

Topic 2a

Depository Institutions

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Depository Institutions

Areas of Coverage

- Balance Sheets for Commercial Banks
- Income Statement
- Overall performance measures
- Broad Risk Measures

Commercial Bank Balance Sheets

Assets

	9/30/00		9/30/99	
Employees				
Number of institutions.....	8,375		8,621	
Total assets.....	6,064,084	100.00	5,512,519	100.00
Cash and due from depository institutions.....	331,832	5.47	322,104	5.84
Noninterest-bearing.....	227,291	3.75	219,321	3.98
Interest-bearing.....	104,540	1.72	102,783	1.86
Securities.....	1,061,160	17.50	1,035,658	18.79
Federal funds sold and securities purchased under agreements to res	224,133	3.70	225,114	4.08
Loans and leases, net.....	3,714,677	61.26	3,303,651	59.93
Plus: allowance for losses and allocated transfer risk reserve.....	62,533	1.03	58,433	1.06
Loans and leases, total.....	3,777,210	62.29	3,362,084	60.99
Plus: unearned income.....	3,046	0.05	3,659	0.07
Loans and leases, gross.....	3,780,256	62.34	3,365,743	61.06
Assets held in trading accounts.....	279,573	4.61	235,699	4.28
Bank premises and fixed assets.....	74,457	1.23	72,525	1.32
Other real estate owned.....	3,133	0.05	3,204	0.06
Intangible assets.....	104,516	1.72	87,051	1.58
All other assets.....	270,604	4.46	227,513	4.13

Loans and Leases by Type

By loan and lease type:	3,780,256	100.00	3,365,743	100.00
Loans secured by real estate, total.....	1,659,400	43.90	1,431,550	42.53
Real estate loans in domestic offices:	1,627,934	43.06	1,400,076	41.60
Construction and land development.....	157,267	4.16	127,486	3.79
Secured by farmland.....	33,944	0.90	31,380	0.93
Secured by 1-4 family residential properties.....	920,551	24.35	789,317	23.45
Home equity loans.....	122,866	3.25	97,363	2.89
Secured by multifamily residential properties.....	60,059	1.59	50,314	1.49
Secured by nonfarm nonresidential properties.....	456,113	12.07	401,579	11.93
Loans to depository institutions.....	123,667	3.27	107,668	3.20
Loans to finance agricultural production and other farm loans.....	47,331	1.25	46,537	1.38
Commercial and industrial loans.....	1,044,323	27.63	947,834	28.16
Loans to individuals.....	584,412	15.46	530,585	15.76
Credit cards and related plans.....	228,747	6.05	189,319	5.62
Other loans*.....	158,907	4.20	156,436	4.65
Lease financing receivables.....	162,216	4.29	145,133	4.31

Commercial Bank Balance Sheets

Liabilities and Equity Capital

	9/30/00		9/30/99	
Total liabilities, limited-life preferred stock, and equity capital.....	6,064,084	100.00	5,512,519	100.00
Total liabilities.....	5,542,888	91.41	5,043,626	91.49
Deposits, total.....	4,019,581	66.29	3,707,504	67.26
Federal funds purchased and securities sold under agreements to repurchase.....	467,166	7.70	427,912	7.76
Demand notes issued to the U.S. Treasury.....	37,835	0.62	44,689	0.81
Trading liabilities.....	195,336	3.22	177,963	3.23
Other borrowed money.....	558,402	9.21	456,910	8.29
Subordinated notes and debentures.....	84,510	1.39	75,744	1.37
All other liabilities.....	180,056	2.97	152,905	2.77
Total equity capital.....	521,195	8.59	468,893	8.51
Perpetual preferred stock.....	3,198	0.05	3,046	0.06
Common stock.....	31,762	0.52	33,365	0.61
Surplus.....	260,522	4.30	226,080	4.10
Undivided profits.....	227,061	3.74	207,610	3.77
Cumulative foreign currency translation adjustments.....	-1,348	-0.02	-1,207	-0.02

Commercial Banks

Off-Balance Sheet Activities

Total unused commitment

Letters of credit

Participations in acceptances

Mortgages that have been transferred
(sold or unsold) with recourse

When-issued securities

Interest rate contracts

Foreign exchange contracts

Contracts on other commodities and equities

All other

Deposits by Classes, Credit Quality Ratios, and Foreign Assets

Memorand				
Deposits, total.....	4,019,581	66.29	3,707,504	67.26
Noninterest-bearing.....	704,190	11.61	689,650	12.51
Foreign offices.....	29,323	0.48	28,732	0.52
Interest-bearing.....	3,315,391	54.67	3,017,854	54.75
Foreign offices.....	664,885	10.96	574,046	10.41
Deposits, domestic offices:				
Total.....	3,325,374	54.84	3,104,726	56.32
Demand deposits.....	489,054	8.06	515,165	9.35
Savings deposits.....	1,498,269	24.71	1,400,136	25.40
Time deposits.....	1,338,051	22.07	1,189,425	21.58
Memoranda:				
Loans and leases past due 30-89 days.....	43,186	0.71	39,400	0.71
Loans and leases past due 90 or more days.....	10,149	0.17	9,947	0.18
Loans and leases in nonaccrual status.....	28,702	0.47	23,025	0.42
Income earned, not collected on loans.....	31,374	0.52	24,555	0.45
Total assets in foreign offices.....	722,335	11.91	706,556	12.82

Commitments and Contingencies

Commitments and Letters of Credit

	9/30/00	12/31/99
Total unused commitments:	4,331,504	3,958,516
Revolving, open-end lines secured by 1-4 family residential p.....	163,998	145,359
Credit card lines.....	2,420,665	2,099,898
Commercial real estate, construction, and land development.....	146,466	140,418
Commitments secured by real estate.....	120,167	115,606
Commitments not secured by real estate.....	26,299	24,812
Securities underwriting.....	2,910	311
Other unused commitments.....	1,597,464	1,572,530
Letters of credit:		
Financial and performance standby letters of credit and		
foreign office guarantees.....	267,837	255,702
Amount conveyed to others.....	25,200	23,405
Issued to non-U.S. addressees—u—5F2.....	50,056	46,610
Financial standby letters of credit and foreign office gua.....	220,820	210,667
Amount conveyed to others.....	20,176	19,141
Performance standby letters of credit.....	47,017	45,034
Amount conveyed to others.....	5,024	4,264
Commercial and similar letters of credit.....	29,067	26,547

Commitments and Contingencies

Assets Sold With Recourse

	9/30/00	12/31/99
Financial assets transferred (sold or unsold) with recourse that have been treated as sold for reporting purposes:		
First lien 1-4 family residential mortgage loans:		
Outstanding principal balance of mortgages transferred.....	63,179	56,845
Amount of recourse exposure.....	14,102	11,831
Other financial assets (excluding small business obligations):		
Outstanding principal balance of assets transferred.....	323,461	298,982
Amount of recourse exposure.....	20,011	22,283
Small business obligations transferred with recourse:		
Outstanding principal balance of obligations transferred.....	959	506
Amount of retained recourse exposure.....	107	67

Commitments and Contingencies

Derivative Contracts

	9/30/00	12/31/99
Off-balance sheet derivatives.....	38,750,576	34,883,219
Notional amount of credit derivatives.....	378,585	286,677
Bank is the guarantor.....	159,889	128,398
Bank is the beneficiary.....	218,696	158,278
Interest rate contracts.....	30,879,696	27,771,695
Notional value of interest rate swaps.....	20,149,999	16,881,272
Futures and forward contracts.....	5,152,426	5,095,676
Written option contracts.....	2,722,567	2,932,646
Purchased option contracts.....	2,854,703	2,862,101
Foreign exchange rate contracts.....	6,471,101	5,981,455
Notional value of exchange swaps.....	856,886	774,387
Commitments to purchase foreign currencies and U.S. dol	4,794,435	4,241,768
Spot foreign exchange rate contracts.....	437,758	66,337
Written option contracts.....	424,404	499,555
Purchased option contracts.....	395,376	465,745
Contracts on other commodities and equities.....	1,021,194	843,393
Notional value of other swaps.....	157,059	123,299
Futures and forward contracts.....	134,142	119,314
Written option contracts.....	351,108	295,594
Purchased option contracts.....	378,885	305,186

Income Statement

Interest Income and Expenses

	9/30/2000 Year to Date	9/30/2000 Annualized	12/31/99
Total interest and fee income.....	316,176	421,568	367,322
Domestic office loans.....	217,236	289,648	246,319
Foreign office loans.....	18,162	24,216	24,389
Lease financing receivables.....	7,918	10,557	9,886
Balances due from depository institutions.....	4,601	6,135	5,922
Investment securities.....	51,491	68,655	61,555
Assets held in trading accounts.....	6,840	9,120	7,046
Federal funds sold and securities purchased under agreements to resell.....	9,927	13,236	12,205
Total interest expense.....	163,866	218,488	175,129
Domestic office deposits.....	83,322	111,096	92,148
Foreign office deposits.....	26,829	35,772	26,903
Federal funds purchased and securities sold under agreements to repurchase.....	20,257	27,009	21,428
Demand notes issued to the U.S. Treasury and other borrowed money.....	29,152	38,869	29,791
Subordinated notes and debentures.....	4,306	5,741	4,859
Net interest income.....	152,310	203,080	192,193

Income Statement

PLL, and Noninterest Income and Expenses

	9/30/2000 Year to Date	9/30/2000 Annualized	12/31/99
Provisions for credit losses and allocated transfer risk.....	19,772	26,363	21,814
Total noninterest income.....	113,212	150,949	144,399
Fiduciary activities*.....	16,220	21,627	19,712
Service charges on deposit accounts.....	17,321	23,095	21,545
Trading account gains and fees*.....	9,694	12,925	10,249
Foreign exchange exposures.....	3,791	5,055	4,662
All other noninterest income.....	69,977	93,303	92,893
Total noninterest expense.....	160,622	214,163	204,193
Salaries and employee benefits.....	66,020	88,027	85,450
Premises and equipment.....	19,846	26,461	25,794
All other noninterest expense.....	74,756	99,675	92,949

Income Statement

Net Income and Additions to Capital Stock

Pre-tax net operating income.....	85,129	113,505	110,586
Gains (losses) on securities not held in trading accounts.....	-2,484	-3,312	181
Applicable income taxes.....	29,223	38,964	39,377
Income before extraordinary items.....	53,422	71,229	71,390
Extraordinary items, net.....	16	21	169
Net income.....	53,438	71,251	71,559
Cash dividends declared.....	35,227	46,969	51,938
Cash dividends declared on preferred stock.....	60	80	189
Cash dividends declared on common stock.....	34,164	45,552	51,749

Overall Performance Measures

Return on Assets (ROA)

$(\text{Net Income} / \text{Average Assets}) \times 100$

Return on Common Equity (ROE)

$(\text{Net Income} / \text{Average Common Equity}) \times 100$

Common Equity Ratio

$(\text{Average Common Equity} / \text{Average Assets}) \times 100$

Overall Performance Measures

Continued

Note: these ratios are calculated

- using the income variable over the measurement period
- but using the average assets or average common equity over the measurement period

If averages are not available, they may be approximated by using end of quarter data or even year-end data for adjacent years

Equity Capital

- + Preferred stock and preferred surplus
- + Common stock and surplus
- + Retained earnings
- + Unrealized gains (losses) on available for sale securities
- + Foreign currency adjustments
- Treasury stock
- = Total equity capital

Common equity = total equity less preferred stock and preferred surplus

ROE and Leverage

$$\text{ROE} = (\text{Net income} / \text{Average common equity}) \times 100$$

$$\begin{aligned} \text{Leverage multiplier} &= \text{Average assets} / \text{Average common equity} \\ &= 1 / \text{Common equity ratio} \end{aligned}$$

$$\text{ROA} = (\text{Net income} / \text{Average Assets}) \times 100$$

$$\begin{aligned} \text{ROE} &= (\text{ROA} \times \text{Leverage multiplier}) \times 100 \\ &= (\text{ROA} / \text{Common equity ratio}) \times 100 \end{aligned}$$

Common Equity

Recall that this is:

- + Common stock plus surplus
- + Retained earnings
- + Unrealized gains (losses) on listed as available for sale securities
- + Foreign currency adjustments
- Treasury stock
- + Retained Earnings
- = Common equity

Common equity is the shareholders interest in the firm

ROE

Return on common equity =

(net income available for common / average common equity) x 100

(return on average assets x leverage multiplier) x 100

(return on equity / average common equity ratio)

Leverage and Performance

As the common equity ratio rises, leverage falls

For the same ROA this leads to a lower ROE

E.g., suppose	ROA	=	1.03%
	Leverage	=	20
	ROE	=	20.6%

BUT if leverage multiplier drops to 12.0 because capital ratio rise to 8.3333%, ROE drops to 12.36%

Net Interest Income

NII = Interest Income Less Interest Expense

Interest Income

- Interest earned on each asset = asset x yield

or

- Total earning assets x average yield

Interest Expense

- Interest paid on each liability = liability x rate

or

- Total liabilities x average rate

Noninterest Income

Trust fees	Other
Service charges on deposits	Brokerage
Nondeposit related fees	Trading profits and fees
Safe deposit income	FX income
Mortgage servicing & related fees	BAs and LOCs
Fees on factored accounts rec.	Ins commissions & earnings
Investment banking income	Misc.
Other service fees	
Credit card income	
Merchant discount fees	
Annual card fees	
Other card fees	

Noninterest Expenses

Personnel	Other general operating
Occupancy, net	General administrative & misc.
Equipment	
Marketing	
Professional fees	
Amortization of intangibles	
Credit cards	
Private Label Cards	
FDIC Insurance	
Telecommunication	
Postage and courier	

Constructing the ROA

ROA =	
+ Net interest margin	
	Ratio of interest income less interest expense to average assets
+ Net noninterest margin	
	Ratio of noninterest income less noninterest expense to average assets
- Provision Margin	
	Ratio of provisions for possible losses to average assets
- Tax Margin	
	Ratio of taxes to average assets

Separating the ROA

This can be expanded to reflected the combination of

- Net profit margin which captures which measure cost management

and

- Asset utilization which measures revenue management

$$\frac{\text{NetIncome}}{\text{Assets}} = \frac{\text{NetIncome}}{\text{Revenues}} \times \frac{\text{Revenues}}{\text{Assets}}$$

Separating the ROA

Continued

If expenses rise relative to revenues the net profit margin will fall

If revenue rises relative to assets, asset utilization rises

Market Capitalization

Two components:

- Fair value of the assets less the liabilities
 - Affected by interest rate risk
- Value of the bank charter (franchise value)
 - Affected by perception of
 - Interest rate risk
 - Credit Risk
 - Liquidity Risk
 - Operating Efficiency
 - Capital

Risks

Credit risk: risk of delays in the timely payment of interest and principal

Liquidity: the ability to gather funds to assure the continued day-to-day operations

- Make loans
- Honor claims against the institution
 - Check presented for collection
 - Liabilities that have matured

Liquidity risk: the risk that an institution will not be able to gather funds for day-to-day operations

Risks

Interest rate risk:

- Variability in net interest income arising from shifts in the level of interest rates and/or shifts in the shape of the yield curve
- Variability in the market value of net worth arising from shifts in the level of interest rates and/or shifts in the shape of the yield curve

Capital risk

- Risk that capital may be insufficient to support asset growth
- The risk that capital may be insufficient to support current footing (triggering prompt action)

Credit Quality

	Size and Credit Quality
Net loans and leases to total asset	-
Loan loss provision to average total loans and leases	-
Loan loss allowance to total loans and leases	+
Loan loss allowance to nonaccrual loans	+
Loan loss allowance to net loans	+
Noncurrent loans and leases to gross loans and leases	-
Earnings coverage to net losses	+
Net loss to average loans and leases	-
Growth rate in net loans and leases	-

Liquidity Risk

	Size and relation to liquidity
Net loans and leases to assets	-
Net loans and leases to total deposits assets	-
Securities with maturity < 1 year to total assets	-
Volatile liabilities to assets	-
Core deposits to assets	+
(sec with maturity < 1 year less 1-year volatile liabilities) to assets	-
Unused loan and lease commitments to asset	-
Standby letters of credit to assets assets	-

Capital Risk

	Size and relation to capital risk
Equity (tier 1) to average assets	+
Cash dividends to net income	-
Tier 1 capital to risk-weighted assets	+
Tier 1+ Tier 2 to risk weighted capital	+
Growth rate of Tier 1 equity capital	+
Growth rate of assets	-
Equity growth less asset growth	+

Operating Expenses

	Size and relation to operating efficiency
Average personnel expenses per employee (\$000)	-
Asset per employee (\$ million)	+
Total overhead expense to assets	-
Personnel expense to average assets	-
Occupancy expense to average assets	-

Efficiency Ratio

$$\text{efficiency} = \frac{\text{noninterest expense}}{\text{net interest} + \text{noninterest income}}$$