

Division Of Labor In Banking: An Analysis Of Credit Derivative Usage By Commercial Banks

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ABSTRACT

For the period 2002-2005, we examine a sample of 131 end-of-year observations for 57 banks that participate in the credit derivatives market. We find that buyers of credit protection tend to be loan sellers and may have a comparative advantage in loan origination, while credit protection sellers tend to be loan buyers and may have a comparative advantage in funding loans. Furthermore, some net credit protection buyers may derive an advantage as loan originators from a high-quality reputation, while others seem to be better able to break down informational barriers due to their position as market makers in credit derivatives.

Keywords: Credit derivatives; Commercial banks; Loan sales

1. INTRODUCTION

Similar to loan sales and securitizations, the use of credit derivatives has allowed commercial banks to separate the origination of loans from the credit risk exposure associated with the funding and holding of loans. In contrast to interest rate derivatives and foreign exchange derivatives, credit derivatives¹ are traded by a relatively small number of large commercial banks, other financial institutions, non-financial corporations and hedge funds (Brandon and Fernandez, 2005). Research regarding banks' use of credit derivatives and its consequences has begun, but we are aware of no published work that examines the reasons why some commercial banks are net credit protection buyers while others are net credit protection sellers.²

Demsetz (2000) documents that banks specializing in loan sales tend to have a comparative advantage in loan originations, while banks specializing in loan purchases tend to have a comparative advantage in funding loans. Banks are better able to engage in frequent loan originations when they keep moving credit risks off their books. Thus, the loan originators are expected to be more heavily involved not only in loan sales, but also in securitizations and the purchase of credit protection. In contrast, banks that are better at funding loans would be expected to buy loans and assume credit risks that others wish to shed by selling credit protection.

We are unable to compare loan origination amounts or frequencies across banks to verify that net credit protection buyers specialize in loan originations while net credit protection sellers specialize in loan funding. However, we can identify some characteristics that give banks a competitive edge when negotiating loan terms and, thus, make them more likely to specialize in loan originations.

First, a bank is able to negotiate better loan terms during the loan origination process when it has access to inside information about the borrower. Acharya and Johnson (2007) find evidence of insider trading in the market for credit derivatives, which suggests that market makers in credit derivatives have access to more private information about a given borrower than non-market-makers or non-users. The incremental private information available to market makers in credit derivatives likely influences the loan terms negotiated by these banks and makes them more competitive.³ Furthermore, market makers may specialize in loan originations and loan sales,

because they are better connected in the financial community and can find buyers for their loans more easily than non-market-makers. We define market makers as those banks that have the largest total notional amounts of credit derivatives (amounts where bank is guarantor plus amounts where bank is beneficiary) per dollar of assets.

Second, a bank with a reputation for high-quality lending is likely able to originate loans with very high-quality borrowers due to superior screening and monitoring technologies that allow the bank to offer lower rates or more attractive loan terms than competing lenders (Ross, 2006). Highly reputable banks may also be able to charge certification premiums as part of the loan rates they offer when they lend to lesser known, high-quality borrowers (Cook et al., 2003) and thus have a comparative advantage in loan originations for that reason. We use ratings from Highline Data's *Bank Rating Report* as proxies for bank reputation to test if net protection buyers tend to have higher bank ratings.

Consistent with the results of Demsetz (2000), we suggest that net buyers of credit protection similar to loan sellers, are better able to negotiate loan terms and originate loans. We test two independent, not necessarily mutually exclusive, hypotheses. The *market maker hypothesis* suggests that net buyers of credit protection are market makers in credit derivatives and have greater total notional amounts of credit derivatives per dollar of assets than net sellers of credit protection. The *reputable lender hypothesis* suggests that net buyers of credit protection have better reputations (higher ratings) than net sellers of credit protection.

To test these two hypotheses, we segregate the group of net buyers into those that only buy credit protection (referred to as "only buyers") and those that buy and sell but take net buy positions (referred to as "sell-buyers"). The sum of "sell-buyers" and "only buyers" is referred to as "net buyers." Similarly, we segregate the group of net sellers into those that only sell credit protection (referred to as "only sellers") and those that buy and sell but take net sell positions (referred to as "buy-sellers"). The sum of "buy-sellers" and "only sellers" is referred to as "net sellers." We also rank the bank observations by net credit protection bought per dollar of assets and identify observations in the top, middle and bottom thirds. Thus, we are able to compare only buyers and sell-buyers in the top third of bank observations with only sellers and buy-sellers in the bottom third of bank observations.

Our empirical results are consistent with the notion that net credit protection buyers may be better at originating and selling loans, while net credit protection sellers may have a comparative advantage in funding and buying loans. We provide support for both the *market maker hypothesis* and the *reputable lender hypothesis*. Only buyers in the top third of net credit protection buyers seem to have higher quality ratings than any of the other credit derivative users, even though their asset size is relatively small and they are not among the top market makers in credit derivatives. Sell-buyers in the top third of net credit protection buyers have the largest mean asset size and appear to be market makers in credit derivatives. Their quality ratings are surprisingly low, perhaps because their status as market makers allows them to specialize in loan originations in spite of their relatively poor lender reputations.

The following section describes our data and sample selection. In section 3, we discuss the empirical tests and results. Section 4 summarizes and concludes.

2. SAMPLE AND DATA

Our sample of banks is obtained from the Federal Deposit Insurance Corporation (FDIC) database for the years 2002-2005. We exclude banks that are not members of the Federal Reserve System. The remaining sample includes 2891 end-of-year observations of banks engaged in derivative activities as reported in Table 1. Of these, there are 83 observations of net credit protection buyers, 48 observations of net credit protection sellers and 2,760 observations of non-users, i.e. banks that use in a given year interest rate and/or foreign exchange derivatives, but not credit derivatives. Of the net buyer observations, there are 45 only buyer observations and 38 sell-buyer (those that buy and sell credit protection but take net buy positions) observations. Of the net seller observations, there are 20 only seller observations and 28 buy-seller (those that buy and sell credit protection but take net sell positions) observations.

Table 1: Sample of banks engaged in derivative activities, 2002-2005

Sample Banks	2005	2004	2003	2002	Total
Non-users ^a	892	739	633	496	2,760
Sell-buyers ^b	10	10	11	7	38
Only buyers ^c	13	13	12	7	45
Net buyers ^d	23	23	23	14	83
Buy-sellers ^e	9	8	5	6	28
Only sellers ^f	5	3	3	9	20
Net sellers ^g	14	11	8	15	48
Total	929	773	664	525	2,891

^a Non-users: Banks that do not buy nor sell credit protection (but engaged in other derivative activities).

^b Sell-buyers: Banks that buy and sell credit protection with buy positions exceeding sell positions.

^c Only buyers: Banks that buy (but not sell) credit protection.

^d Net buyers: Sell-buyers plus only buyers.

^e Buy-sellers: Banks that buy and sell credit protection with sell positions exceeding buy positions.

^f Only sellers: Banks that sell (but not buy) credit protection.

^g Net sellers: Buy-sellers plus only sellers.

A comparison of the observations over time reveals a steady increase in non-user of credit derivatives observations from 2002 to 2005. A relatively large increase in net buyer observations from 2002 to 2003 was accompanied by a relatively large decrease in net seller observations during the same time period. After 2003, the number of net buyer observations remained constant. From 2003-2005, there were increases each year in the number of net seller observations until the number of net seller observations in 2005 fell only one short of the number of net seller observations in 2002.

Table 2 lists the names of the 57 banks that took positions in credit derivatives in at least one of the years during the 2002-2005 time period. Credit derivative usage patterns appear to be fairly stable over time, although a given bank may change its usage pattern from one year to the next. Of the 57 banks, 34 banks took credit derivative positions in more than one year. Of those 34 banks, 13 banks changed their usage pattern once during the 2002-2005 time period. Only one bank (PNC) changed its credit derivative usage pattern twice during these four years.

3. Empirical results

3.1 Loan origination versus loan funding

We first compare selected characteristics of net credit protection buyers with those of net credit protection sellers. We find support for the notion that net credit protection buyers tend to specialize in loan sales and securitizations and may have a comparative advantage in loan originations. Net credit protection sellers appear to be more likely to buy and fund loans.

Tables 3 and 4 show that net credit protection buyers tend to be larger than net credit protection sellers with both lower gross loans-to-assets and deposits-to-assets ratios. Both the means and medians of these variables are significantly different in both tables, except for the medians of the gross loans-to-assets ratio in Table 3. There are no significant differences in the proportion of foreign loans (non-US loans/gross loans) held by the two groups. Net buyers may be slightly more diversified across different loan categories than net sellers, but it is only the difference between medians in Table 4 that is statistically significant. Net buyers are more profitable than net sellers with significantly higher means and medians for the return-on-assets and the return-on-equity measures reported in both Tables 3 and 4. These tables also show that net buyers derive greater proportions of their revenues from non-interest income sources. This result is consistent with the notion that net buyers of credit protection tend to specialize in loan originations, loan sales, securitizations and other off-balance sheet activities. Consistent with greater profitability, net buyers are less levered, with higher equity to asset ratios than net sellers, although the differences between the medians of capital ratios are not all statistically significant.

Table 2: Sample banks' credit derivative usage pattern, 2002-2005

Bank Name	2005	2004	2003	2002
AmSouth Bank		OB		
Bank Hapoalim B.M.	BS	BS	BS	BS
Bank Leumi USA	OS	OS	OS	OS
Bank of America, National Association	SB	SB	SB	SB
Bank of Tokyo – Mitsubishi Trust Company	BS	OB	OB	
Bank One, National Association (IL)			SB	
Bank One, National Association (OH)				SB
Citibank, National Association	SB	SB	BS	BS
Citizens Bank New Hampshire	OB			
Citizens Bank of Massachusetts	BS	BS	BS	OS
Citizens Bank of Pennsylvania	BS	BS	BS	BS
Comerica Bank	SB			OS
Deutsche Bank Trust Company Americas	OB	OB	OB	OB
Enterprise National Bank of Palm Beach		OB	OB	OB
Fifth Third Bank (MI)	OB	BS		
Fifth Third Bank (OH)	BS	BS		
First American Bank (IA)	OS			
First American Bank (OK)		OS		
First Tennessee Bank, National Association				OS
Fleet National Bank		BS	SB	SB
Hanover Bank		OS		
Harris National Association	BS	BS	OS	OS
HSBC Bank USA (DE)	BS	BS		
HSBC Bank USA (NY)			BS	BS
JPMorgan Chase Bank (OH)	SB	SB		
JPMorgan Chase Bank (NY)			SB	SB
Juniper Bank			OB	
Keybank National Association	BS	SB	SB	
LaSalle Bank, National Association	OB			
Mellon Bank, National Association	OB	OB	OB	
Merrill Lynch Bank U.S.A.	OB	OB	OB	SB
Midwest Bank and Trust Company				OS
Morgan Stanley Bank	OB	OB	OB	OB
Mutual Savings Bank	OS			
National Bank of Kansas City	OB			
National City Bank	SB	SB	SB	
National City Bank of Pennsylvania	OB			
Oriental Bank and Trust	OB			
Palmetto State Bank	OB	OB	OB	OB
PNC Bank, National Association	SB	OB	OB	SB
Regions Bank	OB			
Standard Federal Bank, National Association				OB
Sun Trust Bank	SB	SB	SB	OS
Texas Sate Bank	OS			
The Bank and Trust, s.s.b.		OB		
The Bank of New York	SB	SB	SB	BS
The Citizens Bank (AR)		OB		
The Citizens Bank (GA)			OB	
The Northern Trust Company	OB	OB	OB	OB
The Park Avenue Bank, National Association			OS	OS
The Provident Bank		OB	OB	OB
U.S. Bank National Association	BS	SB	SB	
Wachovia Bank, National Association	SB	SB	SB	SB
Wells Fargo, National Association (SD)	SB	SB		
Wells Fargo, National Association (CA)			SB	BS
Wells Fargo HSBC Trade Bank, N.A.				OS
Wolf River Community Bank	OS			

Sell-buyers (SB): Banks that buy and sell credit protection with buy positions exceeding sell positions.

Only buyers (OB): Banks that buy (but not sell) credit protection.

Buy-sellers (BS): Banks that buy and sell credit protection with sell positions exceeding buy positions.

Only sellers (OS): Banks that sell (but not buy) credit protection.

Top buyers of credit protection have a significantly higher proportion of commercial and industrial (C&I) loans sold and a higher proportion of loans held for sale than top sellers (see Table 4). C&I loan securitizations are also higher but not statistically significant. Finally, the group of top buyers appears to include market makers in all types of derivative contracts (interest rates, foreign exchange and credit derivatives).

Table 3: Comparisons of characteristics of net buyers versus net sellers of credit derivatives, 2002-2005

Variables	Net buyers ^a	Net sellers ^b	p-values ^c	Net buyers	Net sellers	p-values ^d
	83 Means	48 Means		83 Medians	48 Medians	
Total Assets (\$mil)	164,885	63,265	0.010	53,557	23,102	0.009
Gross loans/Assets	52.639	58.387	0.056	55.240	58.320	0.170
Deposits/Assets	65.457	70.059	0.069	67.800	71.990	0.030
Non-US loans/Gross Loans	4.762	7.844	0.134	1.988	0.434	0.893
Loan Herfindahl Index	0.456	0.484	0.385	0.400	0.440	0.132
Profitability						
Noninterest income/Total income	36.006	22.043	0.000	31.836	19.323	0.000
Return on assets	1.269	0.761	0.018	1.236	0.903	0.000
Return on equity	14.513	9.272	0.021	14.702	10.026	0.001
Capital ratios						
Total risk-based capital ratio	14.665	11.049	0.002	11.892	11.469	0.047
Tier 1 risk-based capital ratio	11.796	8.659	0.006	9.193	8.863	0.117
Core capital ratio	9.774	7.109	0.026	7.103	6.978	0.148
Loan sale and securitization						
C&I loan securitizations/C&I loans	2.007	0.881	0.425	0.000	0.000	0.111
C&I loans sold/C&I loans	0.005	0.000	0.074	0.000	0.000	0.021
Loans held for sale/Gross loans	0.057	0.034	0.185	0.023	0.007	0.002
Derivative activities						
Interest rate contracts/Assets	495.474	194.308	0.057	55.354	21.103	0.023
Foreign exchange contracts/Assets	63.878	41.457	0.267	5.384	5.913	0.679
Notional amt. of credit der./Assets ^e	17.564	11.405	0.384	3.514	0.683	0.004

^a Net buyers: Only buyers + sell-buyers (banks that buy and sell credit protection with buy positions exceeding sell positions).

^b Net sellers: Only sellers + buy-sellers (banks that buy and sell credit protection with sell positions exceeding buy positions).

^c p-values for equality of means.

^d p-values for equality of medians.

^e Notional amount of credit derivatives/Assets.

3.2 Market Makers Versus Reputable Lenders

Given that net credit protection buyers are larger, have lower loans-to-assets ratios, greater proportions of non-interest revenue, higher profitability, higher capital ratios and greater proportions of loan sales than net sellers, we further test the notion that net credit protection buyers may have a comparative advantage in loan originations. To that end, we examine whether the group of net buyers is homogeneous or whether we can identify sub-samples within this group.

Table 5 sheds light on differences between only buyers and sell-buyers of credit protection. Sell-buyers are significantly larger than only buyers and more diversified across different loan categories. While both sub-groups have similar deposits-to-assets ratios, only buyers have significantly lower loans-to-asset ratios. The proportion of non-US loans is greater for sell-buyers, but only the difference in medians is statistically significant. Only buyers appear to derive a higher proportion of their revenues from non-interest sources, but the differences in means and medians are not statistically significant. Returns on assets and equity are not significantly different. Interestingly, only buyers have significantly higher capital ratios suggesting that only buyers may be higher quality lenders than sell-buyers. However, there is no clear difference between the two groups in C&I loan securitizations, the proportion of C&I loans sold or the proportion of loans held for sale. Finally, there is a substantial difference in the

extent to which the two sub-groups are involved in derivatives activities. Sell-buyers appear to be market makers in interest rate, foreign exchange and credit derivative contracts, while only buyers' involvement is significantly weaker in all three derivative markets.

Table 4: Comparisons of characteristics of top buyers versus top sellers of credit derivatives, 2002-2005

Variables	Top buyers ^a	Top sellers ^b	p-values ^c	Top buyers	Top sellers	p-values ^d
	44 Means	44 Means		44 Medians	44 Medians	
Total Assets (\$mil)	251,021	68,299	0.001	72,435	26,065	0.000
Gross loans/Assets	47.726	56.736	0.005	52.112	57.106	0.016
Deposits/Assets	61.953	69.246	0.010	63.071	70.620	0.002
Non-US loans/Gross Loans	6.996	8.557	0.574	4.783	3.035	0.202
Loan Herfindahl Index	0.421	0.473	0.152	0.379	0.433	0.025
Profitability						
Noninterest income/Total income	40.334	23.168	0.000	36.769	21.040	0.000
Return on assets	1.249	0.761	0.004	1.231	0.903	0.002
Return on equity	14.073	9.452	0.052	13.989	10.026	0.056
Capital ratios						
Total risk-based capital ratio	15.882	10.844	0.002	11.801	11.428	0.044
Tier 1 risk-based capital ratio	12.482	8.430	0.007	8.820	8.863	0.217
Core capital ratio	11.158	6.983	0.012	7.009	6.820	0.285
Loan sale and securitization						
C&I loan securitizations/C&I loans	3.754	0.961	0.166	0.000	0.000	0.007
C&I loans sold/C&I loans	0.009	0.000	0.021	0.000	0.000	0.003
Loans held for sale/Gross loans	0.085	0.037	0.042	0.049	0.002	0.000
Derivative activities						
Interest rate contracts/Assets	881.591	211.692	0.002	206.046	31.286	0.000
Foreign exchange contracts/Assets	109.017	45.139	0.019	23.484	6.933	0.029
Notional amt. of credit der./Assets ^e	29.700	12.424	0.079	8.916	0.949	0.000

^a Top buyers: Top third of bank observations ranked by net credit protection bought per dollar of assets.

^b Top sellers: Bottom third of bank observations ranked by net credit protection bought per dollar of assets.

^c p-values for equality of means.

^d p-values for equality of medians.

^e Notional amount of credit derivatives/Assets.

Suspecting that the sources of net buyers' competitive advantage as loan originators may be different for the only buyers versus the sell-buyers, we report in Table 6 the Highline Data's bank quality ratings⁴ and the extent of banks' involvement in credit derivatives for different sub-groups of our sample. Table 6 shows that sell-buyers in the top third of bank observations ranked by net credit protection bought per dollar of assets are, by far, the largest banks in our sample. However, their mean quality ratings are just barely above those of the only sellers, which are the lowest among all sub-group mean ratings. Yet, the top sell-buyers have the highest mean ratios of total notional amount of credit derivatives per dollar of assets and per dollar of loans. This group appears to represent the market makers in the credit derivatives market.

Only buyers in the top third of bank observations ranked by net credit protection bought per dollar of assets are much smaller, on average, than sell-buyers and buy-sellers. Yet, they have the highest mean quality ratings in the sample. While they cannot be considered market makers in credit derivatives, only buyers stand out as high-quality lenders, a status that undoubtedly enables them to attract high-quality borrowers and, most likely, facilitates the setting of competitive lending terms.

3.3 Regression Results

To support our previous results, we regress net credit protection purchased against proxies for market maker status, lender reputation, and loan sales. We also include the Loan Herfindahl Index as a measure of diversification across different loan categories to control for the return variability of a bank's loan portfolio. The regression model is as follows:

$$\text{NETBUY} = \alpha_0 + \beta_1 \text{DNOTITOP} + \beta_2 \text{DRANKTOP} + \beta_3 \text{LOANSALE} + \beta_4 \text{HLOAN} + \varepsilon \quad (1)$$

The dependent variable is net credit protection bought per dollar of assets (NETBUY). The first independent variable is our proxy for market maker status, DNOTITOP, which is a dummy taking the value of one when bank observations are in the top 20 percent of observations ranked by the total notional amount of credit derivatives per dollar of assets, and zero otherwise. To identify the highest-quality lender reputations, we use the second dummy variable, DRANKTOP, which equals one when bank observations are in the top 20 percent of observations ranked by Highline Data's National Ranking. Our proxy for loan sales is the variable, LOANSALE, which is defined as loans held for sale divided by gross loans. Finally, HLOAN is the Loan Herfindahl Index.

Table 5: Comparisons of characteristics of sell-buyers versus only buyers of credit derivatives, 2002-2005

Variables	Sell-buyers ^a	Only buyers ^b	p-values ^c	Sell-buyers	Only buyers	p-values ^d
	44	44		44	44	
	Means	Means		Medians	Medians	
Total Assets (\$mil)	331,125	24,505	0.000	193,351	16,980	0.000
Gross loans/Assets	58.322	47.840	0.007	58.350	54.147	0.018
Deposits/Assets	65.910	65.074	0.791	68.717	63.669	0.862
Non-US loans/Gross Loans	5.812	3.875	0.226	4.783	0.692	0.001
Loan Herfindahl Index	0.376	0.524	0.000	0.372	0.488	0.001
Profitability						
Noninterest income/Total income	34.297	37.449	0.441	31.636	40.259	0.728
Return on assets	1.302	1.241	0.839	1.243	1.226	0.742
Return on equity	16.235	13.058	0.298	14.618	14.719	0.342
Capital ratios						
Total risk-based capital ratio	11.350	17.465	0.000	11.186	12.991	0.000
Tier 1 risk-based capital ratio	8.032	14.975	0.000	8.050	10.889	0.000
Core capital ratio	6.773	12.309	0.001	6.571	8.602	0.000
Loan sale and securitization						
C&I loan securitizations/C&I loans	1.371	2.557	0.560	0.000	0.000	0.002
C&I loans sold/C&I loans	0.004	0.006	0.711	0.000	0.000	0.028
Loans held for sale/Gross loans	0.049	0.064	0.425	0.040	0.003	0.038
Derivative activities						
Interest rate contracts/Assets	1,039.773	35.844	0.000	493.968	18.078	0.000
Foreign exchange contracts/Assets	103.041	30.806	0.005	123.484	0.035	0.000
Notional amt. of credit der./Assets ^e	29.474	17.507	0.008	3.570	3.514	0.156

^a Sell-buyers: Banks that buy and sell credit protection with buy positions exceeding sell positions.

^b Only buyers: Banks that buy (but do not sell) credit protection.

^c p-values for equality of means.

^d p-values for equality of medians.

^e Notional amount of credit derivatives/Assets.

The regression results are presented in Table 7. As expected, all four explanatory variables are positive and significant. DNOTITOP, DRANKTOP and HLOAN are significant at the 1 percent level while the variable LOANSALE is significant at the 10 percent level. The adjusted R² equals .330. These results are consistent with a positive relationship between loan sales and net purchases of credit protection for credit derivative users, with higher intercepts for both high-quality lenders and market makers, two sub-samples of banks which likely act as loan

originators. Market makers appear to have a higher intercept than high-quality lenders which, in turn, have a higher intercept than all other users of credit derivatives. In other words, market makers appear to buy the most net credit protection per dollar of assets, even among the group of banks that likely specializes in loan originations. A possible explanation may be that the market makers, which consist mostly of large, well-diversified top sell-buyers, take on higher financial and credit risks than the smaller, less diversified high-quality lenders, which consist mostly of top only buyers.⁵ Controlling for other financial and credit risks with the rating dummy, DRANKTOP, our regression results suggest that greater diversification reduces the need for credit protection.

Table 6: Banks’s quality ratings and their credit derivative usage pattern, 2002-2005

Banks	Number of Observations	Asset Size (\$mil)	National Rating	Peer Rating	N. Amt. Cre. Der. to Assets^g	N. Amt. Cre. Der. to Loans^h
Top sell-buyers ^a	24	432,244	39.167	37.458	46.094	106.741
Top only buyers ^b	20	33,553	69.150	64.650	10.025	22.785
Mid sell-buyers ^c	14	157,778	54.143	49.786	0.983	1.303
Mid only buyers ^d	25	17,267	44.560	41.640	5.492	13.391
Buy-sellers ^e	28	98,694	45.292	42.667	18.384	31.471
Only sellers ^f	20	13,665	34.700	35.250	1.634	5.178
P-values for equality of means		0.0000	0.0002	0.0000	0.0003	0.0001

^aTop sell-buyers: banks that buy and sell credit protection with buy positions exceeding sell positions in the top third of bank observations ranked by net credit protection bought per dollar of assets.

^bTop only buyers: banks that buy (but not sell) credit protection in the top third of bank observations ranked by net credit protection bought per dollar of assets.

^cMid sell-buyers: banks that buy and sell credit protection with buy positions exceeding sell positions in the middle third of bank observations ranked by net credit protection bought per dollar of assets.

^dMid only buyers: banks that buy (but not sell) credit protection in the middle third of bank observations ranked by net credit protection bought per dollar of assets.

^eBuy-sellers: banks that buy and sell credit protection with sell positions exceeding buy positions in the bottom third of bank observations ranked by net credit protection bought per dollar of assets.

^fOnly sellers: banks that sell (but not buy) credit protection in the bottom third of bank observations ranked by net credit protection bought per dollar of assets.

^gNotional amount of credit derivatives/Assets.

^hNotional amount of credit derivatives/Loans.

Table 7: Regression results for the dependent variable NETBUY^a

Independent Variables	Coefficient	t-statistic	p-value
Constant	-7.891	-4.156*	0.0000
DNOTITOP ^b	7.594	4.687*	0.0000
DRANKTOP ^c	4.924	3.034*	0.0029
LOANSALE ^d	12.474	1.739**	0.0845
HLOAN ^e	16.403	4.051*	0.0000
R ² : 0.351; Adjusted R ² : 0.330			
F-statistic from regression: 16.505			
Probability of F-statistic from regression: p < 0.0000			

^aNETBUY: Net credit protection bought per dollar of assets.

^bDNOTITOP: Dummy taking a value of one when bank observations are in the top 20 percent of observations ranked by the total notional amount of credit derivatives per dollar of assets, and zero otherwise.

^cDRANKTOP: Dummy taking a value of one when bank observations are in the top 20 percent of observations ranked by Highline Data’s National Ranking, and zero otherwise.

^dLOANSALE: Loans held for sale/Gross loans.

^eHLOAN: Loan Herfindahl Index.

*Significant at the 1 percent level.

**Significant at the 10 percent level.

In summary, our results support the notion that the greatest net buyers of credit protection tend to be market makers in credit derivatives, or banks with reputations as high-quality lenders, that are likely to specialize in loan originations and loan sales. The net sellers of credit protection tend to be smaller, or lack high-quality reputations. These banks are more likely to buy and fund loans originated by others.

4. SUMMARY AND SUGGESTIONS FOR FUTURE RESEARCH

We investigate why some banks are net buyers of credit protection while others are net sellers of credit protection. Using a sample of 131 bank observations involving the use of credit derivatives over the 2002-2005 time period, we find support for the notion that net credit protection buyers are more heavily involved in loan sales and may specialize in loan originations, while net credit protection sellers are more likely to buy and fund loans.

Our results further suggest that only buyers and sell-buyers (those that buy and sell but take net buy positions) of credit protection in the top third of observations ranked by net credit protection bought per dollar of assets and may derive a competitive advantage as loan originators from different sources. Only buyers may be better able to attract high-quality borrowers on more favorable lending terms than their peers due to a superior reputation for high-quality lending. Sell-buyers may be better negotiators of lending terms due to the fact that, as market makers in credit derivatives, they enjoy access to inside information that is unavailable to their peers. Furthermore, these banks are likely to be better connected in the financial community and, thus, have an advantage in placing loans with third parties.

To further test whether banks specialize in different lending functions (e.g. loan originations versus loan funding) and whether this specialization is reflected in different credit derivative usage patterns, it would be useful to establish links between the lending terms a bank negotiates and its use of credit derivatives. Further research is also needed to establish whether banks that specialize in different lending functions are different with respect to their exposures to risk. And finally, one might investigate how and why a given bank's credit derivative usage pattern and functional specialization change over time.

NOTES

¹ Credit derivatives are off-balance sheet arrangements allowing the credit risk of an asset to be transferred from one party (the beneficiary or buyer of credit protection) to another (the guarantor or seller of credit protection) with payoffs depending on the occurrence of a credit event, such as failure to pay or restructuring. The two main types of credit derivatives are credit default swaps (CDS) and synthetic collateralized debt obligations (CDOs). See Neftci (2004) for definitions of these financial products.

² A related paper by Minton et al. (2008) analyzes the characteristics of net credit protection buyers and finds that they typically are heavily involved in commercial and industrial (C&I) lending and tend to use other methods of transferring credit risk, such as asset securitization. Hirtle (2007) reports that banks' ability to purchase credit protection has increased the credit supply particularly to large term borrowers. While the scope of our research is different, our results are consistent with those reported by these two studies.

³ Norden and Wagner (2007) document a positive relationship between changes in the spreads of credit default swaps and subsequent changes in aggregate corporate loan spreads.

⁴ Highline Data's Bank Rating Guidelines provide a composite rating of a bank's health based on an analysis of financial ratios from four of the five CAMEL factors: Capital Adequacy, Asset Quality, Earnings, and Liquidity. The National Rating ranks a bank relative to all other banks in the nation. The Peer Rating ranks a bank relative to banks of similar asset size.

⁵ This explanation is consistent with the results of Demsetz and Strahan (1997), who document that greater diversification leads banks to take on higher credit and financial risks. It is also consistent with the relatively low Highline ratings reported for top sell-buyers in our Table 6.

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