion as much as weaker quality securities.

Table VII presents an alternative cross-sectional specification. As opposed to the previous table, which uses the particular bank names, firm specific characteristics are included. That is, government overpayment for preferred (OVERPAY) and the ratio of TARP capital infusion to total assets (SIZE) are included. Like the previous set of regressions, there are panels for both raw and mean adjusted regressions and there are three different specifications (columns) where certain independent variables are omitted.

The main results are again that TP enjoys stronger positive returns than NTP in all

[19] For example, longer time bonds are more price sensitive to inflation and interest rate news as their coupon stream is longer.

specifications. Furthermore, the greater the government overpayment, the greater the return. However, the coefficient of size is not significant. Other results of Table VII are similar to the previous regression. For a robustness check of Table VII, we also ran a separate regression to correct for any potential clustering problem. Appendix Table A.1 shows that the TRUST coefficient is robust and remains positive and significant.

We furthermore tried many other variables in the regressions of forced banks to determine if they had significant effects but none were significant. For example, in Appendix Table A.2, we show results for including Tier 1 capital as an explanatory variable. Specifically, Tier 1 capital is defined as a bank's Tier 1 capital divided by its total risk-weighted assets. We included Tier 1 because one may have expected that banks with lower Tier 1 capital ratios may have enjoyed a stronger return from issuing TARP preferred as it was counted in Tier 1. However, the regressions do not show significance for this variable.

3.3 Non-Forced Bank Empirical Results

Table VIII contains analysis for banks not forced to issue preferred stock but who chose to apply for approval after October 14 and were approved. As in Table V, Table VIII shows panels composed of raw and mean adjusted returns. Again, for each type of return, there are both the *equal weight* (individual issue) approach and the *portfolio* (all preferred of a particular bank) approache. The difference from Table V is that Table VIII has two windows as reflected in the last two columns. See Figure 3 for the windows used. The first window is (-1,0) which is the same window (reflecting the October 14 announcement) as the forced banks. The second window is the day the bank announced that it had received preliminary approval for TARP preferred issuance.[20]

[20]The sample sizes of all pooled preferred, TP, and NTP are different for (-1,0) and "upon approval" announcement because a preferred stock is included in the sample only if trading occurs on the event window. For example, in panel A, 54 preferred stocks traded in (-1,0) while only 50 preferred stocks traded on the announcement window of approval for TARP.

As we did for forced banks, we first consider the impact of the announcement upon all (pooled) preferred stock in Table VIII. For the October 14 window, which is the (-1,0) window of the table, the announcement has positive and significant impact in the first lines of Panels A,B, C, and D. The results for the approval window are also positive which supports hypothesis 4a; that is, the preferred stockholders perceived the information that a firm was approved for TARP preferred as positive news.

Did any differential between TP and NTP occur in the (-1,0) window because the market expected non-forced banks to soon issue TARP preferred? Or, did any differential in TP and NTP occur upon approval to issue TARP preferred? The results for comparing TP versus NTP returns are that TP enjoyed greater returns than NTP only in the (-1,0) window but not in the "approval" window which supports hypothesis 3a. For example, the T-statistic for difference in mean between TP and NTP in Panel A is 5.27 in the (-1,0) window, but 0.00 in the "approval" window.[21]

Table IX presents cross-sectional regression results for non-forced banks. Given that non-forced banks tend to have fewer different preferred issues outstanding, it is econometrically impossible to use bank names to control for firm specific effects. Instead, firm specific characteristics such as OVERPAYMENT and SIZE are included. As for the forced bank results, there are panels representing regressions for both raw and mean adjusted returns for the two different windows. Table A3 of the appendix shows the results are robust for adding such variables as Tier 1 capital.

The main results are that the non-forced banks show evidence of higher returns for TP than NTP on October 14 but not their approval dates. In addition, supporting hypothesis 2, we find strong evidence that OVERPAYMENT affected preferred stock return on October 14 and, also, the approval day. The other results are similar to those for forced banks.

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[21] The value is 8.29 for the T-statistic using crude dependence adjustment in the (-1,0) window.

4. Summary and Conclusion

The 2008 TARP program to stabilize the financial system resulted in large issuances of preferred stock by numerous banks. We examine the impact upon the valuation of existing preferred stock for two groups of banks: large forced banks and smaller non-forced banks. The forced group provided evidence that TP stock experienced higher returns relative to NTP stock for the October 14 TARP announcement, consistent with the priority rule. TP stock appears to have benefited more from the TARP preferred issuance than NTP stock because the TARP issuance provided an additional asset base for the TP. Any potential greater reduction in default risk for NTP was not strong enough to dominate this effect.

For non-forced banks it appears that the market expected some banks to apply for and receive TARP upon the October 14 announcement. In addition, the evidence regarding non-forced pooled preferred stock is that there was a positive return for the announcement of approval to issue TARP preferred. The market seems to have perceived application and approval to issue TARP preferred as favorable information for preferred stockholders even though government interference in bank ownership concerned many investors.

In summary, TARP benefited some investor groups more than other investor groups. Existing preferred stockholders of more voluntary banks likely enjoyed higher returns than those of involuntary banks. This might explain why Wells Fargo chairman Richard Kovacevich said that Wells Fargo, which was classified as one of the involuntary banks in the sample, would not have issued TARP preferred if Wells Fargo had not been forced to.

In addition, it seems likely that TARP transferred wealth from one group to another group. Our results are consistent with the perception of government overpayment for preferred stock. In other words, TARP transferred wealth from taxpayers to preferred shareholders. Taxpayers seemed to specially subsidize preferred stockholders of selected weaker banks.

Appendix

Table A1. Regressions Adjusting for Clustering for Forced banks		
The dependent variable is the abnormal returns based on the mean-adjusted model. Abnormal returns are corrected for heteroskedasticity and clustering. TRUST is a dummy variable equal to one if the observation is a TP. CALLABLE is a dummy variable equal to one if the observation has a call option. MATURITY is measured as the natural log of remaining time to maturity. ZERO DIVIDEND is a dummy variable equal to one if the observation does not pay dividends. FLOATING-RATE is a dummy variable equal to one if the observation has a floating dividend.		
	(1)	(2)
Intercept	0.0844*** (2.69)	0.0785** (2.58)
TRUST (TP)	0.1350*** (2.88)	0.1319*** (2.99)
CALLABLE	0.1342* (1.83)	0.1305* (1.77)
MATURITY	-0.0024 (-0.10)	0.0024 (0.11)
ZERO-DIVIDEND	0.0548 (1.15)	0.0564 (1.15)
FLOATING-RATE		-0.0431 (-0.96)
Sample Size	121	121
R-squared	0.2699	0.2752

Table A2. Estimated Parameters for the Raw Returns of the Forced Banks Using Firm Specific Characteristics Including Tier 1 Capital

The dependent variable is the raw returns over the announcement window. TIER 1 is measured by a bank's tier 1 capital divided by its total risk-weighted assets. OVERPAYMENT is measured by the difference between average yields of each bank immediately prior to TARP and the 5 percent yield on the government's preferred stock. SIZE is measured by TARP capital infusion over total assets, TRUST is a dummy variable equal to one if the observation is a trust preferred stock. CALLABLE is a dummy variable equal to one if the observation has a call option. MATURITY is measured as the natural log of remaining time to maturity. ZERO DIVIDEND is a dummy variable equal to one if the observation does not pay dividends. FLOATING-RATE is a dummy variable equal to one if the observation has a floating dividend. All preferred stock ratings are obtained from S&P preferred stock ratings. Regarding ratings, N/A is used as a benchmark. UPPER MEDIUM is a dummy variable equal to one if the rating is the observation is A+ or A or A-. MEDIUM is a dummy variable equal to one if the rating of the observation is BBB+ or BBB or BBB-. H-SPECULATIVE is a dummy variable equal to one if the rating of the observation is B+ or B or B.

	(1)	(2)
Intercept	-0.6067***	-0.6391***
	(-5.43)	(-5.62)
TIER 1	1.0363	0.7276
	(1.03)	(0.70)
OVERPAYMENT	0.0681***	0.0733***
	(6.81)	(6.77)
SIZE	-0.3499	3.0632
	(-0.06)	(0.50)
TRUST (TP)	0.1295***	0.1297***
	(5.33)	(5.22)
CALLABLE	0.1912***	0.1956***
	(3.47)	(3.55)
MATURITY	0.0416**	0.0352**
	(2.55)	(2.17)
ZERO-DIVIDEND	0.0910**	0.0888**
	(2.14)	(2.11)
FLOATING-RATE	-0.0586**	
	(-2.24)	
UPPER MEDIUM	-0.0788**	-0.0810**
	(-2.38)	(-2.45)
MEDIUM	0.0418	0.0446
	(0.92)	(0.94)
H-SPECULATIVE	-0.0950**	-0.0971**
	(-2.50)	(-2.55)
Sample Size	121	121
F, (p-value)	48.79	43.39
	(0.0000)	(0.0000)
R-squared	0.7288	0.7205

Table A3. Estimated Parameters for the Raw Returns of the Non-forced Banks Using Firm Specific Characteristics Including Tier 1 Capital

The dependent variable is the raw returns on (1) the October 14th announcement, (2) the later announcement of preliminary approval for the TARP fund. TIER 1 is measured by a bank's tier 1 capital divided by the its total risk-weighted assets. OVERPAYMENT is measured by the difference between average yields of each bank immediately prior to TARP and the 5 percent yield on the government's preferred stock. SIZE is measured by TARP capital/total asset. TRUST is a dummy variable equal to one if the observation is a trust preferred stock. MATURITY is measured as the natural log of remaining time to maturity. FLOATING-RATE is a dummy variable equal to one if the observation has a floating dividend. All preferred stock ratings are obtained from S&P preferred stock ratings. Regarding ratings, N/A is used as a benchmark. MEDIUM is a dummy variable equal to one if the rating of the observation is BBB+ or BBB or BBB-. SPECULATIVE is a dummy variable equal to one if the rating is the observation is BB OR BB-. H-SPECULATIVE is a dummy variable equal to one if the rating of the observation is B+ or B or B-.

	(1) Oct.14 [-1,0]	(2) Approval
Intercept	0.2105	-0.0446
	(1.00)	(-0.29)
TIER 1	-0.0103	-0.0001
	(-0.70)	(-0.02)
OVERPAYMENT	0.0230***	0.0108***
	(3.95)	(2.90)
SIZE	-1.7960	0.7258
	(-0.49)	(0.30)
TRUST (TP)	0.0792*	-0.0343
	(1.80)	(-0.96)
MATURITY	-0.0388	0.0018
	(-0.82)	(0.07)
FLOATING-RATE	-0.0430	0.0181
	(-0.88)	(0.59)
MEDIUM	0.0940	0.0137
	(1.63)	(0.47)
SPECULATIVE	0.1671***	-0.0493*
	(2.97)	(-1.76)
H-SPECULATIVE	0.0921	-0.0206
	(1.63)	(-0.62)
Sample Size	54	50
F, (p-value)	18.56	2.49
	(0.0000)	(0.0237)
R-squared	0.7434	0.5245

Table A4-1. Abnormal Returns around the October 14th Announcement for Forced Banks: Market Model

Abnormal returns over various event windows based on the market model are reported for the equal weight approach and the portfolio approach. For the portfolio approach, each portfolio consists of all preferred stock belonging to a particular bank. The second t-stats in Panel A are computed using the "Crude Dependence Adjustment" of Brown and Warner (1980, 1985). For the second t-stats, the standard deviations of abnormal returns are estimated from the average abnormal returns between 11/1/2007 and 10/6/2008.

Panel A: The Market Model (Equal Weight)

	[0,0]	[-1,0]	[-2,+2]	[-5,+5]
ALL (n=121) (pooled)	0.0212	0.0324	0.0359	0.004
Conventional T-stats	(3.73) ***	(2.67) ***	(3.72) ***	(0.41)
T-stats Using "Crude Dependence Adjustment"	(3.98) ***	(4.30) ***	(3.01) ***	(0.23)
TRUST (TP) (n=53)	0.0349	0.0425	0.0758	0.0463
Conventional T-stats	(4.18) ***	(2.36) **	(4.99) ***	(2.46) **
T-stats Using "Crude Dependence Adjustment"	(4.98) ***	(4.29) ***	(4.84) ***	(1.99)*
NONTRUST (NTP) (n=68)	0.0101	0.0242	0.0033	-0.0295
Conventional T-stats	(1.33)	(1.46)	(0.30)	(-2.59)***
T-stats Using "Crude Dependence Adjustment"	(1.87)*	(3.17) ***	(0.27)	(-1.64)
T-test for difference in mean between two subsamples	2.19**	0.74	3.85 ***	3.45 ***

Panel B: The Market Model (Portfolio Approach)

	[0,0]	[-1,0]	[-2,+2]	[-5,+5]
ALL (n=13) (pooled)	0.006	0.0134	0.0273	0.0060
	(0.32)	(0.30)	(0.98)	(0.34)
TRUST (TP) (n=7)	0.0378	0.0718	0.0733	0.0399
	(1.65)	(1.60)	(1.75)	(1.62)
NONTRUST (NTP) (n=6)	-0.0295	-0.05461	-0.0264	-0.0335
	(-0.90)	(-0.72)	(-1.25)	(-2.58) **

The dependent T-stat for difference in mean between two subsamples is not significant for the portfolio approach due to the small sample size even though the sign for the difference between trust and non-trust is positive.

Table A4-2. Estimated Parameters for Abnormal Returns of the Forced Banks: Market Model

The dependent variable is the abnormal returns over the announcement window [-1,0] based on the market model. WELLS FARGO is used as a benchmark. BANK OF AMERICA is a dummy variable that takes the value 1 if the observation belongs to BANK OF AMERICA. CITIGROUP is a dummy variable that takes the value 1 if the observation belongs to CITIGROUP. BANK of NY MELLON is a dummy variable that takes the value 1 if the observation belongs to Bank of NY Mellon. JPMORGAN CHASE is a dummy variable that takes the value 1 if the observation belongs to JPMORGAN CHASE. MORGAN STANLEY is a dummy variable that takes the value 1 if the observation belongs to MORGAN STANLEY. GOLDMAN SACHS is a dummy variable that takes the value 1 if the observation belongs to GOLDMAN SACHS. TRUST is a dummy variable equal to one if the observation is a trust preferred stock. CALLABLE is a dummy variable equal to one if the observation has a call option. MATURITY is measured as the natural log of remaining time to maturity. ZERO DIVIDEND is a dummy variable equal to one if the observation does not pay dividends. FLOATING-RATE is a dummy variable equal to one if the observation has a floating dividend. All preferred stock ratings are obtained from S&P preferred stock ratings. Regarding ratings, N/A is used as a benchmark. UPPER MEDIUM is a dummy variable equal to one if the rating is the observation is A+ or A or A-. MEDIUM is a dummy variable equal to one if the rating of the observation is BBB+ or BBB or BBB-. H-SPECULATIVE is a dummy variable equal to one if the rating of the observation is B+ or B or B-.

	(1)	(2)	(3)
Intercept	-0.3259*** (-4.33)	-0.2992*** (-2.98)	-0.3071*** (-3.02)
BANK OF AMERICA	0.2065*** (4.18)	0.2185*** (2.96)	0.2217*** (2.98)
CITIGROUP	0.2027*** (4.34)	0.2185*** (3.067)	0.2170*** (3.02)
BANK OF NY MELLON	0.2988*** (4.62)	0.2948*** (4.52)	0.2967** (4.49)
JPMORGAN CHASE	0.2140*** (4.02)	0.1495** (2.02)	0.1522*** (2.05)
MORGAN STANLEY	0.3936*** (7.11)	0.3666*** (5.36)	0.3712*** (5.36)
GOLDMAN SACHS	0.1090* (1.67)	0.0391 (0.46)	0.0553 (0.65)
TRUST (TP)	0.0630*** (2.74)	0.0634** (2.60)	0.0633** (2.60)
CALLABLE	0.0151 (0.24)	0.0215 (0.33)	0.0187 (0.28)
MATURITY	0.0265 (1.28)	0.0207 (0.92)	0.0235 (1.01)
ZERO-DIVIDEND	0.0884* (1.68)	0.0777 (1.46)	0.0791 (1.47)
FLOATING-RATE			-0.0228 (-1.11)
UPPER MEDIUM		-0.0114 (-0.27)	-0.0112 (-0.27)
MEDIUM		0.0613 (1.39)	0.0611 (1.39)
H-SPECULATIVE		-0.0324 (-0.96)	-0.0302 (-0.89)
Sample Size	121	121	121
F, (p-value)	8,84	10.23	9.94
	(0.0000)	(0.0000)	(0.0000)
R-squared	0.5211	0.5381	0.5402

Table A4-3. Estimated Parameters for Abnormal Returns of the Forced Banks Using Firm Specific Characteristics: Market Model

The dependent variable is the abnormal returns over the announcement window [-1,0] based on the market model. OVERPAYMENT is measured by the difference between average yields of each bank immediately prior to TARP and the 5 percent yield on the government's preferred stock. SIZE is measured by TARP capital infusion over total assets, TRUST is a dummy variable equal to one if the observation is a trust preferred stock. CALLABLE is a dummy variable equal to one if the observation has a call option. MATURITY is measured as the natural log of remaining time to maturity. ZERO DIVIDEND is a dummy variable equal to one if the observation does not pay dividends. FLOATING-RATE is a dummy variable equal to one if the observation has a floating dividend. All preferred stock ratings are obtained from S&P preferred stock ratings. Regarding ratings, N/A is used as a benchmark. UPPER MEDIUM is a dummy variable equal to one if the rating is the observation is A+ or A or A-. MEDIUM is a dummy variable equal to one if the rating of the observation is BBB+ or BBB or BBB-. H-SPECULATIVE is a dummy variable equal to one if the rating of the observation is B+ or B or B.

	(1)	(2)	(3)
Intercept	-0.1632 (-1.16)	-0.2373* (-1.87)	-0.2243* (-1.80)
OVERPAYMENT	0.0322*** (3.40)	0.0419*** (4.77)	0.0410*** (4.74)
SIZE	-7.8107 (-1.25)	-7.1987 (-1.17)	-8.2930 (-1.37)
TRUST (TP)	0.0357 (1.34)	0.0553** (2.21)	0.0548** (2.19)
CALLABLE	0.0610 (0.89)	0.0522 (0.75)	0.0484 (0.68)
MATURITY	-0.0056 (-0.24)	-0.0063 (-0.28)	-0.0030 (-0.13)
ZERO-DIVIDEND	0.0456 (0.94)	0.0564 (1.16)	0.0574 (1.18)
FLOATING-RATE			-0.0279 (-1.27)
UPPER MEDIUM		-0.0325 (-0.84)	-0.0315 (-0.81)
MEDIUM		0.1160*** (3.24)	0.1190*** (3.29)
H-SPECULATIVE		-0.0323 (-0.93)	-0.0320 (-0.92)
Sample Size	121	121	121
F, (p-value)	4.97	9.95	9.42
	(0.0002)	(0.0000)	(0.0000)
R-squared	0.2912	0.4430	0.4464

Table A4-4. Abnormal Returns of Non-forced Banks for Different Windows: Market Model

Abnormal returns on the October 14th TARP announcement and the later announcement of bank specific approval for TARP capital based on the market model are reported for the equal weight approach and the portfolio approach. For the portfolio approach, each portfolio consists of all preferred stock belonging to a particular bank. The second t-stats in Panel A are computed using the "Crude Dependence Adjustment" of Brown and Warner (1980,1985). For the second t-stats, the standard deviations of abnormal returns are estimated from the average abnormal returns between 11/1/2007 and 10/6/2008.

Panel A: The Market Model (Equal Weight)		
	Oct. 14 [-1,0]	Approval
ALL (pooled)	-0.0052	0.0427
Conventional T-stats	(-0.39)	(3.55) ***
T-stats Using "Crude Dependence Adjustment"	(-0.17)	(4.59) ***
	(n=54)	(n=50)
TRUST (TP)	0.0096	0.0446
Conventional T-stats	(0.45)	(3.51) ***
T-stats Using "Crude Dependence Adjustment"	(0.59)	(3.91) ***
	(n=38)	(n=36)
NONTRUST (NTP)	-0.0403	0.0381
Conventional T-stats	(-1.88) *	(1.34)
T-stats Using "Crude Dependence Adjustment"	(-2.99)***	(3.34)***
	(n=16)	(n=14)
T-test for difference in mean between two subsamples	1.65	0.21
Panel B: The Market Model (Portfolio Approach)		
	Oct. 14 [-1,0]	Approval
ALL (pooled)	0.0023	0.0415
	(0.0114)	(2.73) ***
	(n=30)	(n=29)
TRUST (TP)	0.0214	0.0371
	(0.79)	(2.52) **
	(n=20)	(n=19)
NONTRUST (NTP)	-0.0421	0.0498
	(-1.39)	(1.43)
	(n=10)	(n=10)
T-test for difference in mean between two subsamples	1.46	-0.30

Table A4-5. Estimated Parameters for Abnormal Returns of the Non- Forced Banks: Market Model

The dependent variable is the abnormal returns based on the market model on (1) the October 14th announcement, (2) the later announcement of preliminary approval for the TARP fund. OVERPAYMENT is measured by the difference between average yields of each bank immediately prior to TARP and the 5 percent yield on the government's preferred stock. SIZE is measured by TARP capital/total asset. TRUST is a dummy variable equal to one if the observation is a trust preferred stock. MATURITY is measured as the natural log of remaining time to maturity. FLOATING-RATE is a dummy variable equal to one if the observation has a floating dividend. All preferred stock ratings are obtained from S&P preferred stock ratings. Regarding ratings, N/A is used as a benchmark. MEDIUM is a dummy variable equal to one if the rating of the observation is BBB+ or BBB or BBB-. SPECULATIVE is a dummy variable equal to one if the rating is the observation is BB OR BB-. H-SPECULATIVE is a dummy variable equal to one if the rating of the observation is B+ or B or B-.

	(1) Oct. 14 [-1,0]	(2) Approval
Intercept	0.3817*	-0.0163
	(1.96)	(-0.15)
OVERPAYMENT	-0.0035	0.0129***
	(-0.94)	(4.25)
SIZE	-1.4083	-0.8653
	(-0.42)	(-0.39)
TRUST (TP)	-0.0151	-0.0436
	(-0.40)	(-1.58)
MATURITY	-0.0848**	0.0038
	(-2.06)	(0.15)
FLOATING-RATE	-0.1397***	0.0077
	(-3.10)	(0.24)
MEDIUM	0.0148	0.0181
	(0.32)	(0.63)
SPECULATIVE	0.0834*	-0.0483*
	(1.78)	(-1.84)
H-SPECULATIVE	0.0395	-0.0210
	(1.35)	(-0.15)
Sample Size	54	50
F, (p-value)	4.35	5.07
	(0.0000)	(0.0002)
R-squared	0.3707	0.4973

We are grateful for helpful comments received from Louis Ederington, Griffin Brown, Fan Chen, Veljko Fotak, Sridhar Gogineni, Kate Holland, Anthony May, Scott Linn, Pradeep Yadav, Vahap Uysal, Tor-Erik Bakke, Linus Wilson, Wayne Thomas, Robert Lipe, and Vikas Raman. Helpful comments from presentations at the University of Oklahoma, Utrecht University (Clement Kool), and the University of Gottingen (Olaf Korn) are very much appreciated. The first author acknowledges financial support from the Michael F. Price College of Business Doctoral Summer Research fund.

References

Bary, A., 2009, It only looks like a wipeout, *Barron's,* February 9, 2009.

Bessembinder, H., K. Kahel, W. Maxwell, and D. Xu, 2009. Measuring abnormal bond performance, *Review of Financial Studies* 22, 4219-4258.

Brown, S., and J. Warner, 1980, Measuring security price performance, *Journal of Financial Economics 8*, 205-258.

Brown, S., and J. Warner, 1985, Using daily stock returns: The case of Event Studies, *Journal of Financial Economics 14*, 3-31.

Denis, D., 2004, Entrepreneurial finance: an overview of the issues and evidence, *Journal of Corporate Finance* 10, 301-326.

Eckbo, E., 1986, Information asymmetries and valuation effects of corporate debt offerings, *Journal of Financial economics* 15, 119-151.

Ertimur, Y., F. Ferri, and S. Stubben, 2010, Board of directors' responsiveness to shareholders: Evidence from shareholder proposals, *Journal of Corporate Finance* 16, 53-72.

Harvey, K., M. Collins, and J. Wansley, 2003, The impact of trust-preferred issuance on bank default risk and cash flow: evidence from the debt and equity securities markets, *The Financial Review* 38, 235-256.

Kallberg, J., C. Liu, and S. Villupuram, 2008, Preferred Stock: Some Insights into Capital Struscute, working paper, New York University and Arizona State University

King, T., 2002, An empirical examination of call option values implicit in US corporate bonds, *Journal of Financial and Quantitative Analysis* 37, 693–721.

Kwan, S., 2009, Capital structure in banking, *Federal Reserve Bank of San Francisco Economic Letter* 37.

Lakshmivarahan, S., S. Qian, and D. Stock, 2009, A multiple default threshold model of the complex structure of yields for bonds with both default and call risk, working paper, University of Oklahoma.

Landler, M., and E. Dash, 2008, Drama behind a $250 billion banking deal, *The New York Times*, October 15, 2008

Linn, S., and J. Pinegar, 1988, The effect of issuing preferred stock on common and preferred stockholder wealth, *Journal of Financial Economics* 22, 155-184

Linn, S., and D. Stock, 2005, "The impact of junior debt issuance on senior unsecured debt's risk premiums." *Journal of Banking and Finance* 29, 1585-1609.

Masulis, R., 1980. The effects of capital structure changes on security prices: a study of exchange offers, *Journal of Financial Economics* 8, 139-178.

Mikkelson, W., and M. Partch, 1986, Valuation effects of security offerings and the issuance process, *Journal of Financial Economics*, 15, 31-60.

Myers, S., and N. Majluf, 1984, Corporate investment and financing decisions when firms have information that investors do not have, *Journal of Financial Economics*, 13, 187- 222.

Miller , M., and K. Rock, 1985, "Dividend policy under asymmetric information, *Journal of Finance* 40, 1021-1051

Nash, R., J. Netter, and A. Poulsen, 2003, Determinants of contractual relations between shareholders and bondholders: investment opportunities and restrictive covenants, *Journal of Corporate Finance* 9, 201-232.

O'Hara, M., and W. Shaw, 1990, Deposit insurance and wealth effects: the value of being "too big to fail", *Journal of Finance* 45, 1587-1600.

Rose, P., and S. Hudgins, 2010, Bank management & Financial Services, Irwin/McGraw-Hill.

Ross, S., 1977. The determination of financial structure: the incentive signaling approach *Bell Journal of Economics* 8, 23-40.

Salutric, J., and J. Wilcox, 2009, Emerging issues regarding trust preferred securities, *SRC Insights*, Federal Reserve Bank of Philadelphia, September 15, 2009

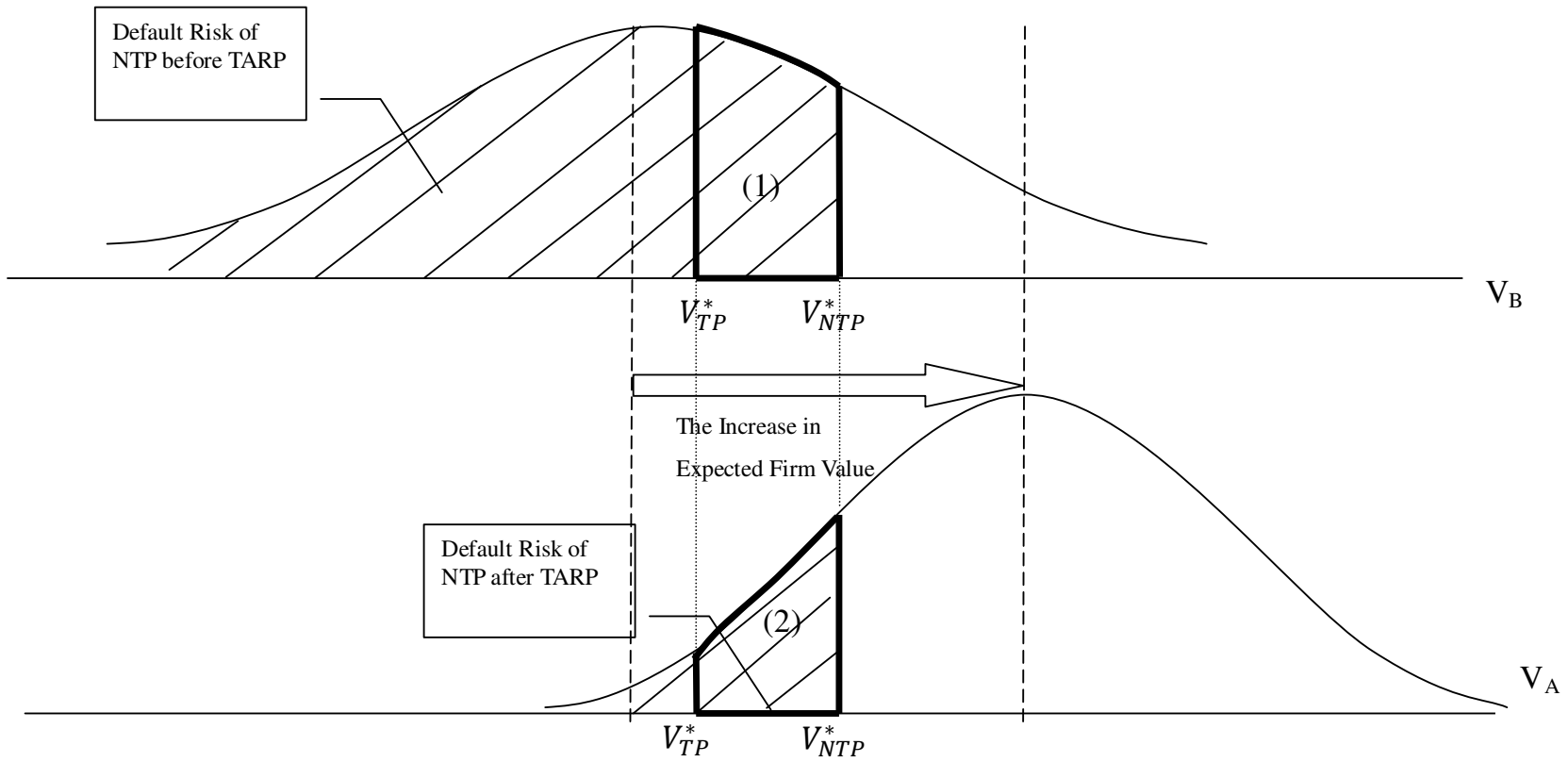
Spence, J., 2008, Preferred shares offer tempting yields for brave investors, *Dow Jones News Service*, November 10, 2008.

Spiess, K., and J. Affleck-Graves, 1999. The long run performance of stock returns following debt offerings, *Journal of Financial Economics* 54, 45–73.

Veronesi, P., and L. Zingales, 2009, Paulson's gift. Working paper, University of Chicago.

Wilson, L., and W. Wu, 2009, Common (Stock) Sense about Risk-Shifting and Bank Bailouts, Working paper, University of Louisiana and Wilfrid Laurier University.

Figure 1
Distributions of Firm Value Before and After Oct. 14

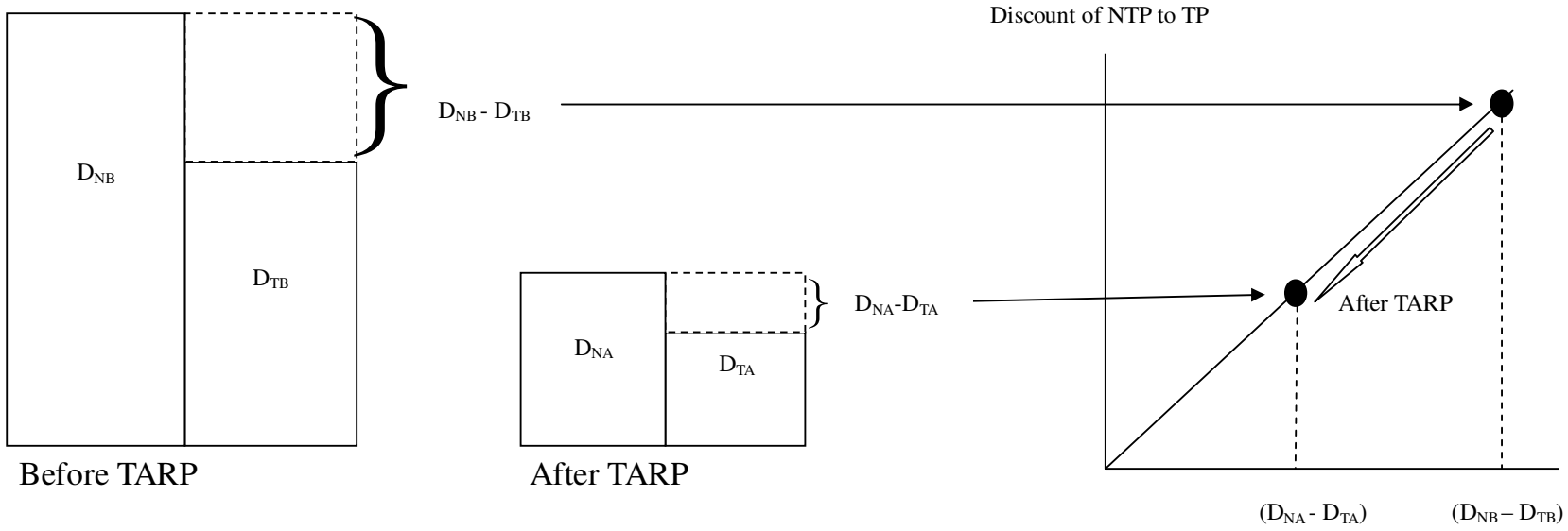


Insured/ Uninsured Deposits	Senior/ Junior Debt	TP	NTP	Common Stock

V_B : Firm value before TARP, V_A : Firm value after TARP
Area of (1) (= D_{NB} - D_{TB}) > Area of (2) (= D_{NA} - D_{TA})
where D_{NB}: Default Risk of NTP before TARP, D_{TB}: Default Risk of TP before TARP, D_{NA}: Default Risk of NTP after TARP, and D_{TA}: Default Risk of TP after TARP

Figure 2

Representation of change in default risk of trust and non-trust preferred.



D_{NB}: Default Risk of Non-Trust Preferred (NTP) Stock before the October 14 Announcement
D_{TB}: Default Risk of Trust Preferred Stock (TP) before TARP before the October 14 Announcement
D_{NA}: Default Risk of Non-Trust Preferred Stock (NTP) after TARP before the October 14 Announcement
D_{TA}: Default Risk of Trust Preferred Stock (TP) after TARP before the October 14 Announcement

Figure 3

Representation of different windows for non-forced banks

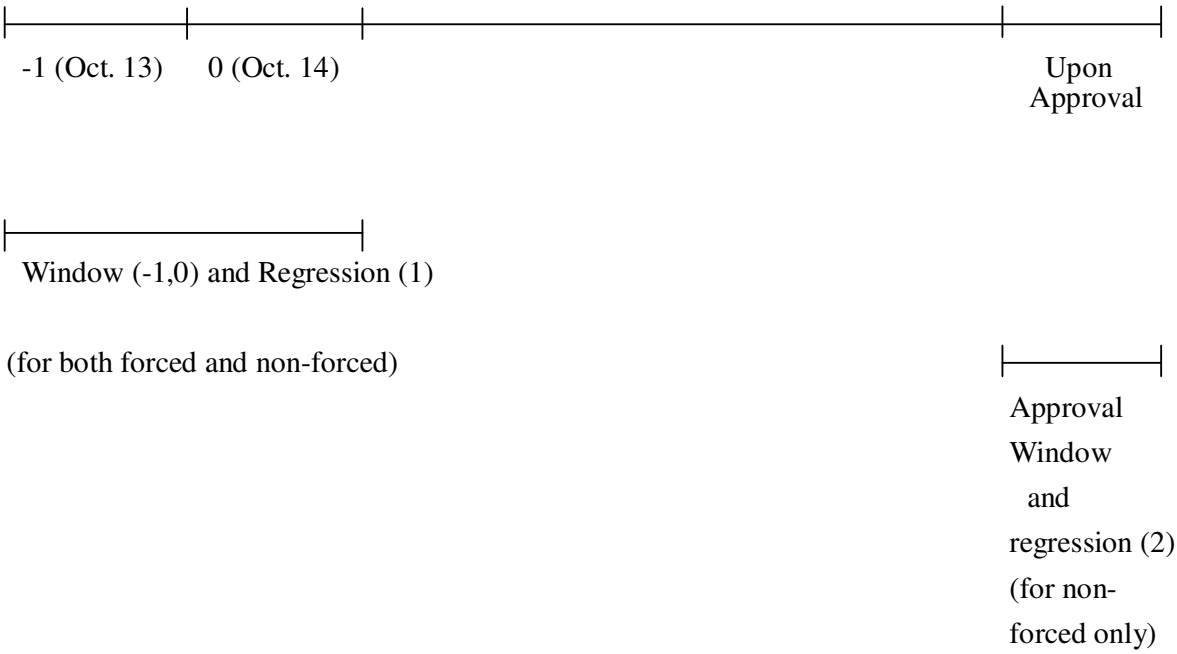


Table I. The Ranking Order of Claims on Bank	
This table describes the priority of claims on banks. Non-Trust preferred (NTP) and TARP preferred have equal priority and both have a lower claim than Trust preferred (TP).	
Priority of Claims	Claims on Bank
1	Insured Deposits
2	Uninsured Deposits
3	Senior Debt
4	Junior Subordinated Debt
5	Trust Preferred (TP) Stock
6	Non-trust Preferred (NTP) Stock and TARP Preferred Stock
7	Common Stock

Table II. Matching Pairs of NTP and TP Raw Returns based on September 18 announcement

Panel A presents matching pairs of each type of preferred stock according to the issuer, maturity, and dividend yield. The two matched preferred stocks are required to have the same issuer, similar maturities, and similar dividend yields. For the match, we allowed a maximum of one year's difference for maturity. For a perpetuity, our match required at least 59 years maturity. Regarding dividend yield, we allow a maximum of one percent difference. Panel B shows the average raw returns of each type of preferred stock and compares returns of TP and NTP.

Panel A: Matching Pairs of each type of preferred stock

Firm	TP/NTP	Maturity (years)	Dividend Yield (%)	Raw Returns
Bank of America	NTP	24	8.125	0.221
	TP	25	8.1	0.095
Bank of America	NTP	24	6.5	-0.011
	TP	25	6.75	-0.019
Bank of America	NTP	25	5.875	0.043
	TP	25	5.875	0.081
Bank of America	NTP	25	5.5	0.126
	TP	25	6	0.014
Bank of America	NTP	26	6	0.097
	TP	26	6	0.075
Bank of America	NTP	perpetual	6.7	0.151
	TP	perpetual	7	0.077
Bank of America	NTP	perpetual	7.25	-0.113
	TP	perpetual	7.28	0.12
Bank of America	NTP	perpetual	7.25	0.146
	TP	perpetual	7.28	0.121
Citigroup	NTP	perpetual	8.125	0.18
	TP	59	7.25	0.229
Citigroup	NTP	perpetual	8.5	0.221
	TP	59	7.875	0.105
Goldman Sachs	NTP	perpetual	float	0.085
	TP	perpetual	float	0.109
Goldman Sachs	NTP	perpetual	float	0.095
	TP	perpetual	flooat	0.109
JPMorgan Chase	NTP	24	7	0.147
	TP	23	7.2	0.04
JPMorgan Chase	NTP	perpetual	6.1	0.021
	TP	69	6.875	0.033
Wells Fargo	NTP	perpetual	7.25	0.31
	TP	59	7.85	0.405
Wells Fargo	NTP	perpetual	8	0.476
	TP	60	7.875	0.036

Panel B: Average of Raw Returns of Each Type of Preferred Stock			
	NTP	TP	Total
Equal Weight (Individual Issues)	0.137	0.102	0.119
(number of shares with higher raw returns)	9	7	16
Portfolio Approach (portfolio of all issues by same firm)	0.17	0.121	0.145
(number of banks with higher raw returns)	4	1	5

Table III. Average Preferred Stock Yields and Overpayment of the banks

OVERPAYMENT is measured by the difference between average preferred stock yields of each bank on 10/6/2008, prior to TARP, and the 5 percent yield on the government's preferred stock purchase. Preferred stock yields were obtained from the Bloomberg information system.

	Bank of America	Morgan Stanley	Wells Fargo	JPMorgan Chase	Citigroup	Goldman Sachs	Bank of NY Mellon
Mean	12.09	14.55	10.07	9.22	12.48	8.26	9.38
OVERPAYMENT (Mean less 5%)	7.09	9.55	5.07	4.22	7.48	3.26	4.38

Table IV. Description of Preferred Stock Outstanding

Panel A shows the number of each type of preferred stock in the largest banks. Since Bank of America(Wells Fargo) announced that they would take over Merrill Lynch (Wachovia) before October 14, 2008, the sample of Bank of America includes preferred stock of Merrill Lynch. On the other hand, State Street Corporation did not have any preferred stock outstanding before October 14, 2008. Panel B shows the number of each type of preferred stock of the non-forced banks that announced that they had received preliminary approval for TARP issuance. Some banks are excluded because they did not have any preferred stock outstanding or their preferred stock price information was not obtainable from Bloomberg.

Panel A: Type of preferred stock outstanding for the forced banks

	Trust	Non-trust	Callable	Non-callable	Zero-Dividend	Fixed-rate	Floating-rate	Total Sample
Bank of America	20	36	41	15	14	34	8	56
Citigroup	11	2	13	0	0	13	0	13
Goldman Sachs	1	3	4	0	0	1	3	4
JPMorgan Chase	4	9	13	0	0	12	1	13
Morgan Stanley	6	16	10	12	9	12	1	22
Bank of NY Mellon	2	0	2	0	0	2	0	2
Wells Fargo	9	2	11	0	0	11	0	11
Total Sample	53	68	94	27	23	85	13	121

Panel B: Type of preferred stock outstanding of the non-forced banks that announced that they had received preliminary approval for the TARP fund								
	Trust	Non-trust	Callable	Non-callable	Zero-Dividend	Fixed-rate	Floating-rate	Total Sample
Associated Bancorp	1	0	1	0	0	1	0	1
BB&T	2	0	2	0	0	2	0	2
Popular Inc	1	3	4	0	0	4	0	4
Capital One	1	0	1	0	0	1	0	1
Citizens Republic Bancorp	1	0	1	0	0	1	0	1
First Bancorp	0	5	5	0	0	5	0	5
Fifth Third Bancorp	3	0	3	0	0	0	3	3
Huntington Bancshares Inc	0	1	1	0	0	1	0	1
Independent Banc Corp	0	1	1	0	0	1	0	1
Keycorp	5	0	5	0	0	5	0	5
M&T Bank Corp	1	0	1	0	0	1	0	1
National Penn Bancshares Inc	1	0	1	0	0	1	0	1
Old National Bancorp	1	0	1	0	0	1	0	1
Old Second Bancorp	1	0	1	0	0	1	0	1
PNC Financial Services Group	5	1	6	0	0	5	1	6
Regions Financial Corporation	1	0	1	0	0	1	0	1
Sterling Bancshares Inc	1	0	1	0	0	1	0	1
Southern Community Financial Corp	0	1	1	0	0	1	0	1
SVB Financial Group	1	0	1	0	0	1	0	1
SunTrust Banks	1	1	2	0	0	1	1	2
Sterling Bancorp	1	0	1	0	0	1	0	1
Susquehanna Bancshares Inc	0	1	1	0	0	0	1	1
Taylor Capital Group Inc	1	0	1	0	0	1	0	1
U.S. Bancorp	7	1	8	0	0	7	1	8
Valley National Bancorp	1	0	1	0	0	1	0	1
Webster Financial Corp	0	1	1	0	0	1	0	1
Zions Bancorp	1	1	2	0	0	1	1	2
Total Sample	38	17	55	0	0	47	8	55

Table V. Returns around the October 14th Announcement for Forced Banks

Raw returns and the mean-adjusted returns over various event windows are reported for the equal weight approach and the portfolio approach. For the portfolio approach, each portfolio consists of all preferred stock belonging to a particular bank. The second t-stats in Panel A and Panel C are computed using the "Crude Dependence Adjustment" of Brown and Warner (1980,1985).

Panel A: The Raw Returns (Equal Weight)

	[0,0]	[-1,0]	[-2,+2]	[-5,+5]
ALL (n=121) (pooled)	0.0911	0.2467	0.1808	0.0743
Conventional T-stats	(13.25) ***	(15.68) ***	(12.19) ***	(5.81) ***
T-stats Using "Crude Dependence Adjustment"	(4.97)***	(9.53)***	(4.41)***	(1.22)
TRUST (TP) (n=53)	0.1329	0.3404	0.2832	0.1496
Conventional T-stats	(12.22) ***	(13.80) ***	(12.89) ***	(7.18) ***
T-stats Using "Crude Dependence Adjustment"	(5.31)***	(9.63)***	(5.06)***	(1.80)*
NONTRUST (NTP) (n=68)	0.0585	0.1737	0.1010	0.0156
Conventional T-stats	(8.92) ***	(11.23) ***	(7.29) ***	(1.31)
T-stats Using "Crude Dependence Adjustment"	(4.39)***	(9.23)***	(3.39)***	(0.35)
T-test for difference in mean between two subsamples	(5.85) ***	(5.72) ***	(7.01) ***	(5.59) ***

Panel B: The Raw Returns (Portfolio Approach)

	[0,0]	[-1,0]	[-2,+2]	[-5,+5]
ALL (n=13) (pooled)	0.0888	0.2638	0.2008	0.0924
	(3.96) ***	(5.51) ***	(4.42) ***	(3.52) ***
TRUST (TP) (n=7)	0.1174	0.3140	0.2433	0.1239
	(3.29) ***	(3.76) ***	(3.32) ***	(3.06) ***
NONTRUST (NTP) (n=6)	0.0554	0.2053	0.1513	0.0556
	(2.73) **	(6.79) ***	(3.15) ***	(1.99) *

The dependent T-stat for difference in mean between two subsamples is not significant for the portfolio approach due to the small sample size even though the sign for the difference between trust and non-trust is positive.

Panel C: The Mean-Adjusted Model (Equal Weight)				
	[0,0]	[-1,0]	[-2,+2]	[-5,+5]
ALL (n=121) (pooled)	0.0931	0.2505	0.1900	0.0940
Conventional T-stats	(13.48) ***	(15.86) ***	(12.68) ***	(7.15) ***
T-stats Using "Crude Dependence Adjustment"	(5.19)***	(9.88)***	(4.74)***	(1.58)
TRUST (TP) (n=53)	0.1347	0.3440	0.2922	0.1694
Conventional T-stats	(12.30) ***	(13.86) ***	(13.04) ***	(7.74) ***
T-stats Using "Crude Dependence Adjustment"	(5.52)***	(9.98)***	(5.35)***	(2.09)**
NONTRUST (NTP) (n=68)	0.0606	0.1776	0.1104	0.0352
Conventional T-stats	(9.21) ***	(11.45) ***	(7.89) ***	(2.95) ***
T-stats Using "Crude Dependence Adjustment"	(4.62)***	(9.58)***	(3.76)***	(0.81)
T-test for difference in mean between two subsamples	5.80 ***	5.68 ***	6.88 ***	5.38 ***
Panel D: The Mean-Adjusted Model (Portfolio Approach)				
	[0,0]	[-1,0]	[-2,+2]	[-5,+5]
ALL (n=13) (pooled)	0.0908	0.2674	0.2095	0.1112
	(4.04) ***	(5.54) ***	(4.53) ***	(3.96) ***
TRUST (TP) (n=7)	0.1192	0.3168	0.2504	0.1394
	(3.32) ***	(3.76) ***	(3.33) ***	(3.12) ***
NONTRUST (NTP) (n=6)	0.0576	0.2097	0.1619	0.0782
	(2.81) **	(6.80) ***	(3.31) ***	(2.62) **
The dependent T-stat for difference in mean between two subsamples is not significant for the portfolio approach due to the small sample size even though the sign for the difference between trust and non-trust is positive.				

Table VI. Estimated Parameters for Returns of the Forced Banks

The dependent variable is the raw returns and the mean-adjusted returns over the announcement window. WELLS FARGO is used as a benchmark. BANK OF AMERICA is a dummy variable that takes the value 1 if the observation belongs to BANK OF AMERICA. CITIGROUP is a dummy variable that takes the value 1 if the observation belongs to CITIGROUP. BANK of NY MELLON is a dummy variable that takes the value 1 if the observation belongs to Bank of NY Mellon. JPMORGAN CHASE is a dummy variable that takes the value 1 if the observation belongs to JPMORGAN CHASE. MORGAN STANLEY is a dummy variable that takes the value 1 if the observation belongs to MORGAN STANLEY. GOLDMAN SACHS is a dummy variable that takes the value 1 if the observation belongs to GOLDMAN SACHS. TRUST is a dummy variable equal to one if the observation is a trust preferred stock. TRUST is a dummy variable equal to one if the observation is a trust preferred stock. CALLABLE is a dummy variable equal to one if the observation has a call option. MATURITY is measured as the natural log of remaining time to maturity. ZERO DIVIDEND is a dummy variable equal to one if the observation does not pay dividends. FLOATING-RATE is a dummy variable equal to one if the observation has a floating dividend. All preferred stock ratings are obtained from S&P preferred stock ratings. Regarding ratings, N/A is used as a benchmark. UPPER MEDIUM is a dummy variable equal to one if the rating is the observation is A+ or A or A-. MEDIUM is a dummy variable equal to one if the rating of the observation is BBB+ or BBB or BBB-. H-SPECULATIVE is a dummy variable equal to one if the rating of the observation is B+ or B or B-.

Panel A: The Raw Returns Based on [-1,0]

	(1)	(2)	(3)
Intercept	-0.2412*** (-3.63)	-0.1586** (-2.06)	-0.1701** (-2.24)
BANK OF AMERICA	0.1300*** (5.57)	0.1381** (2.37)	0.1443** (2.50)
CITIGROUP	0.2390*** (12.15)	0.2574*** (4.52)	0.2538*** (4.46)
BANK OF NY MELLON	0.1497*** (6.35)	0.1501*** (6.09)	0.1530*** (6.13)
JPMORGAN CHASE	0.0569* (1.69)	-0.0952 (-1.28)	-0.0922 (-1.28)
MORGAN STANLEY	0.3979*** (9.33)	0.3334*** (5.36)	0.3406*** (5.54)
GOLDMAN SACHS	0.0044 (0.09)	-0.1602* (-1.88)	-0.1287 (-1.58)
TRUST (TP)	0.1064*** (4.64)	0.1080*** (4.26)	0.1073*** (4.34)
CALLABLE	0.1909*** (3.13)	0.1911*** (3.42)	0.1881*** (3.36)
MATURITY	0.0360** (2.45)	0.0370** (2.04)	0.0411** (2.25)
ZERO-DIVIDEND	0.1000* (1.77)	0.0864** (2.12)	0.0880** (2.15)
FLOATING-RATE			-0.0466 (-1.64)
UPPER MEDIUM		-0.0878** (-2.39)	-0.0882** (-2.40)
MEDIUM		0.0773 (1.22)	0.0781 (1.27)
H-SPECULATIVE		-0.1160** (-2.35)	-0.1120** (-2.27)
Sample Size	121	121	121
F, (p-value)	40.67	45.53	48.60
	(0.0000)	(0.0000)	(0.0000)
R-squared	0.6980	0.7577	0.7627

Panel B: The Mean-Adjusted Model Based on [-1,0]			
	(1)	(2)	(3)
Intercept	-0.2386*** (-3.59)	-0.1434* (-1.88)	-0.1546** (-2.04)
BANK OF AMERICA	0.1323*** (5.68)	0.1280** (2.24)	0.1341** (2.37)
CITIGROUP	0.2403*** (12.15)	0.2384*** (4.37)	0.2349*** (4.31)
BANK OF NY MELLON	0.1489*** (5.82)	0.1463*** (5.55)	0.1492*** (5.59)
JPMORGAN CHASE	0.0559* (1.66)	-0.1027 (-1.36)	-0.0998 (-1.36)
MORGAN STANLEY	0.4010*** (9.37)	0.3268*** (5.26)	0.3338*** (5.43)
GOLDMAN SACHS	0.0084 (0.17)	-0.1617* (-1.89)	-0.1311 (-1.60)
TRUST (TP)	0.1078*** (4.87)	0.1102*** (4.34)	0.1095*** (4.41)
CALLABLE	0.1888*** (3.09)	0.1879*** (3.37)	0.1850*** (3.31)
MATURITY	0.0363*** (2.46)	0.0332* (1.88)	0.0372** (2.09)
ZERO-DIVIDEND	0.0991* (1.75)	0.0863** (2.11)	0.0878** (2.14)
FLOATING-RATE			-0.0452 (-1.62)
UPPER MEDIUM		-0.0844** (-2.30)	-0.0848** (-2.31)
MEDIUM		0.0884 (1.40)	0.0891 (1.45)
H-SPECULATIVE		-0.0977** (-2.15)	-0.0940** (-2.08)
Sample Size	121	121	121
F, (p-value)	40.20	42.43	44.78
	(0.0000)	(0.0000)	(0.0000)
R-squared	0.6986	0.7552	0.7599

Table VII. Estimated Parameters for Returns of the Forced Banks Using Firm Specific Characteristics

The dependent variable is the raw returns and the mean-adjusted returns over the announcement window. OVERPAYMENT is measured by the difference between average yields of each bank immediately prior to TARP and the 5 percent yield on the government's preferred stock. SIZE is measured by TARP capital infusion over total assets. TRUST is a dummy variable equal to one if the observation is a trust preferred stock. CALLABLE is a dummy variable equal to one if the observation has a call option. MATURITY is measured as the natural log of remaining time to maturity. ZERO DIVIDEND is a dummy variable equal to one if the observation does not pay dividends. FLOATING-RATE is a dummy variable equal to one if the observation has a floating dividend. All preferred stock ratings are obtained from S&P preferred stock ratings. Regarding ratings, N/A is used as a benchmark. UPPER MEDIUM is a dummy variable equal to one if the rating is the observation is A+ or A or A-. MEDIUM is a dummy variable equal to one if the rating of the observation is BBB+ or BBB or BBB-. H-SPECULATIVE is a dummy variable equal to one if the rating of the observation is B+ or B or B.

Panel A: The Raw Returns Based on [-1,0]

	(1)	(2)	(3)
Intercept	-0.5895*** (-5.09)	-0.6361*** (-6.16)	-0.5975*** (-5.88)
OVERPAYMENT	0.0703*** (6.99)	0.0812*** (9.53)	0.0788*** (9.44)
SIZE	5.0420 (1.12)	4.2262 (0.74)	1.3474 (0.23)
TRUST (TP)	0.0979*** (4.15)	0.1242*** (5.09)	0.1246*** (5.23)
CALLABLE	0.1911*** (3.41)	0.1927*** (3.55)	0.1882*** (3.45)
MATURITY	0.0299* (1.91)	0.0367** (2.21)	0.0426** (2.48)
ZERO-DIVIDEND	0.0770 (1.64)	0.0869** (2.13)	0.0874** (2.14)
FLOATING-RATE			-0.0505* (-1.83)
UPPER MEDIUM		-0.0881** (-2.59)	-0.0867** (-2.56)
MEDIUM		0.0615 (1.55)	0.0638 (1.63)
H-SPECULATIVE		-0.1068** (-2.57)	-0.1098*** (-2.67)
Sample Size	121	121	121
F, (p-value)	22.49	49.25	56.15
	(0.0000)	(0.0000)	(0.0000)
R-squared	0.6043	0.7270	0.7334

Panel B: The Mean-Adjusted Model Based on [-1,0]			
	(1)	(2)	(3)
Intercept	-0.5777*** (-4.91)	-0.6029*** (-5.64)	-0.5641*** (-5.36)
OVERPAYMENT	0.0698*** (6.92)	0.0791*** (9.23)	0.0767*** (9.11)
SIZE	4.8954 (1.05)	2.8630 (0.47)	0.0123 (0.00)
TRUST (TP)	0.1014*** (4.39)	0.1318*** (5.38)	0.1321*** (5.52)
CALLABLE	0.1892*** (3.37)	0.1914*** (3.52)	0.1869*** (3.42)
MATURITY	0.0296* (1.89)	0.0363** (2.22)	0.0417** (2.48)
ZERO-DIVIDEND	0.0755 (1.62)	0.0840** (2.05)	0.0844** (2.06)
FLOATING-RATE			-0.0497* (-1.84)
UPPER MEDIUM		-0.0823** (-2.49)	-0.0804** (-2.43)
MEDIUM		0.0586 (1.55)	0.0619* (1.67)
H-SPECULATIVE		-0.1094*** (-2.77)	-0.1115*** (-2.84)
Sample Size	121	121	121
F, (p-value)	22.64	49.11	54.45
	(0.0000)	(0.0000)	(0.0000)
R-squared	0.6019	0.7193	0.7254

Table VIII. Returns of Non-forced Banks for Different Windows		
The raw returns and the mean-adjusted returns on the October 14th TARP announcement and the later announcement of bank specific approval for TARP capital are reported for the equal weight approach and the portfolio approach. For the portfolio approach, each portfolio consists of all preferred stock belonging to a particular bank. The second t-stats in Panel A and Panel C are computed using the "Crude Dependence Adjustment" of Brown and Warner (1980,1985).		
Panel A: The Raw Returns (Equal Weight)		
	Oct. 14 [-1,0]	Approval
ALL (pooled)	0.2384	0.0398
Conventional T-stats	(8.96) ***	(3.30) ***
T-stats Using "Crude Dependence Adjustment"	(8.02) ***	(1.89)*
	(n=54)	(n=50)
TRUST (TP)	0.3049	0.0399
Conventional T-stats	(10.27) ***	(3.18) ***
T-stats Using "Crude Dependence Adjustment"	(8.29) ***	(1.53)
	(n=38)	(n=36)
NONTRUST (NTP)	0.0805	0.0398
Conventional T-stats	(2.64) **	(1.32)
T-stats Using "Crude Dependence Adjustment"	(4.37) ***	(3.06) ***
	(n=16)	(n=14)
T-test for difference in mean between two subsamples	5.27 ***	0.00
Panel B: The Raw Returns (Portfolio Approach)		
	Oct. 14 [-1,0]	Approval
ALL (pooled)	0.2143	0.0390
	(8.08) ***	(2.53) **
	(n=30)	(n=29)
TRUST (TP)	0.2581	0.0342
	(8.29) ***	(2.25) **
	(n=20)	(n=19)
NONTRUST (NTP)	0.1266	0.0482
	(3.19) ***	(1.38)
	(n=10)	(n=10)
T-test for difference in mean between two subsamples	2.47**	-0.35

Panel C: The Mean-Adjusted Model (Equal Weight)		
	Oct. 14 [-1,0]	Approval
ALL (pooled)	0.2428	0.0414
Conventional T-stats	(9.00) ***	(3.41) ***
T-stats Using "Crude Dependence Adjustment"	(8.21) ***	(1.98)*
	(n=54)	(n=50)
TRUST (TP)	0.3098	0.0424
Conventional T-stats	(10.28) ***	(3.33) ***
T-stats Using "Crude Dependence Adjustment"	(8.49) ***	(1.64)
	(n=38)	(n=36)
NONTRUST (NTP)	0.0838	0.0388
Conventional T-stats	(2.70) ***	(1.32)
T-stats Using "Crude Dependence Adjustment"	(4.56) ***	(2.98) ***
	(n=16)	(n=14)
T-test for difference in mean between two subsamples	5.22 ***	0.11
Panel D: The Mean-Adjusted Model (Portfolio Approach)		
	Oct. 14 [-1,0]	Approval
ALL (pooled)	0.2143	0.0390
	(8.08) ***	(2.53) **
	(n=30)	(n=29)
TRUST (TP)	0.2581	0.0342
	(8.29) ***	(2.25) **
	(n=20)	(n=19)
NONTRUST (NTP)	0.1266	0.0482
	(3.19) ***	(1.38)
	(n=10)	(n=10)
T-test for difference in mean between two subsamples	2.44**	-0.33

Table IX. Estimated Parameters for Returns of the Non- Forced Banks

The dependent variable is the raw returns and the mean-adjusted returns on (1) the October 14th announcement, (2) the later announcement of preliminary approval for the TARP fund. OVERPAYMENT is measured by the difference between average yields of each bank immediately prior to TARP and the 5 percent yield on the government's preferred stock. SIZE is measured by TARP capital/total asset. TRUST is a dummy variable equal to one if the observation is a trust preferred stock. MATURITY is measured as the natural log of remaining time to maturity. FLOATING-RATE is a dummy variable equal to one if the observation has a floating dividend. All preferred stock ratings are obtained from S&P preferred stock ratings. Regarding ratings, N/A is used as a benchmark. MEDIUM is a dummy variable equal to one if the rating of the observation is BBB+ or BBB or BBB-. SPECULATIVE is a dummy variable equal to one if the rating is the observation is BB OR BB-. H-SPECULATIVE is a dummy variable equal to one if the rating of the observation is B+ or B or B-.

Panel A: The Raw Returns

	(1) Oct. 14 [-1,0]	(2) Approval
Intercept	0.1124	-0.0465
	(0.58)	(-0.38)
OVERPAYMENT	0.0229***	0.0108***
	(3.75)	(2.85)
SIZE	-1.6079	0.7381
	(-0.42)	(0.30)
TRUST (TP)	0.0902**	-0.0341
	(2.24)	(-1.09)
MATURITY	-0.0429	0.0018
	(-0.94)	(0.07)
FLOATING-RATE	-0.0319	0.0183
	(-0.76)	(0.62)
MEDIUM	0.1052*	0.0137
	(1.95)	(0.48)
SPECULATIVE	0.1775***	-0.0492*
	(3.06)	(-1.80)
H-SPECULATIVE	0.1146	-0.0204
	(2.64)**	(-0.72)
Sample Size	54	50
F, (p-value)	22.59	2.69
	(0.0000)	(0.0181)
R-squared	0.7411	0.5245

Panel B: The Mean-Adjusted Model		
	(1) Oct. 14 [-1,0]	(2) Approval
Intercept	0.1103 (0.56)	-0.0679 (-0.59)
OVERPAYMENT	0.0235*** (3.82)	0.0109*** (2.95)
SIZE	-1.6500 (-0.43)	0.7760 (0.32)
TRUST (TP)	0.0909** (2.24)	-0.0277 (-0.98)
MATURITY	-0.0429 (-0.94)	0.0060 (0.23)
FLOATING-RATE	-0.0295 (-0.70)	0.0212 (0.71)
MEDIUM	0.1051* (1.94)	0.0127 (0.45)
SPECULATIVE	0.1779*** (3.05)	-0.0495* (-1.80)
H-SPECULATIVE	0.1163** (2.67)	-0.0178 (-0.59)
Sample Size	54	50
F, (p-value)	23.67	2.90
	(0.0000)	(0.0116)
R-squared	0.7440	0.5272