Why Do Banks Issue Trust Preferred Securities?

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Abstract

We examine a sample of Trust Preferred Securities (TPS) issuers and non-issuers in the banking industry to investigate why banks issue these securities. We find significant differences in the asset, and capital structure characteristics but not in the income and liability characteristics of TPS issuers and non-issuers. Banks primarily issue TPS to change the capital structure or to improve capital ratios. TPS are not issued for additional funds or to improve the returns to equity holders through the tax benefit unless it is also accompanied by a capital structure decision.

Keywords: Trust Preferred Stock, Bank Capital Structure,

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Abstract

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Why Do Banks Issue Trust Preferred Securities?

Introduction

Trust Preferred Securities (TPS) are innovative hybrid securities that combine the features of stocks and bonds simultaneously in a single financial instrument. Most hybrid instruments exhibit either equity characteristics or debt characteristic at any given time, but not both. TPS behave like a long-term bond because of a fixed or floating coupon with interest expenses being tax deductible. TPS behave like cumulative preferred stock because of its interest payment deferral (up to 20 quarters) without default, very long maturity, and deep subordination (junior only to common and preferred stock). It takes advantage of the tax-code for interest expense deductibility but is treated like equity by the credit-rating agencies and regulators because of its equity characteristics like loss absorption and relative permanence. There is no dilution or loss of management control for existing shareholders.

Irvine and Rosenfeld (2000), Benston, Irvine, Rosenfeld and Sinkey (2003), and Harvey, Collins, and Wansley (2003) find that the shareholders gain on announcement of TPS issuance in the short-term, and that financial characteristics are different for TPS issuers versus non-issuers. Krishnan and Laux (2004) find that the stockholders lose in the short term due to 'misreaction' of the stock market when the benefits of the TPS issue are not clearly communicated to the market, but gain in the long-term. Krishnan and Laux (2004) also find the financial characteristics of the TPS issuers and the non-issuing matched firms are not different. Harvey, Collins, and Wansley (2003) find that debt securities of the TPS issuers have a lower default premia due to the leverage decrease after the TPS issue where the proceeds are used as additional capital.

In all of these studies, analysis of financial characteristics is based on the quarterly or annual financial statements prior to the date of TPS issue. Whether the TPS issue has been leverage increasing or decreasing is determined from the 'use of proceeds' in the prospectus and not on the basis of post-issue financial statements. Firms may not be able to credibly and correctly convey the proposed changes in the capital structure through the prospectus, particularly when multiple uses are listed. Firms do not typically list the proportions of the proceeds to be used for each of the purposes mentioned, which may make it difficult for market participants to assess the intended changes in capital structure.

The leverage effects of TPS may be confounding to market participants because its effects are not as well-known to investors like pure debt or equity. Academics also take differing views about the behavior of TPS. Benston, Irvine, Rosenfeld and Sinkey (2003) treat TPS as leverage decreasing equity because of its Tier 1 capital treatment by the Federal Reserve Board (FRB) and conclude that the market reacts positively to TPS filing, contrary to prior empirical results. Krishnan and Laux (2004) consider TPS as 'roughly leverage neutral' because credit rating agencies consider 40% of outstanding TPS as equity. Irvine and Rosenfeld (2000) and Harvey, Collins, and Wansley (2003) discuss both the 'leverage decreasing' and 'leverage neutral' aspects of TPS depending on the 'use of proceeds'.

The market may react with a lag as investors wait on detailed and credible information to react to capital structure changes. Firms can also have other constraints in repurchasing stocks like SEC Rule 10b -18 (Cook, Krigman, and Leach (2003)) or constraints in repaying debt like 'call features' as in Dangle and Zechner (2004), which may delay the benefits of capital structure changes. As shown by Krishnan and Laux (2004), markets seem to react based on the post-issue information on TPS issuers. No previous studies examine the post-issue financial and

operational characteristics of TPS issuers. We examine the pre-issue and post-issue financial characteristics of TPS issuers and non-issuers. We believe that an examination of the pre-issue and the post-issue financial characteristics will reveal the similarities and differences among TPS issuers and non-issuers more clearly and may help resolve the conflicting results of the past research based on pre-issue characteristics only. It may also help find whether the financial characteristics of the TPS issuers and non-issuers converge over time due to innovation diffusion as discussed by Benston, Irvine, Rosenfeld and Sinkey (2003).

We examine a sample of TPS issuers and non-issuers in the banking industry because we get a large sample for a single industry with uniform treatment of TPS as Tier 1 capital. We find significant differences in the asset, and capital structure characteristics, but not in the income and liability characteristics of the TPS issuers and non-issuers. We find that banks issue TPS primarily to change the capital structure or to improve their capital ratios. TPS are not issued for the additional funds or to improve the returns to equity holders through the tax benefits unless it is also accompanied by capital structure decision.

The rest of the paper proceeds as follows. Section II reviews the results of the previous studies on TPS, capital structure theories and some empirical results of bank capital structure, Section III presents our hypotheses, Section IV discusses our sample and methodology, we analyze our findings in Section V, and conclude in Section VI.

II. Literature Review

Schwert (1981) argues that stock-market data measure the impact of regulatory changes better than other measures because asset prices incorporate all relevant information as soon as it becomes available. The stock market reaction to the regulatory changes in bank capital structure

is well documented. When the capital structure is regulated, as in the banking industry[1], Santomero and Watson (1977) argue that 'socially optimal' equity is more than the shareholder optimal level of equity. Firms in a capital regulated industry will not have the full benefits of leverage and hence such firms could be constrained in achieving value maximization goals. When an opportunity is presented to increase the benefits of leverage, such firms are logically expected to adjust their capital structure at the earliest possibility because the constraints are no longer binding. However, not all the banking firms adjusted their capital structure after such an opportunity was presented. Several reasons can be attributed to this behavior. The lag in adjustment may be due to costs of adjustments as in Myers (1984), or Leary and Roberts (2005), the information effect, differential corporate and personal taxation, leverage related costs, bankruptcy and agency costs as in Masulis (1980), or firm characteristics such as asset volatility, growth rate, corporate tax, debt call feature as discussed in Dangle and Zechner (2004).

TPS could mitigate capital structure constraints in banks by virtue of the Federal Reserve Bank (FRB) ruling on October 21, 1996, that TPS are eligible to be treated as Tier 1 capital, on par with equity, for up to 25% of the Tier 1 capital.[2] Benston, Irvine, Rosenfeld and Sinkey (2003), and Harvey, Collins, and Wansley (2003) find that the bank shareholders gained on the FRB announcement around October 21, 1996. Though TPS and its tax benefits have been available since 1993, banking firms issued TPS only after the FRB ruling. Tania (1996, 1997a,

[1] Banks are required to comply with the Basel Accord I, since 1988, to improve consistency of capital regulation internationally, make the regulatory capital more risk sensitive, and to promote better risk management practices to reduce systemic risk, since 1988. As per this accord, banks will have to maintain a minimum of 8% of risk-weighted assets as capital, of which 4% will be Tier 1 capital (common and preferred stocks, retained earnings) and 4% can be Tier 2 capital (can include subordinated debt, loan-loss reserves).

[2] On March 1, 2005, FRB confirmed the limits for restricted core capital elements like TPS to 25% of all core capital elements, net of goodwill less any associated deferred tax liability. Internationally active bank holding companies, defined as those with consolidated assets greater than $250 million or on-balance sheet foreign exposure greater than $10 billion, will be subject to 15% limit (reduced from 25%), but may include qualifying mandatory convertible preferred securities up to 25%, with a transition period of five years, ending March 31, 2009 for application of quantitative limits. Restricted core capital elements in excess of these limits may be treated as Tier 2 capital.

1997b, 1997c) records that the uncertainty about the continued eligibility of the trust-preferred stock as Tier 1 capital triggered the rush to issue TPS after the introduction of the FRB rule. The uncertainty about the tax treatment continued until 1999. The tax treatment was contested by the Clinton Administration Treasury Department, which argued that TPS masks the debt and therefore mislead the investors about the potential risks of the firm, as well as creating a loss of revenue to the federal government. Federal courts confirmed the legal validity of tax treatment of the interest expense, which increased TPS issuance (Ziegelbauer & Ochsenschlager, 2000).

We note that the tax uncertainties did not stop the TPS issuance by banks but the uncertainties in the FRB rule appears to have stopped several banks from issuing TPS. On May 6, 2004, the FRB announced the planned changes to the treatment of TPS as capital, following the Financial Accounting Standards Board‘s revised interpretation No.46 (FIN 46R), which forced the deconsolidation of the special purposes entities or trusts in Financial Statements under GAAP. FRB announced the final rule on March 1, 2005.

During January 2004 to February 2005, when the continuity of Tier 1 capital treatment was uncertain, we observe significant decline in TPS issuance by banks and only two banks issued conventional preferred stocks. We observe 16 new TPS issues after March 1, 2005, the date FRB announced the final rule.

Because banks continued to issue TPS when tax treatment was uncertain, but ceased issuance when capital treatment was uncertain, this implies that the corporate tax benefits alone did not motivate banks to issue TPS, and the benefits of capital structure changes have been the driving force for banks issuing TPS. The economic reasoning for this could be that the corporate tax advantage alone may not have compensated for the higher coupon on TPS (relative to debt) because it is a junior claim to debt and investors require compensation for the risk of future

leverage increases, higher issue cost relative to pure debt, and the implicit tax on TPS relative to conventional preferred stock, as the interest income has tax disadvantage compared to the dividend income and capital gains for investors (Engel, Erickson, and Maydew (1999)).

The effects of leverage related costs are unambiguous for equity and debt for non-financial firms if we consider the stock market reaction to seasoned equity or debt issues. In contrast, for banking firms the stock market reaction has been mixed for leverage decreasing regulatory intervention. Markets react positively to leverage decreasing capital regulation if it reduced the risk of financial distress, but react negatively if the leverage reduction is binding because it is sub-optimal from the shareholder perspective.

When US banks were not subject to uniform capital regulation before 1983, Shome, Smith, and Heggestad (1986) and Saunders, Strock, and Travlos (1990) find that the regulatory interventions in the capital structure decisions of the banks have enhanced shareholder value. They conclude that regulation of capital adequacy has not forced a leverage decrease in the banking industry to a sub-optimal, non-value maximizing capital structure and that capital regulation can mitigate the risks of banking firms.

In contrast, the pre-Basel Accord capital regulation has been found not to enhance value. Cornett, Mehran and Tehranian (1998) find that banks that voluntarily issued stocks in excess of 7% capital experienced negative post-issue operational performance, stock prices, and negative market reaction to post-issue earnings announcement, while the values of these measures for banks that involuntarily issued stocks are not different from benchmark firms. Wagster (1996) finds significant wealth losses to shareholders from the unilateral risk-based capital plan that forced reduction in financial leverage of US banks during the run up to the implementation of Basel I in January 1986.

More recently, Benston, Irvine, Rosenfeld and Sinkey (2003) and Harvey, Collins, and Wansley (2003) record that the stock markets reacted favorably to the FRB ruling on treating TPS as Tier 1 capital with quantitative limits, implying the relaxation of binding leverage. Benston, Irvine, Rosenfeld and Sinkey (2003) also find that the wealth gain is more for banks that increased their capital ratios by issuing TPS than for banks that did not. Collectively, these results imply that the market reacts depending on the perception of leverage, cash flows, and risk of financial distress at the firm level.

Additionally, the assets of the banks are inherently opaque, which makes it difficult for the market to respond correctly and the market may be forced to revise the assessment as new information arrives. Morgan (2002) concludes that even reputed credit rating agencies like Standard and Poor's and Moody's widely disagree when they rate banks because of the opaqueness of assets. There is also mixed evidence about the effectiveness of market monitoring of banks[3]. When banks issue a new hybrid security like TPS, the behavior of which may not have been completely understood by the market, the market may have responded only when they can interpret the available information meaningfully. Therefore, an examination of the post-issue firm characteristics will reveal more clearly the distinguishing characteristics of TPS issuers and non-issuers than the comparison of pre-issue firm characteristics and the possible changes to capital structure based on the 'use of proceeds' details in the TPS issue prospectus.

[3] Avery, Terrence, and Goldberg (1988) conclude that the pricing signals of subordinated notes and debentures (SND) are at odds with the directions desired by the regulators; Flannery and Sorescu (1996) conclude that SND pricing reveals market-monitoring of banks. Krishnan, Ritchken, and Thomson (2005) conclude that SND do not enhance market monitoring and control risk.

III. Hypotheses

We term the first hypothesis the 'Capital Requirement Hypothesis,' which asserts that banks will issue TPS only when additional Tier 1 capital is needed and not for funding their assets alone. The need for additional capital may be because of the shortfall in existing capital due to the growth of risk-weighted assets; the lack of adequacy of current retained earnings to fulfill the additional capital need; assets that cannot be securitized; and depleted capital due to a huge charge-off or an impending charge-off.

Banks have other cheaper sources of funds like demand deposits, certificate of deposits, brokered and uninsured deposits to fund their assets. When banks need additional regulatory capital to adequately cover the growth in risk-weighted assets, TPS, with qualification as Tier 1 capital and tax benefits, is likely the cheapest external capital because common stocks and preferred stocks do not have the tax advantage like TPS. Therefore, we expect banks to issue TPS when they require additional capital for asset growth; banks will not issue high cost TPS to fund asset growth without the requirement of additional capital because that will lower the profitability as their net interest margin will decline. The quantitative limits may not be binding for the first time issuers, but for the multiple TPS issuers, it may be binding, particularly when the expected asset growth does not materialize.

Asset securitization without recourse has been one of the major methods of capital management among banks. We expect the issuers to have above average asset growth for commercial and industrial loans as these types of loans are not generally securitized. If issuers are increasing capital, the proceeds of the TPS issue will go to increase the 'Total equity component' and no shares will be repurchased. We also hypothesize that these firm characteristics will not converge over time for the issuers and non-issuers.

In the 'Capital structure rebalance Hypothesis' we argue that TPS is issued essentially to restructure capital by using the proceeds to repurchase preferred stock, common stock or repay high cost debt and not to increase the 'Total capital component.' The primary motivation is to significantly improve the cash flow to equity holders by reducing the average cost of capital and increasing tax benefits. We hypothesize that the financial and operational characteristics will be below average for the issuers in the pre-issue period, but converge to industry average performance characteristics in the post-issue period, particularly in earnings per share and ROA.

Our final hypothesis is the 'Capital Augmentation hypothesis,' where we expect banks to increase the 'Total equity component' and rebalance their capital structure. We hypothesize banks that experience growth in risk-weighted assets but with below average profitability and/or below average asset quality will have a net increase in the 'total capital component,' but will decrease the proportion(s) of common equity or preferred equity. We also hypothesize that banks will not issue TPS for the Tier 2 capital requirement because the coupon and the issue cost of the subordinated notes and debentures, which are treated as Tier 2 capital, are lower than that of TPS. Hence, Tier 2 capital will not change significantly.

IV. Sample and Methodology

Our initial sample has 186 TPS issues by publicly traded US banks from the SDC Platinum Database for the period from 1996 to 2004. Our sample includes public, private, shelf registration, and issues under Securities and Exchange Commission Rule 144a. We hand-matched 154 TPS issuing-bank holding companies (BHCs) with the FRB identification number for BHCs. Several banks issued TPS multiple times during this period. We identified 96 unique

banks as first-time TPS issuers during this period to get the first-time TPS issuer sample. A past-issuer is not included in this sample.

For the non-issuers, a bank should not have issued TPS either during the year or in the past and it should be publicly traded with an asset base of $500 million or above. We observe that smaller banks issued TPS through a 'pooled issue', where the investment bank will facilitate multiple banks to issue TPS under a single underwriting vehicle, particularly after 1998. Detailed information on the participating banks in pooled TPS issues was not available. To prevent the possibility of contamination of the non-issuer sample by banks that issued pooled TPS, we choose publicly traded banks with assets of $500 million or above and we checked the Minority-Holdings data to check whether the banks own any consolidated subsidiaries. Table 1 shows the number of issuers, unique issuers, and non-issuers for each year during the sample period.

V. Empirical Results

In order to discern if there are differences in TPS issuers and non-issuers, we examine key financial characteristics in four major categories of assets, income, capital structure, and liabilities. We examine total assets, risk-weighted assets, foreign assets-to-total assets, commercial loans-to-total assets, and non-performing assets-to-total assets for asset characteristics. For income characteristics, we compare non-interest income-to-earnings before tax, tax-paid-to-earnings before tax, net interest income-to-earnings before tax and loan-loss allowance-to-earnings before tax for the income characteristics. For the capital structure characteristics, we use preferred stock-to-book equity, common stocks and retained earnings to book equity, book equity-to-total assets, risk-based capital-to-total assets, subordinated notes and

debentures to total assets as a proxy for Tier 2 capital to total assets, stocks issued (common and preferred) to book equity, stock repurchased (common and preferred) to book equity. For the liability characteristics, we use brokered deposits-to-total liabilities, uninsured deposit-to-total liabilities, and foreign deposits-to-total liabilities.

We use selected data from the income statement, the balance sheet, and the FR-Y9C bank holding company reports from the FRB database. The year-end prior to the year of issue is considered as the pre-issue year and the year-end of the issue-year is considered as the post-issue year. Table 2 contains the means of pre- and post-issue characteristics for issuers, and Table 3 presents non-issuers during the same time period. Table 4 compares the mean differences in the pre-issue and the post-issue characteristics of the issuers and non-issuers.

We also estimate a multivariate logit model to examine the differences between the issuers and the non-issuers and the joint-effect of some of the key variables that could possibly motivate the banks to issue TPS and report these results in Table 5.

A. Comparison of Post-Issue Characteristics to Pre-Issue Characteristics

We find that the changes in the post-issue characteristics and its direction are similar for the issuers in Table 2 and non-issuers in Table 3. Both the TPS issuers and the non-issuers increased their risk-based capital in absolute value and as a percent of total assets in the year of issue. Tier 2 capital increased for both categories; non-issuers significantly increased their Tier 1 capital but TPS issuers did not have a significant increase in Tier 1 capital. Post-issue brokered deposits as a proportion of the total liabilities increased for issuers and non-issuers. An increase in brokered deposit may be due to lower cost of the brokered deposits as compared to TPS. All the other characteristics of capital structure, and liabilities did not change significantly during the

year of issue. The post-issue characteristics did not exhibit any significant changes in assets or income.

B. Comparison of TPS issuer characteristics with non-issuer characteristics

Table 4 reports the differences between the post-issue and the pre-issue characteristics for issuers versus non-issuers. We compare the mean of these variables for issuers and non-issuers and will discuss each of the categories of financial characteristics.

1. Asset Characteristics

TPS issuers have significantly larger total assets, risk-weighted assets, and commercial loans-to-total assets. However, foreign assets and non-performing assets as a proportion of total assets are not significantly different from the TPS non-issuers. Our results confirm the earlier findings that issuers are relatively larger in size, and are early adopters of financial innovation and are financially sophisticated.

2. Income Characteristics

Surprisingly, none of the income characteristics we examined are significantly different. This is in contrast to the earlier findings of Benston et al. (2003) and Harvey et. al. (2003) that TPS issuers paid higher marginal tax and pure tax benefits are one of the primary motivation for issuing TPS. This implies that TPS issuance is not related to profitability and that issuers are not focusing on increasing accounting profits via issuing this hybrid security.

3. Liabilities Characteristics

We examine brokered deposits-to-total liabilities, uninsured deposits-to-total liabilities and foreign deposits-to-total liabilities as these types of liabilities are used by banks when the sources of cheaper funds like demand deposits and retail deposits are exhausted. Benston et al. (2003) find that TPS issuers have significantly higher percentages of brokered funds. In contrast, we do not find any significant difference in all three characteristics. We argue that banks will not issue TPS for additional funding needs because this is a relatively expensive marginal cost of funds compared to alternative deposit accounts.

In the logistic regression analysis based on the pre-issue data presented in a subsequent section, we find that the brokered funds variable is significant and negatively related to the probability of issue, which indicates that brokered funds are cheaper than the total cost of TPS.

4. Capital Structure Characteristics

We confirm the findings of the earlier research that the proportion of preferred stock-to-book equity is significantly higher for the TPS issuers relative to non-issuers. However, this indicates that these banks needed additional capital either for their asset growth or for increasing their capital ratios, or that these banks may need external capital in the future. We find that preferred stock repurchase proportions are not significantly different between issuers and non-issuers, but common stock repurchase proportions are significantly higher for TPS issuers, which is consistent with the 'pecking order' theory of capital structure. If we combine these results with the insignificant differences in taxation characteristics, we can conclude that the 'pure tax incentive' cannot be the driving force for banks to issue TPS, which is contrary to earlier findings and support our reasoning that capital structure decisions motivate banks to issue TPS.

The book equity-to-total assets ratio is significantly different at only the 10% level, but the risk-based equity-to-total assets ratio is significantly higher at 1% level. Surprisingly, both the TPS issuers and TPS non-issuers have issued common stock in statistically equal proportions. TPS issuers are expected to repurchase conventional preferred stocks more than that of TPS non-issuers; however, we do not find any significant difference in conventional preferred stock repurchases of issuers versus non-issuers. We observe that both the TPS issuers and non-issuers exceeded the regulatory capital ratios, on average. Additionally, we find an increase in the capital ratios in the post-issue year. The regulatory capital ratios are not constraining for banks and the desired range for the capital ratios for the banking industry appears to be higher than the regulatory minimum. This result indicates that the 'market monitoring' of banks is more exacting than regulatory intervention and seems to support the Basel II proposals. Therefore, we conclude that our results do not lend support to the 'Capital Requirement Hypothesis' but supports the 'Capital Restructuring Hypothesis' and the 'Capital Augmentation Hypothesis'.

5. Regression Analysis Results

Table 5 contains the estimates from a multivariate logit model to examine the joint-effect of some of the asset, income, liability, and capital structure variables on TPS issuance choice. As the number of unique issuers in each year is small, we combine the data for all the years in the sample. We compare the financial characteristics of the issuers and non-issuers on the year-end prior to the year of issue of TPS. The dependent variable measures the probability of a bank issuing TPS, is defined as ISSUE and equals one for issuers and zero otherwise. The Logistic regression model estimates the factors that influence the issuing banks, where if p is the probability that ISSUE = 1, then the model is

$$\ln (p / (1-p) = \alpha + \beta \underline{X} + \varepsilon$$

The independent variables (X) and the reasons for including them in the model are explained in the following paragraphs. We estimate the parameter values for three models. In the first model we use level of total assets, in the second model we use risk-weighted assets, and in the third model, we use logarithm of total assets. The other independent variables are commercial loans-to-total assets, non-performing loans-to-total assets, taxes paid-to-earnings before tax, net interest income-to-earning before tax, non-interest income-to-earnings before tax, loan-loss allowance-to-earnings before tax, preferred stock-to-book equity, book equity-to-total assets, risk-based capital-to-total assets, stocks issued-to-book equity, stock repurchased-to-book equity, and brokered funds-to-total liabilities are included in all the models.

Bank size significantly affects the capital structure decisions, financial sophistication, and risk. We hypothesize that bigger banks will issue TPS earlier than the smaller banks as they can spread the fixed cost of issue over a large issue size. The sign of the parameter is positive and is significant at the 5% level for the total assets, and the 1% level for the logarithm of total assets, but is not significant for risk-weighted assets. Contrary to expectations, the proportion of commercial loans-to-total assets and non-performing loans-to-total assets are not significant asset characteristics for a bank to issue TPS.

We include three income and profitability related variables in our model. We check for the significance of the tax incentive of TPS, and whether banks with lower profitability or higher loan-loss allowance need additional external capital. Although the sign of the parameters are as expected, positive for tax, negative for profitability, and positive for loan-loss allowance, none of the three variables are significantly different from zero.

We include five capital structure related ratios as independent variables in the model. The preferred stock-to-book equity is insignificant in all three models, which supports our earlier argument that 'pure tax incentive' alone does not motivate banks to issue TPS. Together, these results enable us to conclude that 'pure tax incentive' does not drive TPS issuance in the banking industry. We find that book equity-to-total assets, stocks issued (common and preferred) to book equity, and stock repurchased (common and preferred) to book equity are significant at 1% level. Book equity-to-total assets results confirm the earlier results. The positive effect for the stock issued-to-book equity variable is not as expected because both common stock and TPS can be treated as Tier 1 capital. Banks may issue or repurchase common stock to rebalance the quantitative restriction on TPS vis-à-vis the other components in the capital or this may a confirmation of the conclusion of Leary and Roberts (2005) that firms issue or repurchase debt and equity in clusters.

The negative sign for brokered funds is inconsistent with the earlier results of Benston et al. (2004) and seems to support our argument that if banks have access to cheaper additional funds, they may not be motivated to issue TPS for their additional funding needs as the negative sign indicates that the probability of TPS issue is reduced with higher proportion of brokered funds to total liabilities.

VI. Conclusions

We examine the pre-and post-issue characteristics of TPS issuing and non-issuing banks from 1996 – 2004. Results indicate the need for additional regulatory capital, additional funding needs or the tax benefits available to TPS are not the primary factors in banks issuing TPS, contrary to earlier studies. Our results do not support the 'Capital Requirement Hypothesis'

because the mean capital ratios far exceed the regulatory minimum for issuers as well as non-issuers. We find that banks issue TPS to augment or restructure their capital and thereby support the Capital Restructuring and Capital Augmentation Hypotheses. We confirm that TPS issuers are relatively large, with higher proportions of commercial and industrial loans, but only asset size increases the probability of TPS issuance. The income and tax characteristics are not different for TPS issuers and non-issuers, which is inconsistent with the earlier results of Benston et al. (2003). We find several capital structure characteristics of the TPS issuers are significantly different from non-issuers and play a significant role in the probability of banks issuing TPS. Although the liability characteristics including brokered funds are not different for TPS issuers and non-issuers, a bank with higher proportion of brokered funds are less likely to issue TPS, which is again inconsistent with the earlier results of Benston et al. (2003).

Benston et al. (2003) suggest convergence of financial characteristics of issuers and non-issuers over time. We find that the asset and capital structure characteristics of the individual TPS issuers and non-issuers have not converged during the period 1996 – 2004 but the income and liabilities characteristics appear to have converged, though the number of issuers during the later period decreases.

By comparing the pre-issue and the post-issue characteristics of the issuers and non-issuers of TPS, we have clarified that the primary reasons are related to capital structure and not to of tax, liability or the asset structure of a bank. Our empirical results support our argument on why banks issue TPS, based on the TPS issue behavior of banks .

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Table 1
Sample Characteristics

Year of TPS Issue	# Issuers from SDC Database	# Issuers matched in SDC-FR-Y9C Databases	Unique First-time Issuers	Non-issuers	Total for the Year
1996	24	22	22	133	155
1997	58	49	40	123	163
1998	33	25	13	126	139
1999	17	13	6	143	149
2000	13	9	3	140	143
2001	14	14	6	112	118
2002	13	9	4	102	106
2003	7	7	1	110	111
2004	7	6	1	99	100
TOTAL	**186**	**154**	**96**	**1088**	**1184**

Data are from SDC Platinum Database by Thomson Financial Services; FR-Y9C – Database of the Federal Reserve Bank for the Income Statement and Balance Sheet of all the public and private Bank Holding Companies. Issuers are defined as banks or holding companies that issue Trust Preferred Stock in year t.

Table 2
Comparison of Mean Pre-issue and Mean Post-issue Characteristics of the TPS Issuing Banks

Financial Characteristic	Pre-Issue (N = 96)	Post-Issue (N = 96)	t-Statistics for difference
Assets			
Total Assets	28500000	33000000	-0.37
Risk-weighted Assets	16600000	32800000	-1.35
Foreign Assets	576391	593301	-0.06
Foreign Assets / Total Assets	0.0092	0.0087	0.11
Coml. Loan-Domestics	3410000	4120000	-0.59
Coml. Loan – Foreign	971032	1170000	-0.22
Commercial Loans	4450000	5290000	-0.48
Coml. Loans / Total Assets	0.1353	0.1407	-0.45
Non-Performing Assets	196767	218630	-0.25
Non-Perform. Loans / Total Assets	0.0059	0.0055	0.70
Past Due > 90 days	57977	59540	-0.07
Non Accruals	138789	159090	-0.30
Capital Structure			
Book Equity	2040000	2440000	-0.49
Tier 1 Capital	1130000	2290000	-1.47
Tier 2 Capital	518773	875101	-0.58
Common Stock	140897	156353	-0.25
Retained Earnings	1310000	1560000	-0.40
Preferred Stock	112154	120476	-0.16
Subordinated Notes & Debentures	532754	670887	-0.63
Preferred Stock – Issued	16532	13600	0.25
Preferred Stock –Repurchased	-19345	-21677	0.17
Common Stock Issued	20865	13538	0.66
Common Stock Repurchased	-9895	-34295	0.66
Risk-based Capital	1540000	3240000	-1.60
Minority Holdings	115049	268583	-1.54
Pref. Stock / Book Equity	0.0383	0.0286	0.94
Owners equity / Book Equity	0.6589	0.6911	-0.85
Book Equity / Total Assets	0.0779	0.0758	1.07
Risk-based Capital / Total Assets	0.0643	0.0932	-6.26***
Sub. Notes & Deben. / Total Assets	0.0088	0.0091	-0.17
Tier 2 Capital / Total Assets	0.0050	0.0121	-4.08***
Stocks Issued / Book Equity	0.0351	0.0195	1.46
Stocks repurchased / Book Equity	0.0045	0.0033	0.56

***= Significant at the 1% level
**= Significant at the 5% level
*= Significant at the 10% level

Table 2 continued
Comparison of Mean Pre-issue and Mean Post-issue Characteristics of the TPS Issuing Banks

Financial Characteristic	Pre-Issue (N = 96)	Post-Issue (N = 96)	t-Statistics for difference
Liabilities			
Brokered Deposits	545635	1310000	2.67***
Foreign Deposits	4190000	4570000	-0.12
Uninsured Deposit	1190000	1650000	-1.18
Total Liabilities	26500000	30500000	-0.36
Income			
Net Interest Income	889871	1040000	-0.42
Non-interest Income	787674	946445	-0.31
Loan Loss Allowance	97756	139111	-0.70
Earnings Before Tax (EBT)	479687	556813	-0.36
Tax Paid	168862	195087	-0.34
Earnings After Tax	307301	354443	-0.35
Non-int. Income / EBT	1.1754	0.9757	0.90
Tax Paid / EBT	0.3343	0.3340	0.04
Net Interest Income / EBT	2.8765	2.2407	1.13
Loan Loss Allowance / EBT	0.2988	0.1601	1.08
Earnings After Tax / EBT	0.7004	0.6742	0.60

***= Significant at the 1% level
**= Significant at the 5% level
*= Significant at the 10% level

Table 3
Comparison of Mean Pre-issue and Mean Post-issue Characteristics of the TPS Non- Issuing Banks

Financial Characteristic	Pre-Issue (N = 1088)	Post-Issue (N =1088)	t-Statistics for difference
Assets			
Total Assets	8130000	9250000	-1.14
Risk-weighted Assets	6900000	8850000	-2.04**
Foreign Assets	20681	26459	-0.56
Foreign Assets / Total Assets	0.0007	0.0007	0.03
Coml. Loan-Domestics	1170000	1330000	-1.04
Coml. Loan - Foreign	60337	67894	-0.37
Commercial Loans	1240000	1400000	-1.03
Coml. Loans / Total Assets	0.1257	0.1256	0.02
Past Due > 90 days	13653	15003	-0.49
Non Accruals	31969	35749	-1.08
Non-Perform. Loans / Total Assets	0.0056	0.0054	1.01
Capital Structure			
Book Equity	669010	763368	-1.35
Tier 1 Capital	522145	666356	-2.33**
Tier 2 Capital	151673	208481	-1.80
Common Stock	100798	110932	-0.83
Retained Earnings	381657	442992	-1.40
Preferred Stock	8249	8778	-0.23
Subordinated Notes & Debentures	119426	144920	-1.06
Preferred Stock - Issued	1170	1087	0.15
Preferred Stock -Repurchased	-673	-642	-0.08
Common Stock Issued	6934	7101	-0.10
Common Stock Repurchased	-9110	-8984	-0.05
Risk-based Capital	679321	874702	-2.18**
Minority Holdings	36950	43495	-0.93
Pref. Stock / Book Equity	0.0089	0.0085	0.24
Owners Equity / Book Equity	0.6999	0.7179	-1.51
Book Equity / Total Assets	0.0899	0.0896	0.29
Risk-based Capital / Total Assets	0.0836	0.0946	-8.76***
Sub. Notes & Deben. / Total Assets	0.0035	0.0038	-0.88
Tier 2 Capital / Total Assets	0.0099	0.0120	-4.97***
Stocks Issued) / Book Equity	0.0158	0.0127	1.33

***= Significant at the 1% level
**= Significant at the 5% level
*= Significant at the 10% level

Table 3 continued
Comparison of Mean Pre-issue and Mean Post-issue Characteristics of the TPS Non- Issuing Banks

Financial Characteristic	Pre-Issue (N = 1088)	Post-Issue (N =1088)	t-Statistics for difference
Liabilities			
Brokered Deposits	479472	590460	-2.49**
Foreign Deposits	358458	409441	-0.38
Uninsured Deposit	626480	728337	-1.92
Total Liabilities	7440000	8460000	-1.12
Income			
Non-interest Income	140285	166814	-1.19
Loan Loss Allowance	23529	26548	-0.83
Earnings Before Tax (EBT)	139170	161937	-1.51
Tax Paid	45784	53090	-1.50
Earnings After Tax	92994	108415	-1.50
Tax Paid / EBT	0.3248	0.3252	-0.04
Net Interest Income / EBT	2.1397	2.1713	-0.07
Loan Loss Allowance / EBT	0.0911	0.1001	-0.05
Non-int. Income / EBT	0.6838	0.7399	-0.33
Earnings After Tax / EBT	0.6727	0.6791	-0.48

***= Significant at the 1% level
**= Significant at the 5% level
*= Significant at the 10% level

Table 4
Comparison of the Difference in the Mean Pre-Issue and the Mean Post-Issue Characteristics of the TPS Issuers and TPS Non- Issuers

Financial Characteristic	TPS Issuers (N = 96)	TPS Non-Issuers (N =1088)	t-Statistics for difference
Assets			
Total Assets	8090000	1440000	-4.32***
Risk-weighted Assets	25400000	2560000	-8.00***
Foreign Assets	182261	15319	-0.85
Foreign Assets / Total Assets	0.0008	0.0003	0.46
Coml. Loan-Domestics	1070000	215876	-4.61***
Coml. Loan - Foreign	498828	16373	-5.03***
Commercial Loans	1540000	231530	-5.28***
Coml. Loans / Total Assets	0.0103	0.0012	-2.75***
Past Due > 90 days	14755	3526	-0.05
Non Accruals	52116	6051	-2.69***
Non-Performing Assets	47502	8536	-2.40**
Non-Perform. Loans / Total Assets	0.0000	0.0000	0.56
Capital Structure			
Book Equity	726011	120169	-4.73***
Tier 1 Capital	1760000	184072	-8.62***
Tier 2 Capital	274228	29695	-3.06***
Common Stock	29308	17722	-0.40
Retained Earnings	451573	81069	-4.24***
Preferred Stock	45071	1720	-1.89*
Subordinated Notes & Debentures	276821	35262	-5.08***
Preferred Stock - Issued	19149	915	0.70
Preferred Stock -Repurchased	17645	837	0.85
Common Stock Issued	13861	2843	1.26
Common Stock Repurchased	10515	2597	3.73***
Risk-based Capital	2620000	250976	-8.72***
Minority Holdings	212790	11983	-12.32***
Pref. Stock / Book Equity	0.0011	0.0008	3.32***
Owners equity / Book Equity	0.0653	0.0233	-1.21
Book Equity / Total Assets	-0.0001	0.0003	1.82*
Risk-based Capital / Total Assets	0.0366	0.0132	-4.58***
Sub. Notes & Deben. / Total Assets	0.0013	0.0006	-0.39
Tier 2 Capital / Total Assets	0.0014	0.0006	-0.11
Stocks Issued / Book Equity	0.0039	0.0012	1.46
Stocks Repurchased/ Book Equity	0.0020	0.0010	1.70*

***= Significant at the 1% level
**= Significant at the 5% level
*= Significant at the 10% level

Table 4 continued
Comparison of the Difference in the Mean Pre-Issue and the Mean Post-Issue Characteristics of the TPS Issuers and TPS Non- Issuers

Financial Characteristic	TPS Issuers (N = 96)	TPS Non-Issuers (N =1088)	t-Statistics for difference
Liabilities			
Brokered Deposits	1170000	142645	-7.99***
Foreign Deposits	1690000	102670	-2.89***
Uninsured Deposit	768597	132613	-5.21***
Total Liabilities	7410000	1320000	-4.23***
Brokered Deposits / Total Liabilities	0.0254	0.0128	-1.47
Uninsured Deposit / Total Liabilities	0.0461	0.0328	-1.31
Foreign Deposits / Total Liabilities	0.0019	0.0007	1.19
Income			
Net Interest Income	242955	40467	-5.31***
Non-interest Income	342789	35594	-4.20***
Loan Loss Allowance	87770	5207	-4.87***
Earnings Before Tax (EBT)	267860	29851	-1.76*
Tax Paid	94231	9626	-1.74*
Earnings After Tax	167998	20308	-1.60
Non-int. Income / EBT	0.1982	0.3839	0.45
Tax Paid / EBT	0.0097	0.0213	0.06
Net Interest Income / EBT	0.3946	0.9371	0.43
Loan Loss Allowance / EBT	0.1054	0.3866	0.24
Earnings After Tax / EBT	0.0424	0.0261	0.83

***= Significant at the 1% level
**= Significant at the 5% level
*= Significant at the 10% level

Table 5
Multivariate Analysis of TPS-Issuers and Non-Issuers 1996 - 2004

	Model I - Level of Assets		Model II - Risk-Weighted Assts.		Model III - Log of Assets	
Characteristic	**Estimate**	**p-value**	**Estimate**	**p-value**	**Estimate**	**p-value**
Intercept	0.5447	0.5559	0.7405	0.4180	-3.3240*	0.0633
Assets (per column heading)	0.0000*	0.0587	0.0000	0.5051	0.2685***	0.0067
Commercial Loan / Total Assets	1.1487	0.4630	1.4097	0.3598	0.8349	0.6015
Non-Performing Loan /Total Assets	21.7399	0.4757	22.8732	0.4462	19.7534	0.5234
Tax Paid / Earnings Before Tax (EBT)	0.0464	0.9660	0.1550	0.8867	-0.1818	0.8703
Net Interest Income /EBT	-0.0061	0.9252	-0.0138	0.8317	0.0097	0.8864
Loan Loss Allowance / EBT	0.1693	0.4673	0.1867	0.4144	0.1333	0.5945
Preferred Stock / Book Equity	3.1490	0.1423	3.3026	0.1212	2.8729	0.1801
Book Equity / Total Assets	-35.9647***	0.0006	-38.3572***	0.0002	-35.7977***	0.0006
Risk-Based Capital / Total Assets	1.9525	0.6652	2.8897	0.5349	1.9055	0.6678
Stocks Issued / Book Equity	4.3570**	0.0322	4.2791**	0.0365	4.6221**	0.0253
Stocks Repurchased / Book Equity	16.6701**	0.0414	16.8545**	0.0383	16.4995**	0.0461
Brokered Deposit / Total Liability	-12.0398***	0.0014	-13.050***	0.0006	-12.2436***	0.0012
Model Statistics:						
Likelihood Ratio	53.1165		60.00050		60.0005	
Score	51.2176		58.64300		58.6430	
Wald	43.8954		49.40380		49.4038	
% Concordant	74.8000		74.50000		75.5000	

***= Significant at the 1% level
**= Significant at the 5% level
*= Significant at the 10% level