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Interstate Banking and Risk

Most banks operate in only one state, a peculiar artifact of historical legal restrictions not found in other developed countries. In recent years the restrictions have been relaxed; some bank holding companies operate banks in more than one state, and a few states have changed or reinterpreted their laws to allow at least some banks to operate branches across state lines. (For the western states, see *Weekly Letter* 94-15.)

Federal legislation that appears headed for passage would remove most remaining barriers to interstate banking and branching. Although banking firms can work within existing laws to operate across state lines, the new legislation probably will lower the cost of providing banking services in more than one state, and interstate activity should increase as a result. Banks may gain from expanded business opportunities; their customers may receive cheaper, more efficient, and more convenient service.

A frequently cited public benefit of interstate branching is that banks may become safer if they diversify their operations across regions. Good results in one state or region might offset poor results elsewhere, for example. Reducing bank risk is desirable from the perspective of public policy, since a more stable banking system has fewer bank failures and smaller deposit insurance losses. This *Letter* discusses the potential for banks to become safer through interstate diversification, focussing on prospects for the nine western states that make up the Twelfth Federal Reserve District.

Diversification potential

Supporters of interstate branching often assert that risk reduction follows naturally from geographic expansion. However, the size of any such benefit depends on how banking markets in different states are related. One way to get a feel for diversification's potential is to consider combinations of typical or average banks in different states: If income would be less variable for such combinations than for separate banks, then interstate banking and branching can reduce risk.

Hypothetical interstate bank combinations can be evaluated using variances of banking income in each state in the Twelfth District and correlations between each pair of states. The relevant statistics were calculated from the aggregate return on assets (ROA) for each state, for the period 1985–1993. Larger banks were excluded from the calculations, since these banks already may have some income generated from out-of-state activities. ("Large" banks were defined to be those with more than $300 million in assets, although similar conclusions follow from a $10 billion cutoff.) Assuming that the variability of smaller banks' ROA largely reflects fundamental economic characteristics of regions, interstate branching will not change the variances and correlations in the various states, making these data a useful guide to expectations about future interstate activity.

Significant risk reduction requires relatively low correlations between banking conditions in different states; risk falls the most if banking ROA in two states is negatively correlated—when one state is down the other tends to be up. The calculations show that hypothetical combinations of Western banks vary considerably in the degree to which they reduce risk. Of the 36 possible pairs of states in the Twelfth District, only three have significant negative correlations: Arizona-California, Hawaii-Utah, and Hawaii-Oregon. In this regard, it is interesting to note that two major California banking firms (BankAmerica and First Interstate) have established operations in Arizona, and BankAmerica's Oregon subsidiary has acquired an institution in Hawaii.

Another 18 pairs of states have correlations that are not significantly different from zero, suggesting substantial scope for safer banking through diversification. The remaining 15 state correlations are

WESTERN BANKING *Western Banking* is a quarterly review of banking developments in the Twelfth Federal Reserve District. It is published in the *Weekly Letter* on the fourth Friday of January, April, July, and October.

significantly positive (ranging from 0.3 to 0.7), thus providing less risk reduction. As an example of the latter category, banking income in the state of Washington is highly correlated (in the 0.5 to 0.7 range) with Oregon, Utah, and Idaho; interstate mergers or branching involving these states may make economic sense, but the potential for risk reduction is less.

Why it works
A closer look at the components of ROA highlights the factors that tend to determine correlations between states. Risk reduction does *not* come from diversifying banks' funding sources: Ratios of interest expenses to assets are very highly correlated across all states. Apparently, the interest rates that determine the cost of funds for banks move similarly throughout the West.

On the other hand, interest income on loans (as a percentage of assets) generally is not highly correlated across states, especially for banks with less than $300 million in assets. Loan loss provision ratios also are relatively uncorrelated across states, with some correlation coefficients significantly negative. Thus, interstate banks are safer because loan portfolios can be diversified across regions.

The effect on risk
The impact of interstate activity on the safety of *individual* institutions will vary from bank to bank. For example, over the 1985–1993 period, the variance of ROA was highest in Alaska and Arizona, and most stable in Oregon, Washington, and California. A hypothetical Washington bank branching into Arizona might become riskier, because Arizona has been a less stable banking environment, and the correlation between the two states is so high that diversification may not offset the added volatility. Such an increase in risk may be important to employees, unsecured creditors, and others. However, it is not grounds for concluding that such an expansion is undesirable, since other benefits may offset the risk effect.

Despite the fact that a few banks may become riskier, on average risk will decline. The public at large will benefit, especially with regard to deposit insurance. The FDIC, which ultimately means the taxpayer, bears the liability of potential claims if a bank fails; safer banks reduce this contingent liability. As a gauge of whether the potential risk reduction is substantial, consider two hypothetical alternatives: In one case, the FDIC insures banks that are diversified within each Western state but not across states; in the second, all barriers are removed and all insured banks are fully diversified across the nine states of the District. The size of the FDIC liability (calculated from an option model of deposit insurance) declines by 80 percent from the first case to the second. Thus the risk reduction from full interstate banking may substantially reduce the cost of insuring deposits.

Economists can find a black lining in any cloud, and interstate banking is no exception: The possibility of a certain kind of systemic banking failure may increase. There is always some danger that chance events could cause many banks to fail simultaneously, leading to a massive reduction in the provision of banking services to the economy. Perversely, the probability of such a "bad draw" may rise with interstate banking. As banks diversify into each others' markets, bank portfolios may come to look more alike, raising the odds that all will turn down at the same time. However, the expected costs of such systemic effects are unlikely to outweigh the kinds of benefits discussed above.

Conclusion
Removing the remaining barriers to interstate banking and branching should bring gains due to enhanced bank efficiency and competition, and greater convenience for bank customers. In addition, relatively low correlations between banking profits in different states present opportunities to reduce risk through diversification. Cross-state correlations of bank income suggest that interstate diversification generally will reduce risk, mainly through opportunities to diversify bank loan portfolios. Calculations of possibly substantial gains from a safer, more stable banking system make full interstate banking and branching attractive.

Mark E. Levonian
Research Officer

REGIONAL BANK DATA

MARCH 31, 1994

(TABLE HAS BEEN REVISED TO REFLECT RECENT CHANGES IN BANK REPORTING)

		DISTRICT	ALASKA	ARIZ.	CALIF.	HAWAII	IDAHO	NEVADA	OREGON	UTAH	WASH.
ASSETS AND LIABILITIES -- $ MILLION (ALL COMMERCIAL BANKS, NSA)											
ASSETS	TOTAL	515,647	4,994	37,594	337,365	22,618	10,989	16,443	27,161	16,292	42,191
	FOREIGN	38,897	0	0	36,395	2,448	0	0	13	0	41
	DOMESTIC	476,750	4,994	37,594	300,970	20,170	10,989	16,443	27,148	16,292	42,150
LOANS	TOTAL	332,046	2,632	22,302	215,681	14,127	7,846	9,231	19,092	9,607	31,526
	FOREIGN	29,130	5	0	27,697	1,381	0	0	8	0	38
	DOMESTIC	302,916	2,627	22,302	187,984	12,747	7,846	9,231	19,084	9,607	31,487
	REAL ESTATE	160,212	1,311	8,700	111,486	7,712	2,572	2,562	7,810	4,193	13,866
	COMMERCIAL	60,941	746	2,814	36,927	3,130	1,648	771	5,059	1,652	8,194
	CONSUMER	54,614	426	7,244	23,628	1,075	2,490	5,305	4,111	3,008	7,327
	AGRICULTURAL	5,709	3	347	3,010	34	718	10	464	162	961
	OTHER LOANS	21,440	142	3,197	12,934	796	418	583	1,640	592	1,139
SECURITIES	TOTAL	87,963	1,793	10,252	52,328	5,262	1,759	4,329	4,159	3,581	4,500
	U.S. TREASURIES	26,643	933	2,574	15,142	2,546	450	1,509	1,407	708	1,374
	U.S. AGENCIES, TOTAL	41,665	456	6,048	24,839	2,204	656	2,296	1,903	1,789	1,473
	U.S. AGENCIES, MBS	34,574	399	5,415	20,982	1,624	393	1,956	1,638	1,097	1,069
	OTHER MBS	4,874	95	724	3,459	38	40	88	26	201	203
	OTHER SECURITIES	14,781	309	905	8,887	474	614	436	824	882	1,450
LIABILITIES	TOTAL	471,161	4,319	34,160	309,553	20,801	10,140	14,238	24,731	14,932	38,286
	DOMESTIC	432,264	4,319	34,160	273,158	18,353	10,140	14,238	24,719	14,932	38,245
DEPOSITS	TOTAL	401,650	3,788	30,065	268,237	14,518	8,300	10,042	20,977	11,282	34,442
	FOREIGN	33,155	0	0	30,838	2,156	0	0	11	85	66
	DOMESTIC	368,496	3,788	30,065	237,399	12,363	8,300	10,042	20,967	11,197	34,376
	DEMAND	95,837	1,098	6,765	65,411	2,489	1,590	2,964	4,583	2,449	8,488
	NOW	43,302	380	3,693	25,222	1,512	1,120	1,452	3,429	1,677	4,818
	MMDA & SAVINGS	142,867	1,340	11,613	94,490	4,940	2,888	4,030	6,942	3,904	12,721
	SMALL TIME	60,077	432	6,650	34,164	1,940	2,066	913	5,099	2,399	6,413
	LARGE TIME	26,076	495	1,343	17,909	1,474	635	682	899	767	1,871
	OTHER DEPOSITS	336	42	1	203	8	0	0	16	2	65
OTHER BORROWINGS		37,196	492	3,365	14,676	5,403	1,662	2,940	2,985	2,942	2,730
EQUITY CAPITAL		44,485	675	3,434	27,811	1,817	850	2,205	2,429	1,359	3,905
LOAN LOSS RESERVE		9,771	38	468	7,193	236	117	464	432	216	605
LOAN COMMITMENTS		219,150	722	33,586	117,303	7,220	3,656	16,858	14,569	8,121	17,115
TIER1 CAPITAL RATIO		0.101	0.220	0.121	0.095	0.107	0.099	0.165	0.102	0.128	0.095
TOTAL CAPITAL RATIO		0.131	0.232	0.143	0.129	0.127	0.118	0.178	0.119	0.144	0.118
LEVERAGE RATIO		0.079	0.133	0.079	0.075	0.077	0.076	0.114	0.083	0.086	0.084
QUARTERLY EARNINGS AND RETURNS (ANNUALIZED) -- $ MILLION (ALL COMMERCIAL BANKS, NSA)											
INCOME	TOTAL	10,777	104	772	6,664	424	221	723	609	352	909
	INTEREST	8,141	86	614	5,102	354	187	364	449	278	707
	FEES & CHARGES	758	6	60	497	13	15	17	52	23	76
EXPENSES	TOTAL	8,332	76	605	5,288	326	166	454	466	274	678
	INTEREST	2,523	24	196	1,586	135	67	80	133	95	208
	SALARIES	2,332	27	156	1,554	93	34	64	151	60	193
	LOAN LOSS PROVISION	438	1	33	302	13	6	47	11	10	15
	OTHER	3,039	23	219	1,846	85	60	263	171	110	263
TAXES		975	9	65	592	37	19	96	52	28	78
NET INCOME		1,464	19	102	781	61	36	171	91	50	153
ROA (% ANNUALIZED)		1.16	1.52	1.11	0.95	1.10	1.33	4.16	1.35	1.26	1.48
ROE (% ANNUALIZED)		13.17	11.28	11.91	11.24	13.49	17.11	31.07	14.94	14.60	15.62
NET INTEREST MARGIN (% ANNUALIZED)		4.44	4.90	4.55	4.26	3.92	4.42	6.90	4.72	4.63	4.83
ASSET QUALITY -- PERCENT OF LOANS (LARGE COMMERCIAL BANKS, NSA)											
LOAN LOSS RESERVE		3.02	1.36	2.07	3.43	1.67	1.46	5.21	2.34	2.15	1.99
NET CHARGEOFFS, TOTAL		0.62	0.09	0.67	0.67	0.23	0.17	3.08	0.34	-0.09	0.21
	REAL ESTATE	0.35	-0.03	0.14	0.49	0.14	0.08	-0.51	0.03	0.03	-0.02
	COMMERCIAL	0.37	0.05	0.18	0.51	0.18	-0.12	-0.15	0.57	-1.05	-0.10
	CONSUMER	2.40	0.51	1.75	3.13	0.61	0.50	5.35	0.85	0.51	0.93
	AGRICULTURAL	0.31	0.00	-0.08	-0.16	25.17	0.15	0.29	-0.05	-0.08	1.38
PAST DUE & NON-ACCRUAL, TOTAL		3.91	2.59	2.21	4.84	2.40	1.42	4.72	1.46	1.32	2.22
	REAL ESTATE	5.70	2.48	2.47	7.08	2.79	1.20	4.39	1.90	1.36	3.03
	CONSTRUCTION	22.07	4.17	3.75	30.72	8.91	1.90	15.08	9.10	2.22	12.79
	COMMERCIAL	7.75	3.14	6.81	10.14	2.19	1.10	5.10	2.42	1.86	2.23
	FARM	5.71	0.00	10.86	5.66	7.51	5.63	0.00	5.92	12.21	3.14
	HOME EQUITY LINES	1.29	1.27	0.77	1.40	1.61	0.32	0.84	0.23	0.78	1.43
	MORTGAGES	3.01	2.05	1.37	3.63	2.84	1.15	2.71	1.02	0.91	1.09
	MULTI-FAMILY	7.31	1.55	0.86	10.33	1.43	3.59	0.81	0.28	0.28	0.04
	COMMERCIAL	2.64	2.60	2.71	3.03	2.12	1.32	4.06	0.88	1.52	1.61
	CONSUMER	2.64	2.15	2.66	2.95	2.55	1.22	5.43	1.17	1.16	1.32
	AGRICULTURAL	2.99	0.00	1.66	2.26	26.81	3.80	0.46	2.99	3.11	4.42
NUMBER OF BANKS		698	8	36	419	17	20	20	45	46	87
NUMBER OF EMPLOYEES		241,163	2,847	18,432	153,574	8,618	4,853	7,574	16,716	7,658	20,891

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Research Department

Federal Reserve Bank of San Francisco

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MARKET SHARE STATISTICS

DEPOSITORY INSTITUTIONS REQUIRED TO HOLD RESERVES WITH THE FEDERAL RESERVE ON A WEEKLY BASIS

PERCENT OF COMBINED MARKET TOTAL FOR MAY 1994, BY REGION

	DISTRICT			ALASKA			ARIZONA			CALIF			HAWAII		
DEPOSIT TYPE	CB	SL	CU	CB	SL	CU	CB	SL	CU	CB	SL	CU	CB	SL	CU
TOTAL DEPOSITS	56	37	8	71	4	25	91	1	8	49	44	7	64	29	8
DEMAND	90	7	3	97	0	3	97	0	3	88	8	4	91	4	4
NOW	64	27	9	61	6	34	88	0	12	58	35	7	64	32	4
SAVINGS & MMDAS	61	29	10	56	4	40	89	0	11	57	35	8	56	33	11
SMALL TIME	32	64	4	75	7	18	93	2	5	23	73	4	54	43	3
LARGE TIME	43	45	12	95	1	4	90	1	9	35	52	13	72	17	11

	IDAHO			NEVADA			OREGON			UTAH			WASH		
DEPOSIT TYPE	CB	SL	CU	CB	SL	CU	CB	SL	CU	CB	SL	CU	CB	SL	CU
TOTAL DEPOSITS	91	5	4	77	18	5	83	7	10	79	5	16	56	33	10
DEMAND	97	0	3	98	2	0	95	1	3	90	4	6	88	10	2
NOW	89	4	7	78	14	8	85	5	10	82	1	16	65	22	12
SAVINGS & MMDAS	90	4	6	76	16	9	79	7	15	74	3	24	55	26	18
SMALL TIME	88	10	2	45	50	5	80	13	7	80	11	9	38	56	6
LARGE TIME	90	5	5	86	14	0	77	9	14	70	10	21	46	52	2

CB = COMMERCIAL BANKS; SL = SAVINGS & LOANS AND SAVING BANKS; CU = CREDIT UNIONS; MAY NOT SUM TO 100% DUE TO ROUNDING

INTEREST RATES ON DEPOSITS AND LOANS

TYPE OF RETAIL DEPOSIT ACCOUNT OR LOAN		MAY 1992	AUG 1992	NOV 1992	FEB 1993	MAY 1993	AUG 1993	NOV 1993	FEB 1994	MAY 1994
SAVINGS ACCOUNTS AND MMDAS	U.S	3.57	3.14	2.90	2.80	2.65	2.55	2.48	2.43	2.50
	DISTRICT	3.67	3.29	3.05	2.96	2.78	2.67	2.58	2.56	2.65
92 TO 182 DAYS CERTIFICATES	U.S	3.82	3.36	3.14	3.08	2.98	2.96	2.92	2.93	3.28
	DISTRICT	3.76	3.34	3.14	3.01	2.88	2.85	2.81	2.83	3.03
2-1/2 YEARS AND OVER CERTIFICATES	U.S	5.45	4.87	4.70	4.59	4.45	4.40	4.28	4.35	4.89
	DISTRICT	5.17	4.75	4.49	4.41	4.27	4.19	4.09	4.13	4.58
COMMERCIAL SHORT TERM FIXED*	U.S	4.87	4.42	4.17	4.16	3.91	4.02	3.95	4.03	4.68
	DISTRICT	6.56	5.38	4.79	4.28	4.19	4.76	4.43	4.95	6.78
COMMERCIAL SHORT TERM FLOATING*	U.S	6.56	5.95	5.91	5.85	5.58	5.53	5.56	5.49	6.32
	DISTRICT	6.59	6.29	6.59	6.36	5.40	6.48	6.46	6.36	6.38
COMMERCIAL LONG TERM FIXED*	U.S	7.27	6.28	5.97	6.43	6.02	6.21	5.38	5.41	6.17
	DISTRICT	8.65	8.20	6.44	9.19	10.86	8.05	6.62	6.58	N/A
COMMERCIAL LONG TERM FLOATING*	U.S	7.06	6.60	6.53	6.38	6.47	6.05	5.70	5.98	6.61
	DISTRICT	7.38	7.63	8.09	8.43	8.55	8.77	7.68	8.16	N/A
CONSUMER, AUTOMOBILE	U.S	9.52	9.15	8.60	8.57	8.17	7.98	7.63	7.54	7.76
	DISTRICT	9.67	9.39	8.76	8.98	8.23	8.09	7.70	7.68	7.86
CONSUMER, PERSONAL	U.S	14.28	13.94	13.55	13.57	12.00	13.45	13.22	12.89	12.96
	DISTRICT	13.80	13.68	12.83	12.67	13.87	12.69	13.00	12.02	12.26
CONSUMER, CREDIT CARD	U.S	17.97	17.66	17.38	17.26	17.15	16.59	16.30	16.06	16.15
	DISTRICT	18.52	18.46	18.29	17.76	17.60	17.58	17.00	17.17	17.61

SOURCES: MONTHLY SURVEY OF SELECTED DEPOSITS, SURVEY OF TERMS OF BANK LENDING, AND TERMS OF CONSUMER CREDIT
MOST COMMON INTEREST RATES ON RETAIL DEPOSITS, WEIGHTED AVERAGE INTEREST RATE ON LOANS
* DATA ARE COMPOUNDED ANNUAL RATES