

## **Comments on “What Does the Yield on Subordinated Bank Debt Measure?” by Urs W. Birchler and Diana Hancock**

By Kathleen McDill

### **Introduction:**

This is a very interesting paper, which is well thought through and carefully implemented. It essentially asks the general question, “Are subordinated debt spreads measuring what we think they are measuring?” This is a particularly important question if debt spreads may be used as part of the regulatory process. To use subordinated debt spreads to measure risk, we need to have a clear understanding of what factors, including non-risk related factors, may be influencing prices.

Birchler and Hancock look into an aspect that may be influencing the debt spreads that is not purely an effect of risk. They examine, both theoretically and empirically, the existence of an incentive premium as well as a risk premium.

### *Theoretical Results*

The model suggests two main theoretical results. The first is that buyers with different information sets explain the existence of different types of debt. The model does this by having buyers that fall into two types, the uninformed and the informed. If you have two types of participants it may be advantageous for a bank to set up contracts where in the participants reveal their preferences.

It would make sense for a bank to have more than one debt instrument when participants have different beliefs about the probability that the bank may fail. If one set of participants is more optimistic than the other, the optimists will put less weight on the

payout if there is a bad outcome. For the optimists the bank has a subordinated debt contract. For the less optimistic there is senior debt. Thus, it explains the simultaneous existence of both senior and subordinated debt.

The second result is that once there are several types of debt, banks have to offer an incentive premium to get the participants to choose the right contract. Thus, not only is it necessary to pay subordinated debt holders a premium to hold the riskier asset, but the bank must also pay them an incentive premium to prefer it to the standard senior contract.

### *Empirical Implementation*

The authors look at both the issuance decision for senior and subordinated debt and the issuance spreads for both types of debt to see if the types of debt respond differently. They use a sample selection model for the issuance spread, which controls for the effect of the issuance decision. The sample was broken into two periods one before the implementation of both FDICIA and depositor preference<sup>1</sup> and the other after these two reforms were implemented. Included in these regressions were controls for bank and market risk, which would be available to both uninformed and informed buyers, and the BOPEC<sup>2</sup> rating of the debt-issuing institution, which proxies for the private information that the informed buyers might have.

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<sup>1</sup> Depositor preference enacted in 1993, made domestic depositors, both insured and uninsured, senior to other unsecured general creditors.

<sup>2</sup> This is a composite supervisory rating which stands for Bank subsidiaries, Other non-bank subsidiaries, Parent company, Earnings and Capital adequacy.

### *Empirical Results*

The authors find differences in issuance patterns of subordinated debt and senior debt to private information. Particularly, they find that the issuance of senior debt is positively associated with bad private information, which gives support to the hypothesis that informed investors are influencing the issuance decision. It seems that some investors are moving in and out of the market based on private information.

However, they do not find any systematic difference in risk aversion between the two types of investors, which again supports the hypothesis that it may be an informational difference driving the differences in investors, rather than a risk aversion difference.

They also find that senior spreads do not react much to bad private information. After the introduction of FDICIA and depositor preference, the subordinated debt spreads showed an increased responsive to market information rather than private information. This may indicate that the incentive premium is becoming more important.

### **Commentary:**

I would like to comment on a few features of the paper. First of all this paper provides a nice link between a theoretical proposition (according to which different seniorities could indicate different types of investors) and empirical findings that support the theory (different seniorities respond differently to private information).

Also, given the importance of the issuance decision in the theoretical model, it was good to see that the authors had considered this problem in the regressions for the

debt spread. They did this by implementing a sample selection model for the spread decision, based on the regressions for the issuance decision.

The stacked data modeling technique is a novel approach to testing whether the different seniorities respond differently. I gather that it is a technique which was specifically designed to highlight the differences in the responses of the two types of bonds to the same explanatory variables.

One thing that is left less than clear in the theoretical section is the difference in the outcomes that occur when a signal is “good”, as in the informed participants get positive information, versus when the informed participants get a “bad” or negative signal. This plays out in the outcome after the signal has been received by the informed participants. If the signal is good then the informed participants buy subordinated debt, and the uninformed participants buy senior debt. If the signal is bad then the informed participants buy neither subordinated nor senior debt, and the only type of participant buying debt is the uninformed buyer. The model as it is shown in this paper does not include the duality of these outcomes.

However, an earlier theoretical paper by Birchler (in the *Review of Financial Services* in 2000) models this very effect of a negative signal on the types and quantities of debt purchased.<sup>3</sup> Introducing this feature in the present paper would greatly add to the analysis. For example, the theoretically implied result, that subordinated debt is only issued when the private information is good, comes though very clearly in the empirical results. This empirical result can be seen in Table 3.3 which appears after page 24 in the paper. A small piece of Table 3.3 has been included below.

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<sup>3</sup> Birchler, Urs W., “Bankruptcy Priority for Bank Deposits: A Contract Theoretic Explanation”, *Review of Financial Studies*, Fall 2000, v. 13, iss. 3, pp. 813-40

**Table 3.3**  
**Parameter Estimates for the Issuance Decision Model**  
**of Large U.S. Banking Organizations**

Explanatory Variables	Dependent Variable / Deposit Insurance Regime							
	Subordinated Issuance				Senior Issuance			
	Pre-FDICIA 86-01-92-04	Expected Sign?	Post-FDICIA 93-01-99-04	Expected Sign?	Pre-FDICIA 86-01-92-04	Expected Sign?	Post-FDICIA 93-01-99-04	Expected Sign?
<i>Supervisory Pressure</i>								
An indicator variable that equals one if the composite supervisory rating equals 2 (BOPEC2)	0.093 (0.76)	X	-0.160 (-1.50)		0.218 (1.38)	X	0.361 (2.93)	X
An indicator variable that equals one if the composite supervisory rating equals 3, 4 or 5 (BOPEC345)	-0.157 (-0.89)		-0.004 (-0.98)		0.503 (2.51)	X	0.348 (0.77)	X

An increase in the BOPEC rating indicates a worsening of the private information. Not only does the positive sign on the senior debt issuance decision indicate that senior debt is more likely to be issued when the private information is bad, but the signs on the subordinated debt columns indicate that subordinated debt is more likely to be issued when the private information is good. Drawing from the theory, I would tend to consider the negative sign in the subordinated debt columns to be the expected direction for the sign of these coefficients. This connection would make yet another strong parallel between the theoretical and empirical results.

On the more empirical front, another change that might enhance the results would be to consider more explicitly the change in seniority that the 1993 implementation of depositor preference might have had on the purchasers of bank debt, specifically senior debt. Essentially, the enactment of depositor preference in the US, put the seniority of

even senior debt holders behind that of all domestic depositors, greatly decreasing the likelihood of any payment in the case a bank failed. It would be very interesting to see if the proportion of domestic deposits to total liabilities affects the spreads and/or the decision to issue senior debt, and, particularly, to see if there has been a change in the response of senior debt to this deposit variable after the legislative change.