

# The Public Banking Workbook

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## Chapter 4 Basics of Bank Accounting

The purpose of Chapter 4 is to introduce basic accounting principles and relate them to bank accounting. It is important to review double-entry bookkeeping to understand the bookkeeping of loans as assets and deposits as liabilities in a bank's balance sheet.

**BASIC LEVEL** = the knowledge in this Chapter is at a basic level for those who are learning the basics of accounting.

Lessons to be learned in Chapter 4:

- Basic accounting principles, and how they relate to bank accounting.
- The accounting equation: Assets = Liabilities + Capital
  - What are "assets", "liabilities", "capital"
  - What are different uses of the word capital?
- Double-entry bookkeeping and reporting against bank balance sheets
- Capitalization and capital requirements to meet regulations
- How banks weigh "risk", and what are risk-weighted assets

Recall that the public bank being advocated is going to function more like a wholesale bank and/or a banker's bank for other community banks in their region. It's not going to have (demand) deposit customers walking in the front door as they would in a branch of a large private bank. Rather its deposits are coming from the Treasurer's office of the government entity that is being set up. It can startup with its executives using 4 to 5 offices and a conference room. Its function is to support the community, its infrastructure projects, and to back up other community banks in partnering in loans.

**4.1 The Accounting Equation.** Now, onto accounting. Most industries have their unique methods of doing business, and banks are no exception. However, the same basic accounting equation is used. The accounting equation is...

$$\text{Assets} = \text{Liabilities} + \text{Capital}$$

Some confusion arises because the words "loans" and "deposits" have unique meaning to banking. A **loan is an asset** because a bank has made a time-based contract that earns money rather than owing money. A **deposit is a liability** to a bank because it owes the depositor the money, after the customer has deposited their money.

The accounting equation can then be written with some of the **common entries included as examples**, against the accounting equation.

Assets	=	Liabilities	+	Capital
Operating Cash		Accounts Payable		Owner's Equity
Commercial Loans		Deposits		Retained Earnings
Owned Securities				
Reserve (capital) Accounts				
Property & Equipment				

**4.2 Assets.** A corporation's *assets* are, generally speaking, the objects and entities it uses to make money. Commercial Banks are in the business of loaning money in order to earn money, so their loans count as their assets. A bank's outstanding loans are not its only assets. Likely it owns some cash, too, and possibly some intellectual property, real estate, desks and computers. These are all assets, and they all appear on the bank's balance sheet.

In support of the concept of public banking, understand that we, the citizens, began by having **Credit**. However through the initiation of central banking laws, we have given our **Credit** to the banks, and then we beg them to give it back to us through "loans", and we pay them for that privilege.....

**4.3 Liabilities.** When you deposit money in a bank, in a legal sense the bank is not simply keeping the money for you. They are actually taking your money in exchange for a *liability* to you. The bank owes you that money, plus whatever interest it has promised. Since **the deposit** represents money that the Bank owes to you, it counts among the bank's liabilities.

**4.4 Capital.** The word capital is used as a general term and you can find it used in three different contexts:

- Capital is a term used for the money and assets that the owners need to put together to start the business, i.e., a business needs to be capitalized, and this is "**equity capital**". or Owner's Equity
- The start-up cash and the cash needed to bring the bank into a positive net cash flow position is termed the "**operating capital**". It is that portion of the

initial **capital** that is used to pay the initial bank's operational expenses, e.g. \$400,000 for consultants, lawyers, accountants, etc. to get the banking business plan written, and the bank corporation setup and running. It comes from the original capitalization of the bank by the owners.

- The “**capital held in reserve**” is cash and other financial instruments that as a group have to be fairly liquid, in case of a run on the bank. The reserve account is usually held at another local bank or a regional bank of the Federal Reserve, and must be balanced daily. If more deposits are generated from which loans can be made, then the reserve capital has to be increased up to the required 10% limit. Banks usually borrow the balancing funds overnight from each other at low interest rates. The initial reserve capital comes from the public bank's original capitalization, not from deposits.

**4.5 Simple Example of Capitalization.** The accounting equation can be used to illustrate the funding of a County bank and its progression thru making loans for the community

	<b>Assets</b>		=	<b>Liabilities</b>	+	<b>Capital</b>
	Cash	Loans		Deposits	+	Owner's Equity
The Owners (the county) starting the bank with \$10M						
1)	\$10M	---	=	---	+	\$10M

\$25M of Deposits are put into the Bank from County funds

2)	\$35M	---	=	\$25M	+	\$10M
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**Money is effectively created** by making loans of \$20M to local projects, with the money going into their bank accounts at the Bank

3)	\$35M	\$20M	=	\$45M	+	\$10M
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Most Depositors write checks to Escrow or bills & \$15M cash is withdrawn

4)	\$20M	\$20M	=	\$30M	+	\$10M
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#### **4.6 Basic elements of a Business Financial Position: The Accounting Equation**

At this point the Workbook is using the accounting equation and a business example (rather than a banking example) to show how financial transactions are entered into the  $\text{Assets} = \text{Liabilities} + \text{Capital}$  equation using the principles of double entry bookkeeping.

The important principle to understand is that entries must be made equally on both sides of the equation. Any business event which alters the amount of assets, liabilities, or capital is called *a transaction*. The following examples show how the accountant makes a meaningful record of a series of transactions, reconciling them step by step with the accounting equation.

Example 1. During the month of January, Mr. Alan Rogers, Lawyer

- (1) Invested \$5,000 to open his law practice.
- (2) Bought supplies (stationery, forms, pencils, etc.) for cash, \$300
- (3) Bought office equipment from Altman Furniture Company on account, \$2,500
- (4) Received \$2,000 in fees earned during the month
- (5) Paid office rent of January, \$500
- (6) Paid salary for part-time help, \$200
- (7) Paid \$1,000 to Altman furniture Company on account
- (8) After taking an inventory at the end of the month, found he had used \$200 worth of supplies
- (9) Withdrew \$300 for personal use

These transactions might be analyzed and recorded as follows.

Transaction (1). Mr. Rogers invested \$5,000 to open his law practice. There are two accounts that are affected: the asset Cash is increased, and the capital of the firm is increased by the same amount

ASSETS		=	LIABILITIES	+	CAPITAL
Cash					A. Rogers, Owners Capital
(1)	\$5000	=			\$5,000

Transaction (2). Bought supplies for cash, \$300. In this case, Mr. Rogers is substituting one asset for another. He is receiving (+) the asset Supplies and paying out (-) the asset Cash. Note that the capital of \$5000 remains unchanged.

ASSETS		=	LIABILITIES	+	CAPITAL
Cash	+	Supplies			A. Rogers, Owners Capital
\$5,000					\$5,000
(2)	<u>- 300</u>				-----
	\$4,700				\$ 300
					\$5,000

Transaction (3). Bought office equipment from Altman Furniture on account, \$2,500. He is receiving the asset Equipment, but is not paying for it with the asset Cash. Instead, he will owe the money to the Altman Furniture Company. He is liable for this amount in the future, thus creating the liability Accounts Payable.

ASSETS				=	LIABILITIES	+	CAPITAL
Cash	+	Supplies	+	Equipment		Accounts Payable	A. Rogers, Owners Capital
\$4,700		\$300					\$5,000
<u>          </u>		<u>          </u>		<u>      \$2,500      </u>		<u>      \$2,500      </u>	<u>                  </u>
\$4,700	+	\$300	+	\$2,500		\$2,500	\$5,000

Transaction (4). Received \$2,500 in fees earned during the month. Because he received \$2,000, the asset Cash increased and also his Capital increased. It is important to note that he labels the \$2,000 fees income to show its origin..

ASSETS				=	LIABILITIES	+	CAPITAL
Cash	+	Supplies	+	Equipment		Accounts Payable	A. Rogers, Owners Capital
\$4,700		\$300		\$2,500		\$2,500	\$5,000
<u>+\$2,000</u>							<u>+\$2,000</u> Fees Income
\$6,700	+	\$300	+	\$2,500		\$2,500	\$7,000

Transaction (5). Paid office rent for January, \$500. When the word “paid” is stated, you know it means a deduction from Cash, since he is paying out his asset Cash. Payment of expense is a reduction of capital. It is termed rent expense.

ASSETS				=	LIABILITIES	+	CAPITAL
Cash	+	Supplies	+	Equipment		Accounts Payable	A. Rogers, Owners Capital
\$6,700		\$300		\$2,500		\$2,500	\$7,000
<u>- 500</u>							<u>- 500</u> Rent Expenses
\$6,200	+	\$300	+	\$2,500		\$2,500	\$6,500

Transaction (6). Paid salary for part-time help, \$200. Again the word “paid” means a deduction of cash and a reduction is capital. This time it refers to salaries expense.

ASSETS				=	LIABILITIES	+	CAPITAL
Cash	+	Supplies	+	Equipment		Accounts Payable	A. Rogers, Owners Capital
\$6,200		\$300		\$2,500		\$2,500	\$6,500
<u>- 200</u>		<u>          </u>		<u>          </u>		<u>          </u>	<u>- 200</u> Salaries Expense
\$6,000	+	\$300	+	\$2,500		\$2,500	\$6,300

Transaction (7). Paid \$1,000 to Altman Furniture Company on account. Here he is reducing the asset Cash because he is paying \$1,000, and reducing the liability Accounts Payable. He will now owe \$1,000 less.

ASSETS					=	LIABILITIES	+	CAPITAL
Cash	+	Supplies	+	Equipment		Accounts Payable		A. Rogers, Owners Capital
\$6,000		\$300		\$2,500		\$2,500		\$6,300
<u>-\$1,000</u>		<u>          </u>		<u>          </u>		<u>- \$1,000</u>		<u>          </u>
\$5,000	+	\$300	+	\$2,500		\$1,500		\$6,300

Transaction (8). After taking an inventory at the end of the month, Mr. Rogers found he had used \$200 worth of supplies. The original amount of supplies purchased has been reduced to the amount that was left at the end of the month. Therefore, the difference was the amount used (\$300 - \$100 = \$200). This reduces the asset Supplies by \$200, and reduces capital by the same amount. It is termed supplies expense.

ASSETS				=	LIABILITIES	+	CAPITAL
Cash	+	Supplies	+	Equipment		Accounts Payable	A. Rogers, Owners Capital
\$5,000		\$300		\$2,500		\$1,500	\$6,300
_____		<u>- \$200</u>		_____		_____	- \$200   Supplies Expense
\$5,000	+	\$100	+	\$2,500		\$1,500	\$6,100

Transaction (9). Withdrew \$500 for personal use. The withdrawal of cash is a reduction in Mr. Rogers cash position but also in his Capital. This is not an expense but a personal withdrawal, a reduction of the amount invested.

ASSETS				=	LIABILITIES	+	CAPITAL
Cash	+	Supplies	+ Equipment		Accounts Payable		A. Rogers, Owners Capital
\$5,000		\$100	\$2,500		\$1,500		\$6,100
<u>- 500</u>		<u>        </u>	<u>        </u>		<u>\$1,500</u>		<u>- 500</u> Drawing
\$4,500	+	\$100	+ \$2,500		\$1,500		\$5,600

#### Summary of Transactions for the Month of March, 1999

	ASSETS				=	LIABILITIES	+	CAPITAL
	Cash	+	Supplies	+ Equipment		Accounts Payable		A. Rogers, Owners Capital
(1)	\$5,000				=			\$5,000
(2)	<u>- 300</u>		<u>+ 300</u>	<u>        </u>		<u>        </u>		<u>        </u>
	\$4,700		+ 300		=			\$5,000
(3)	<u>        </u>		<u>        </u>	<u>+ \$2,500</u>		<u>\$2,500</u>		<u>        </u>
	\$4,700		\$ 300	\$2,500	=	\$2,500		\$5,000
(4)	<u>+\$2,000</u>		<u>        </u>	<u>        </u>		<u>        </u>		<u>\$2,000</u> Fees Expense
	\$6,700		\$ 300	\$2,500	=	\$2,500		\$7,000
(5)	<u>- 500</u>		<u>        </u>	<u>        </u>		<u>        </u>		<u>- 500</u> Rent Expense
	\$6,200		\$300	\$2,500	=	\$2,500		\$6,500
(6)	<u>- 200</u>		<u>        </u>	<u>        </u>		<u>        </u>		<u>- 200</u> Salary Expense
	\$6,000		\$300	\$2,500	=	\$2,500		\$6,300
(7)	<u>-\$1,000</u>		<u>        </u>	<u>        </u>		<u>- \$1,000</u>		<u>        </u>
	\$5,000		\$300	\$2,500	=	\$1,500		\$6,300
(8)	<u>        </u>		<u>- 200</u>	<u>        </u>		<u>        </u>		<u>- 200</u> Supply Expense
	\$5,000		\$100	\$2,500	=	\$1,500		\$6,100
(9)	<u>-500</u>		<u>        </u>	<u>        </u>		<u>        </u>		<u>- 500</u> Drawing
	\$4,500		\$100	\$2,500	=	\$1,500		\$5,600

## 4.7 Introduction to Other Capital Requirements.

Other Capital Requirements. These other capital requirements refer to the Bank Regulatory requirements. As a result, regulations require that a bank's capital be at least a certain percentage of the amount at risk. Two sets apply: one set of requirements comes from international banking guidelines, the BIS (Bank of International Settlements, headquartered in Basel) and the other comes from U.S. banking requirements.

For BIS

- Tier 1 capital (reserves) must be at least 4% of total risk weighted assets
- Total capital (reserves) must be at least 8% of total risk weighted assets

For the United States, to be well-capitalized, the industry accepted minimums apply: (Note: there are many ratios that can apply; these are three of the more well-known and used ratios)

- A Tier 1 leverage ratio (Tier 1 capital divided by total assets) of at least 5%
- A Tier 1 risk-based ratio (Tier 1 capital)/(risk-weighted assets) at least 6%
- A total risk-based capital ratio equals ... (Tier 1 + Tier 2 capital) divided by the /(risk-weighted asset) has to be 10% or more...

For banks, there are two categories of capital known as Tier 1 & Tier 2 capital. This chapter will provide definitions. Chapter 4 will show worked examples.

Tier 1 capital is the book value of a bank's stock plus its retained earnings. The book value is the value of the company when liabilities are subtracted from assets; it is not the market value of the stock. This is because the market value can be different from the book value and is also subject to supply and demand laws on the stock trading floor--it does not reflect the bank's actual value as accurately as the book value does.

Retained earnings are profits that have not been paid out in dividends but have instead been invested back into the bank for development. So, if a bank invests \$100 million in one year and makes a 10 percent profit of \$10 million, but only pays \$7 million in dividends, then its retained earnings are \$3 million.

Tier 2 capital is loan-loss reserves plus subordinated debt.\*\*. Loan-loss reserves are money that the bank puts aside in the event of people defaulting on their loans. It is essentially in-house insurance. Subordinated debt is debt owed by the bank to account holders who have chosen lower-priority accounts. This



means that these accounts receive a higher interest rate than standard account holders do, but if the bank should fail then other account holders will receive their funds before the subordinated debt holders do.

**4.8 Risk Weighted Assets.** For a bank, the things that are at risk would include mortgage loans, ordinary loans, loans to other banks, etc. Any one of these runs the risk of not being paid back in full. Because the risk varies for these, they are given different weights when calculating the capital requirement. The risk weight is shown in the chart below. As with any weighted calculation, the risk weight is multiplied times the value and then those amounts are totaled up to come up with a number representing weighted risk.

<b>Asset</b>	<b>Amount (Million)</b>	<b>Risk Weight</b>	<b>Risk Weighted Amount</b>
Cash and equivalents	\$40	0	\$0
Government securities	\$80	0	\$0
Interbank loans	\$100	0.2	\$20
Mortgage loans	\$200	0.5	\$100
Ordinary loans	\$380	1	\$380
Total	\$800		\$500

So, in this case the total assets are \$800 million, while the risk-weighted assets total only \$500 million.

**Self-Check:**

- 1) Define the difference between an “asset” and a “liability”.
- 2) What is “double-entry bookkeeping”, and what is its purpose for a bank?
- 3) What are the different meanings used for the word “capital”?
- 4) What are the regulatory requirements for capital, BIS and U.S. ?
- 5) How do these requirements reflect Key Principle #2 – Transparency?
- 6) Based on your understanding of “capital requirements”, review your draft plan again and add/modify your information.

## Chapter 5 Concepts of Bank Operation

Chapter five continues with the education of basic banking concepts. Public banking is primarily Commercial banking rather than Investment banking, so the banking concepts are easier to explain.

Lessons to be Learned in Chapter 5:

- 1) Using the accounting equation and examples of banking operations, practice and learn how to apply various transactions to a bank's balance sheets to illustrate a bank's use of double-entry bookkeeping
- 2) Review the calculations of the BIS (Bank of International Settlements) and the U.S. regulatory requirements for capitalization compliance.
  - BIS capital requirements for T1 and total T1+T2 \*\*
  - U.S. leverage ratio and risk-based leverage ratios requirements
  - And, the reserve requirements of 10% of demand deposits
- 3) Fractional reserve banking and how it aids the banking industry.
- 4) How banks create money to use for investing.
- 5) Practice with the sample "balance sheets" that are shown for three current banks in the U.S. Typical banking entries in this type of financial report are defined in detail.

**5.1 Bank Operations.** Several sequences of banking operation, as related to the basic accounting equation .... are shown to gain background before moving forward into chapters designed to show how to start a bank.

	<b>Assets</b>		=	<b>Liabilities</b>	+	<b>Capital</b>
	Cash	Securities	Loans	Deposits		Owners Equity
Starting a Bank						
	\$5M	\$10M	----	----		\$15M
Placing \$50 M in Deposits into the Bank						
	\$55M	\$10M	----	\$50M		\$15M

Assets			=	Liabilities	+	Capital
Initiating \$20M in safe loans						
\$55M	\$10M	\$20M		\$70M		\$15M
Purchasing \$40M in various securities to earn interest						
\$15M	\$50M	\$20M		\$70M		\$15M
Cash	Securities	Loans		Deposits		Owners Equity
Example (1) Lending out \$40M in loans for Community Businesses						
\$15M	\$50M	\$60M		\$110M		\$15M
Example (2) Lending out \$60M more in loans for Businesses & Ordinary Loans						
\$17M	\$50M	\$120M		\$170M		\$17M**

Note that in these simple examples, it is assumed that the money loaned is given to an account holder in the same bank. Then, when the escrow funds or other payments are made with the borrowed money, then the deposits would lessen.

**5.2 How far the bank can take its lending, before it needs additional capital,**  
 Lets propose two examples... (1) where we left off on the previous page, and secondly (2) if the bank attempts to implement another \$50 M in loans. Lets use the risk-weighted table below to calculate the 10% reserve requirement against the deposit base, and then calculate the BIS and U.S. capital requirements.

Asset	Dollar Amount		Risk Weight	Risk-Weighted Amt.	
	Ex(1)	Ex(2)		Ex(1)	Ex(2)
Cash & Equivalents	\$15M	\$17M**	0	0	0
Gov't Securities	\$50M	\$50M	0	0	0
Interbank Loans	\$ 0	\$ 0	0.2	0	0
Business Loans	\$20M	\$40M	0.7	\$14M	\$28M
Ordinary Loans	\$40M	\$80M	1.0	\$40M	\$80M
Totals	\$125M	\$187M		\$54M	\$108M

**5.2.1 Meeting the 10% Requirement.** Note that the back-up requirements of having capital of 10% of the demand deposits were met in the 1<sup>st</sup> example, where  $(10\% \times \$110\text{M}) = \$11\text{M}$ , as the Tier 1 capital, the cash & equivalents equals \$15M, which is more than the calculated \$11M. [Note: the 10% requirement only applies to banks with greater than a \$89M deposit base]

**\*\*But in the 2<sup>nd</sup> example,** an additional \$2M was added to capital to meet the (10% times the demand deposits, \$170M), a (\$17M) reserve requirement.

**5.2.2 Meeting the BIS and U.S. capital requirements.** The BIS requirements are for the Tier 1 assets be greater than (4%) and, the total Tier 1+Tier 2 assets to be greater than (8%)

**The Capital requirements of the BIS** were met in both examples. Remember For BIS

- Tier 1 capital (reserves) must be at least 4% of total risk weighted assets
- Total capital (reserves) must be at least 8% of total risk weighted assets

Ex(1) Tier 1 Cap =  $4\% \times \$54\text{M} = \$2.16\text{M}$ , and  $8\% = \$4.32\text{M}$ , both of which numbers are below the \$15M Capital figure of this bank example.

In Ex (2), the Tier 1 Cap =  $4\% \times \$108\text{M} = \$4.32\text{M}$ ... and  $8\% = 8.64$

**The Leverage Ratio requirements** of the U.S. shown for Example(1):

Tier 1 Leverage Ratio =  $(\text{Tier 1 capital}) / \text{total assets} = (\$15\text{M}) / (\$125\text{M}) = 12\% *$

.... note that the requirement for the Tier 1 Leverage Ratio should be at least 5% \*

Tier 1 Risk-Based Leverage Ratio =  $\frac{(\text{Tier 1 capital})}{(\text{total risk-weighted assets})} = (\$15\text{M}) / (\$54\text{M}) = 28\% **$

... and the requirement for the Tier 1 Risk-Based Leverage Ratio has to be at least 6% \*\*

The third ratio to be met is the Total Risk-Based capital ratio to be at least 10%, Note that there is usually only loan reserves for Tier 2 capital for a public bank

Tot. Risk-Based Leverage Capital ratio =  $\frac{(\text{Tier 1+Tier 2 capital})}{(\text{total risk-weighted assets})} = (\$15\text{M}) / (\$54\text{M}) = 28\%$

So, all of the capital requirements are met for this example.

### 5.3 Fractional Reserve Banking, a History and an Explanation

Fractional-reserve banking predates the existence of governmental monetary authorities and originated many centuries ago in bankers' realization that generally not all depositors demand payment at the same time.<sup>[5]</sup>

Savers looking to keep their valuables in a safe place deposited gold and silver at goldsmiths, receiving in exchange a note for their deposit (see [Bank of Amsterdam](#)). These notes gained acceptance as a [medium of exchange](#) for commercial transactions and thus became as an early form of circulating [paper money](#).<sup>[6]</sup>

As the notes were used directly in [trade](#), the goldsmiths saw that people would not redeem their notes all at the same time. They saw the opportunity to invest their gold reserves in interest-bearing loans and bills. This generated income for the goldsmiths, but left them with more notes on issue than reserves with which to pay them. So, a process was started that altered the role of the goldsmiths from passive guardians of [bullion](#), charging fees for safe storage, to interest-paying & interest-earning banks. Thus the fractional-reserve concept was born.

Fractional reserve banking is the same as investing (making loans) at a fraction of the reserves in your vault. This is similar to the stock market concept of margin. As an example, an investment house provides 50% margin to a reliable vetted buyer to earn a commission. This implies that the buyer can purchase \$100,000 worth of stock with only \$50,000. The Investment house puts up the difference. The banking system, realizing that not all depositors will be withdrawing their money at the same time, and most will leave the deposits in for a long period of time...so, the banking system procedures provide an investment opportunity (make a loan, providing credit) at a 10% fraction or margin of a bank's deposits.

**The term “fractional” reserve means that the bank only has to have a fraction of its reserves set aside (against demand deposits), but it can use the rest that's on the books to provide credit and earn interest from borrowers.**

Fractional-reserve banking ordinarily functions smoothly. Relatively few depositors demand payment at any given time, and banks maintain a buffer of reserves to cover depositors' cash withdrawals and other demands for funds. However, during a bank run or a generalized [financial crisis](#), demands for withdrawal can exceed the bank's funding buffer, and the bank will be forced to raise additional reserves to avoid defaulting on its obligations. A bank can raise funds from additional borrowings (e.g., by borrowing in the [interbank lending market](#) or from the central bank), by selling assets, or by calling in short-term loans. If creditors are afraid that the bank is running out of reserves or is insolvent, they have an incentive to redeem their deposits as soon as possible.

Many of the practices of contemporary bank regulation and [central banking](#), including centralized [clearing](#) of payments, central bank lending to member banks, regulatory auditing, and government-administered [deposit insurance](#), are designed to prevent the occurrence of such bank runs.

#### 5.4) Banks Use Other's Credit to Earn Money.

**Banks invest by using a "fractional reserve" amount** of approximately 10%, from which they can earn money. **They invest** in loans and earn interest, or they invest into other entities ( derivatives, real estate, securities, etc.) and earn profit.

Going back to the example in days past, the Goldsmith would receive gold from clients for storage, and give them a "note" in return. So if the Goldsmith had given 1000 clients each a \$100 note, there would be \$100,000 in gold in his vault.

So Goldsmith said to himself... let me make up some more of the \$100 notes against the gold reserves, and I'll invest them in loans and earn the interest. So folks came in and borrowed money, and the Goldsmith made interest money against other's gold. Look at a 60% margin investment of the Goldsmith

Gold.	If Someone else's	->	\$60,000 in Loans	->	\$3000 profit from
	\$100,000 in gold				other's gold

Bank	\$100,000 Deposits	->	\$60,000 in Loans	->	\$3000 profit from
					Other's credit

Stock Broker	\$100,000 investment
	\$60,000 from the vetted "asset-backed investor
	\$40,000 "on credit" from the Brokerage House, who earns commission

So this is an example of buying on margin. The Brokerage House has given an additional 40% credit, so that the investor can buy on 60% margin, and earn the profit on an investment. 90% credit would be buying on 10% margin, in other words you are using someone else's gold to allow you to make a 90% investment with collateral (gold) that is not yours. For banks, they invest at 10% margin with the collateral legally being the Federal Reserve, backed by the Treasury and the people of the United States.

Hence what the banks are legally doing is **investing on margin**... using someone else's credit to invest for their profit....Banks earn money on loans, securities, or buy businesses like Bank of America does.

## 5.5 Details of Banking Balance Sheets.

It's all well and good to theorize some balance sheets to talk about them, but theory only takes you just so far. Let's look at some real-world balance sheets to understand what's going on. You can find balance sheets for any bank at the FDIC's web site. It's educational to browse the banks you know about.

Let's run down the components that make up a bank's Assets, Liabilities, and Capital. Assets first: this is the sum of the stuff the bank actually has. This includes assets with which the bank makes money, like loans and securities, as well as assets that just sit there, like cash, buildings, and carpets.

<i>(Numbers are in thousands)</i>	Wash. Trust	RBS Citizens	BankAmerica
<b>Total assets</b>	<b>3,044,725</b>	<b>107,214,881</b>	<b>1,658,890,050</b>
Cash and due from other banks	48,080	9,223,473	153,430,070
Securities	487,322	10,373,672	342,649,185
Fed funds sold & reverse repo	0	0	18,635,426
Net loans & leases	2,261,354	72,345,497	872,166,483
Loan loss allowance	30,752	1,121,499	25,830,910
Trading account assets	4,115	997,997	81,879,113
Bank premises and fixed assets	27,482	1,107,902	10,519,485
Other real estate owned	2,447	86,812	3,561,988
Goodwill and other intangibles	65,213	9,488,329	66,047,618
All other assets	148,712	3,591,199	110,000,682
<b>Total liabilities and capital</b>	<b>3,044,725</b>	<b>107,214,881</b>	<b>1,658,890,050</b>
<b>Total liabilities</b>	<b>2,718,371</b>	<b>88,455,001</b>	<b>1,450,487,508</b>
Total deposits	2,236,573	79,088,025	1,229,906,284
Interest-bearing deposits	1,882,329	57,025,176	843,209,101
Fed funds purchased & repo	0	2,928,499	61,595,984
Trading liabilities	4,249	940,558	37,098,930
Other borrowed funds	417,904	4,013,145	67,406,635
All other liabilities	59,645	1,484,774	38,704,865
<b>Total bank equity capital</b>	<b>326,354</b>	<b>18,759,880</b>	<b>206,633,774</b>
Stock	3,000	76	4,296,843
Surplus	172,241	16,350,198	184,115,344
Retained profits	211,113	2,409,606	18,221,587

Table 1.1: Balance sheets for the medium-size Washington Trust bank, the large regional RBS Citizens, and the bank and thrift parts of the huge national Bank of America.

You can see that Washington Trust, a community-oriented bank is likely almost loaned out, with only a couple of percent of its total deposits in cash (these are the reserves), whereas Citizens and Bank of America have over 10%. This probably reflects both regulators' demands that these big banks rebuild their reserves (notice BofA's large loan loss allowance), and the slack in borrowing demand in the economy

(Numbers in thousands)

<b>Total assets</b>	<b>5,868,996</b>
Cash and due from other banks	500,778
Securities	2,125,236
Federal funds sold & reverse repo agreements	39,350
Net loans & leases	3,136,109
Loan loss allowance	54,259
Other assets	67,523
<b>Total liabilities and capital</b>	<b>5,868,996</b>
<b>Total liabilities</b>	<b>5,428,411</b>
Total deposits	4,842,545
Interest-bearing deposits	4,240,752
Federal funds purchased & repo agreements	172,200
Other borrowed funds	407,011
All other liabilities	6,655
<b>Total Bank Equity Capital</b>	<b>440,585</b>
Stock	2,000
Surplus	42,000
Retained profits	396,585

Table 1.2: Balance sheet for Bank of North Dakota. As in table 1.1, the total amount of loans outstanding is the sum of the "net loans" and the loan loss allowance. The \$2 million in common stock is the 1919 founding capital of the bank. Think of it as an accounting fossil. (source [banknd.nd.gov](http://banknd.nd.gov), 9/31/2012 quarterly report).

Note: These balance sheets and comments are provided by Tom Sgouros, through his book, "Checking the Banks".



#### 4.6 The following provides definitions for terms used in the Balance Sheet

**Cash and due from other banks** Includes all coins and bills, as well as any deposits at other banks (sometimes called *correspondent banks*). This includes reserve funds held on account at the Federal Reserve.

**Securities.** Some securities, such as US Government bonds, are just nearly-liquid stores of money. Other securities are purchased when the bank can't find enough loans to fill out its portfolio.

**Federal funds sold & reverse repo agreements.** This is money the bank has loaned to other banks. *Fed funds* loans are typically unsecured, and have very short terms, like one day, and are usually made to satisfy somebody's liquidity needs. A *repurchase agreement* (also *repo*) is also a short-term loan, generally for the same purposes, but are secured by some collateral—the stuff to be repurchased. From a bank's perspective (or the bank examiner's) the important aspect of these transactions is that they are free of reserve requirements, and that's why they have their own line on the balance sheet. A bank can lend and borrow in the Fed funds and repo markets without affecting the reserves it is required to have on hand. This means a bank can borrow in those markets to make up a reserve shortfall, which is often why such loans are made.

**Net loans & leases.** This is the dollar amount of all the loans outstanding *minus* the loan loss allowance. It is normal to account for the bank's credit risk right on the asset side of the balance sheet like this. This is a more realistic assessment of the value of the outstanding loans than simply relying on their face value so it makes some sense to account for it this way instead of with a compensating liability.

**Loan loss allowance.** The bank assumes that this amount of the outstanding loans won't be repaid—it's the dollar value of the bank's credit risk exposure. A bank can appear more profitable by reducing this number, so it's best to read this value as the estimate of the credit risk that has survived pressure from upper management to report higher profits.

**Trading account assets** This definition is tricky, but in essence, these are assets traded for the bank's own benefit, as opposed to its customers. Because it's theoretically not customer money at risk, the regulations about what kinds of investments are kosher are less stringent, and banks can invest in derivatives and short selling and other unspeakable acts. Unfortunately, because it's all the same bank, the distinction is usually nearly meaningless in a practical sense.

A bank's most important liabilities are to its depositors, but those are not the only ones. The liabilities constitute everything the bank owes to anyone.

**Deposits** The dollar amount that the bank owes to its depositors. In bank balance sheets, this is often broken out into interest-bearing and non-interest-bearing accounts, to give a first-approximation guess at the bank's cost of funds. You can use this to compute the *loan to deposit ratio* for a bank. It's just what it sounds like, the dollar volume of loans divided by the dollar volume of deposits, and the higher the value, the higher the risk. According to FDIC data, banks generally run in the 75-85% range, though they are commonly up in the 90s, too. The banks in the table are at 101%, 91%, and 71%, respectively. Bank of America has lots of lending capacity by this measure, and Washington Trust looks pretty much tapped out. BND (page **Error! Bookmark not defined.**) is at 65%.

The larger banks are abusing this ratio. They are only setting it at 70%-75% and buying businesses with the 10%-15% of remaining depositors credit.

**Federal funds purchased & repo agreements** This is just the flip side of the same kinds of transactions as you see on the Asset side of the accounting. Here, the bank is borrowing the funds.

**Trading liabilities.** Like the trading assets, the trading liabilities are supposedly only relevant to the bank's "own" money. Just to pick a not-so-random example, JP Morgan Chase's trading assets of \$314 billion minus their trading liabilities of \$118 billion is larger than their capital of \$142 billion, so it's not hard to tell they are actually trading with money they owe to others, though they doubtless have rulings and arguments to claim otherwise.

In addition to these, the bank probably has some unpaid suppliers, some sick time it owes its employees, some other forms of loans it has taken, and so on. Turning to the capital, again, this is whatever the bank has and doesn't owe to anyone, the bank equity capital, or equity. The two components are the stock it has sold over the course of its existence and whatever profit it has made and not distributed to its shareholders: what it was given and what it earned itself.

**Stock** This is the dollar value of the stock issued by the bank. When you're calculating how much of a company you own, the nominal value (*par value*) of the stock is what's relevant. The total stock of Washington Trust is \$3 million. If you owned \$300,000 of shares, you would own 10% of that bank, even if you bought them for \$500,000. If the stock has no par value, then this is just the market value of the stock.

**Surplus** This is the amount of capital there is beyond the nominal value of the shares. There are a few different ways for it to get into the balance sheet. One way is that when the bank stock was sold to the public, the surplus is how much beyond the par value that the bank actually got for its shares. That \$3 million in

Washington Trust shares actually sold for \$172,241,000, probably in several sales over the years

**Retained profits** Anything the bank has earned and not distributed as dividends to its shareholders belongs to the bank and doesn't have to be paid to anyone. Therefore it counts as capital. You can see some very different business strategies here. BND is wholly owned by the state of North Dakota, who started it in 1919 but put little money into it after that (except for that period in the 1970s). So almost all its capital is retained earnings. Washington Trust also has a fairly high proportion of its capital in retained earnings, while it makes up only about 10% of the capital for the two bigger banks in table **Error! Reference source not found..** These banks have earned plenty of profit, but it has likely been distributed to their shareholders.

### **Self-Check:**

*Questions TBD after the group edits – including:*

- 1) How do these concepts reflect Key Principle #5 – Trust & Confidence in Banking?
- 2) Review your draft Road Map plan to integrate new learning from this Chapter

**Conclusion to Chapter 5.** The learning objectives of chapter 4 were to take the basic categories of accounting, balance sheets and financial statements introduced in chapter 4 and demonstrate how they work in operations; how the basic products and services of banks and bank management affect the assets, liabilities, capital, returns and capital risks of banks.

### **Conclusion to Part II**

The objectives of Part II were to acquire the understanding of the basics of bank accounting and operations, first as static concepts in chapter 4 then as dynamic drivers of bank operations in chapter 5. This now prepares you to proceed to the financial and structural aspect of getting a public bank started.

**Part III. Chapters 6 and 7** are intended to be the quantitative part of “how to get started”, words and numbers. The process of capitalization and detailed examples of qualifiable assets, deposits, and relationships between them. The loan portfolio, examples of lending, public bank as a Public Utility, types of investments, everything to make a bank (initially) run properly.

## **Chapter 6. Financial Aspects - Capitalization and Deposit Requirements**

**Capitalization is an involved subject which will eventually lead back to the budget and respective CAFR of the public entity starting a bank. The process of locating capitalization and initial deposits will probably need banking consulting for each originating public banking team.**

Lessons to be Learned in Chapter 6:

- Review core concepts of capitalization more thoroughly for your proposed public bank -
  - Differences between the terms “capital” and “capitalization”
  - How bank capital is measured
  - The composition of capital ratios and other regulatory indicators.
- Four suggested methods of capitalization
- Review online resources available to gather information and data for informed projections of loans and other business that your public bank may expect in its first years.
- What is “risk-weighting”?
- What is “leverage”?
- How much initial capital is needed to start up a bank, and some general references of where to get it.
- Select the most promising forms and sources of capitalization for your public bank.

### **6.1 What is Capital?**

The traditional way of writing the equation is:  $\text{Assets} = \text{Liabilities} + \text{Capital}$ . However, let's do a little algebra and subtract liabilities from both sides of the equation so that we end up with:  $\text{Assets} - \text{Liabilities} = \text{Capital}$ .

Looking at this equation we can see that algebraically, Capital is what is left on one side of the equation after we subtract things we own (Assets) and things that are owed to others by us (Liabilities). If this is a positive number, we are solvent.

If it is a negative number, we are insolvent (bankrupt). This applies whether we are talking about individuals or banks. However, for banks, solvency gets quite a bit more complicated because of regulations designed to protect the bank's depositors. Thus, this is the second meaning and type of capital (capital minimums).

## **6.2 What is Capitalization?**

Capitalization is the investment of a town, township, county or other local governmental entity in a public bank. Capitalization is the initial capital, cash or fixed assets that was invested to start the bank. Although fixed assets may be used to capitalize a bank, they are not defined or used as the Tier 1 capital.

## **6.3 What is the Capitalization Ratio?**

The business of a bank, at least the traditional community bank that most of us think of and the public banks we are proposing, is to take in money from depositors and lend it out again at a profit. Knowing that there is some risk of loss from making loans, banking regulations require that the capital of banks be more than sufficient to cover likely losses from loans. This ensures that the bank remains solvent and depositors' money remains safe. It is not enough that the capital side of our equation simply remains a positive number. As a result, regulations require that a bank's capital be at least a certain percentage of the amount at risk. This is known as a **capitalization ratio**.

Some types of capital are better for offsetting risk than others, either because it is safer or more liquid (meaning it can be converted into cash more easily when needed). For banks, there are two different categories of capital known as Tier 1 and Tier 2 capital.

- Tier 1 capital must be at least 4% of total risk weighted assets
- Total capital must be at least 8% of total risk weighted assets.

Essentially, Tier 1 capital is the more safe and liquid of the two and so must be at least half of the capital requirement. It consists of cash and liquid securities.

More precise and more complicated definitions of Tier 1 and Tier 2 capital details can be found on the Cleveland Federal Reserve Bank website:

<http://www.clevelandfed.org/research/trends/2012/0512/01finmar.cfm>.

## **6.4 Reviewing risk weighting, again**

For a bank, the things that are at risk would include mortgage loans, ordinary loans, loans to other banks, etc. Any one of these runs the risk of not being paid back in full. Because the risk varies for these, they are given different weights

when calculating the capital requirement. The risk weight is shown in the chart below. As with any weighted calculation, the risk weight is multiplied times the value and then those amounts are totaled up to come up with a number representing weighted risk. However, these “Risk Weight” numbers are usually very much in dispute, and will probably be revised.

Asset	Amount (Million)	Risk Weight	Risk-Weighted Amount
Cash and equivalents	\$40	0	\$0
Government securities	\$80	0	\$0
Interbank loans	\$100	0.2	\$20
Mortgage loans	\$200	0.5	\$100
Ordinary loans	\$300	1	\$300
Standby letters of credit	\$80	1	\$80
Total	\$800		\$500

In this case the total capital requirement would be \$40 million ( $8\% \times \$500 \text{ mil}$ ). Tier 1 capital must be at least \$20 million ( $4\% \times \$500 \text{ mil}$ ). In practice, the actual ratios vary dramatically depending on the bank size and type of business. Wall Street banks typically are sitting on huge amounts of cash and so their ratios tend to be much higher than those of a community bank.

### 6.5 How much Capital will your public bank need?

In the case of a non-FDIC bank, the regulatory requirements described above would typically be set by the individual state’s financial regulator (such as, in California, the Department of Financial Institutions). How much capital will your public bank need? We have looked at the regulatory requirements and assume that you have determined the requirements within your state. How can you calculate the starting amount of capital your bank should have? From the above, you will note that the capital requirement and leverage requirements are based on assets (risk) that the bank holds, primarily in the form of loans.

**Note.** In calculating the amount of capital needed when starting a bank, you need to have a realistic estimate of the amount of loans the bank is likely to make. From the loan / credit needs, the amount of deposits can be estimated, and from there, the amount of start-up capital.

Like any estimate, this is always going to be just that: an estimate. However, also like any estimate, the more information and the more reliable the information you based the estimate on, the more accurate the estimate is likely to be. So what information do you need and where can you get it?

The information you need is that which will allow you to estimate the value of the loans that the bank will make. Ideally, you would like to get information that directly identifies demand/need for loans rather than simply statistical information from to which you apply a guess as to how it relates to actual loan demand. Keep in mind that, if you are following the Bank of North Dakota models, in which the bank lends in cooperation with a community bank, you should determine/estimate how much of the total loan demand a public bank would take on in participation with local & regional community banks.

Ultimately, the capital your public bank will need to start with is determined by

- the expected demand for loans
- multiplied by the capitalization requirement
- as well as any calculations required by your state banking regulatory agency, which has its own calculations

An interesting question can be asked: Can a small county like Nevada County support the operation of a wholesale bank that only works in cooperation with local and regional community banks? Let's look at the math. In our discussions with the California Department of Financial Institutions, their expectation of a minimum starting capital is somewhere between \$10M - \$20 million depending on the projected function/amount of business the bank is intending to do. The Department of Financial Institutions is now joined with the Department of Corporations to form the California Department of Business Oversight.

In the case of a public bank, essentially most of its capital is going to be Tier 1 capital. And, assuming a healthy Tier 1 leverage ratio (Tier 1 capital/total asset) of 5 percent, and a starting capital of \$10 million. That would mean this public bank could safely produce total assets of approximately \$200 million.

If we follow the Bank of North Dakota model, only about 50% of the total assets are loans, so the BNB bank would be loaning approximately \$100 million. The balance would be in other investments, which is certainly feasible since the County currently has between \$155 and \$200 million invested. Using that model, loans would only be made in cooperation/shared with the community banks. If, in order to provide security for the County's money, the bank limited its share to

60% of the total loan value, the total amount of loans into the community, including the community bank shares would be around \$167 million.

An additional \$167 million in credit inserted into Nevada County would have a significant impact. As part of our planning process, we're going to develop a business model that calculates that impact. For a time, we'll call this the capitalization model. Condensing the above discussed, the general rule of thumb is that, in order to operate without regulatory restrictions, an institution must be well-capitalized.

To be well-capitalized, the following U.S. industry accepted minimums apply:

- A Tier 1 leverage ratio (Tier 1 capital/total asset) of 5 percent
- A Tier 1 risk-based ratio (Tier 1 capital/risk-weighted assets) of 6 percent
- A total risk-based capital ratio (Tier 1 + Tier 2 capital/risk-weighted asset) of 10 percent

The state regulator may have different or additional guidelines. For example, representatives of the California Department of Financial Institutions will tell you that their primary concern is not actually the amount of startup capital, but rather the experience and qualifications of the people who will be running the bank. They need to be very satisfied with your management team, and also with a well written business plan.

## **6.7 Recommended Resources for Loan Demand**

Here are some recommended resources for gathering data on which to base an estimate of loan demand for your public bank:

**Economic Development Organizations** (state, municipal, county) – Most cities, counties and states have organizations either within their own organizations or independent/partially independent organizations with which they contract to promote tourism and industry within their territories. These will gather, analyze and summarize data and issue publicly reports that can be very useful. They also may be helpful in conducting surveys of local businesses.

**Government Treasury and Tax Assessors' Data** (state, municipal, county) – Every level of government has both treasury departments and tax assessors who collect, maintain and make publicly available useful economic data, including CAFR (Consolidated Annual Financial Reports) reports. Also, don't overlook building permit departments. Again, these departments may be willing to assist



directly or passively in your surveys (for example, simply putting your printed survey or a brochure with a web link to it on their counters).

**Local and Regional Trade Associations** – Local trade associations (ex. contractor’s associations) and regional or national trade associations for specific industries that represent a significant portion of the local economy your public bank will serve will frequently have historical and recent data on their industries. Also, trade associations may be willing to assist in conducting surveys of their members to determine what their credit needs and experience are (see Surveys of Businesses below).

**Surveys of Businesses** – The most useful and accurate way of determining demand for loans is probably to ask potential loan customers directly by conducting a survey in person or online. An example of a survey being conducted in Nevada County, California can be found in Addendum 2.

**SEC/ FDIC Filings for Local & Regional Banks & Publicly Traded Companies**

The Securities and Exchange Commission (SEC) requires publicly traded companies to file a number of different reports. A description of these and the actual reports can be found at: <https://www.sec.gov/edgar.shtml>. These reports can be reviewed to determine current and historical loan demand by companies and bank loans outstanding. Many bank financial statements are also publicly available via FDIC reporting, which can be found at: <http://www.fdic.gov/bank/statistical/>

**Local and Regional Banks and Banking Associations** – Banking associations will typically have a variety of statistical information available, both historical and forecast. In addition, they are good place to get a relatively complete list of the community banks serving the area of your proposed public bank and those banks officers along with contact information. The latter can be particularly helpful in developing a network of support among community bankers. There are typically more than one banking association in a given state representing different categories of banks.

In California, for example, there is the California Bankers Association generally representing the larger banks, the California Independent Bankers representing mostly smaller local and regional banks, the California Mortgage Bankers Association, the International Bankers Association of California Association, the California Federal Savings & Loan Association, and so on.

Even in North Dakota, with its state bank and relatively small economy, there are the North Dakota Bankers Association and the Independent Community Banks of North Dakota.

One potential source of capital for a public bank is the US Treasury Department CDFI (community development financial institutions) fund, described in some detail below. The CDFI community has its own banking association: the community development bankers Association, <http://www.cdbanks.org/>.

**Census data** – While this data and analysis of it is available from a variety of sources, a direct source is: <https://www.census.gov/compendia/statab/>. A wide variety of information is available although, in many cases, it is not broken down to our local economy levels. While it will not provide direct data on loan demand, by comparing historical loan demand with historical census data, one can estimate trends and adjust for differing economic conditions.

## **6.8 What forms can capitalization take?**

Traditionally, for private bank, the initial capital is raised by selling stock. Those funds are then invested in the necessary brick and mortar facilities and equipment, with the remainder going to the purchase of various financial instruments. Both the physical assets (known as fixed assets) and financial instruments are counted as assets and serve as capital as long as total assets exceed total liabilities. Specific assets are not identified as being the bank's capital. In the big picture of capitalization, what counts is the excess of assets over liabilities, rather than the specific form of those assets. However, as noted previously, certain types of assets represent less risk and therefore count more in terms of the bank's capital requirements.

### **Fixed assets can be used as Capitalization**

What is a particularly key point for a public bank is that fixed assets (which include land, buildings and equipment) can count towards the bank's capitalization. These are not treated as a risk based asset, but rather like cash. They do not qualify as Tier 1 capital for the purposes of capital requirements and regulatory ratios for banks. They do reduce the risk based assets of the bank.

$$\text{Risk Based Assets} = \text{Total Assets} - \text{Cash and Equivalents} - \text{Fixed Assets}$$

Addendum 1 (Consolidated Reports of Condition and Income for a Bank with Domestic Offices Only – FFIEC 041) is the reporting form for banks required by the Federal Financial Institutions Examination Council (Note: the addendum can

only be opened with Adobe reader or Adobe Acrobat). The relevant sections of this report are section RC, balance sheet, section RCM, memoranda (which includes other real estate owned), and section RCR, regulatory capital.

The relevant aspects of these sections are, in summary, that premises and fixed assets as well as real estate owned qualify as bank equity, which is another term for bank capital. For a public bank, this means that the property, buildings and other fixed assets of the government entity owning the bank qualify as capital.

Most government entities own property, buildings and other fixed assets whose value is well in excess of the value of their cash and investments. For example, Nevada County, California, has cash and investments of between \$150 million and \$200 million (this varies by the time of year because major tax revenues are received and dispersed only during specific periods). Nevada County's fixed assets, after depreciation, total approximately \$265 million. These are for the County itself, and do not include the cash and investments or fixed assets of major separate department/operating units.

FYI, this sort of information is available from all public entities via their CAFR (Consolidated Annual Financial Report), which is typically available on the entity's website in their Treasurers section. If not, it can be requested from the Treasurer, who is legally required to generate CAFR reports and make them publicly available. Each separate department/operating unit is also required to make their CAFR available. It may be necessary to do a little digging to identify all of the separate operating units for the government entity for which you're trying to establish a public bank in order to fully understand the fixed assets and cash and investments available for capitalization and/or deposit.

How does this apply to bank capitalization? Simply, that the government entity can assign some of its fixed assets to the bank as partial capitalization. However, 50% of the initial capitalization needs to be in a more liquid (spendable) form.

### **Cash and Investments**

Cash, of course, would seem to be self-explanatory. Not quite so, though. A bank, and particularly a wholesale bank like a North Dakota modeled public bank that does not deal with the general public, will have very little, if any, currency on hand. Cash on hand does not earn a return. Instead, a bank's capital will be primarily in various forms of investments. These can range from deposits in other financial institutions, including the Fed and other banks, to a variety of securities held and, ..... of course, loans.

The term "Cash and Cash Equivalents" refers to types of funds that are available essentially immediately, such as other bank deposits,, short-term government bonds, or Treasury Bills - financial assets that can be converted quickly and easily to cash. A portion of a bank's initial capitalization will need to be cash and cash equivalents for start-up operations.

The municipal, county, or state government will typically hold most of its funds in the form of cash or cash equivalents; investments that can be readily sold on open markets. Again, between the Consolidated Annual Financial Report (CAFR) and its Treasurers Report, you can identify exactly what forms your government entity's funds take. For example, Nevada County, California's 2012 CAFR can be found in Addendum 3. The section on cash and investments, beginning on page 87, provides general information on the investments and cash held by Nevada County. More detailed information can be found in the County's June 2013 Treasurers Report, Addendum 4, beginning on page 5. The latter provides totals as well as the values of each of the individual accounts. You will note that almost all of these accounts can be readily converted to cash.

### **Securities**

This primarily refers to shares in commercial entities such as stocks and corporate bonds. In most cases, these can be considered cash equivalents, as they can be readily sold the appropriate open market. However, not all securities are traded on open market.

### **Loans**

The other primary form of a bank's capital is its loan portfolio. However, loans will obviously not be part of a bank's initial capitalization, as the bank has yet to make any.

It should be noted however, that if a public bank follows the Bank of North Dakota model, a major portion of the banks ongoing capital will remain in the form of cash, cash equivalents and securities. As noted in BND's 2012 financial statement, Addendum 5, approximately 50% of its assets remain in the form of cash, cash equivalents and securities.

## **6.8 Sources of capitalization for a public bank.**

The following are suggestions for sources of capitalization for a public bank. Some of these sources can be used in combination, where available.

### **Public Funds and Assets of the Government Entity Establishing the Bank.**

The most obvious and simplest option for sourcing funds for capitalizing a public bank are funds already held by the government entity establishing the bank. As described above, you can determine the available funds from the CAFR and Treasurer's Report.

While investing some of these funds in a public bank would be straightforward, it has the disadvantage of reducing the funds available for deposit in the bank, and thus available for loans. This disadvantage can be minimized, however, by assigning some of the government's fixed assets (land and buildings) to the bank as initial capitalization. **As long as the bank remains a wholly-owned subsidiary (DBA – "doing business as") of the establishing government entity, both the funds and the fixed assets remain in the ownership and control of that government's citizens.**

If the public funds and assets of a single government entity are used to establish a public bank, that entity is essentially the sole shareholder in the bank.

### **Joint Government Venture**

Rather than a single government entity capitalizing and owning the public bank, a joint venture could be established with more than one government entity. As an example, a county could establish a public bank jointly with other major municipal governments within the county. Alternatively, adjoining counties could form a public bank. In such a joint venture, each entity would own shares corresponding to its initial capital investment and "dividends" would be paid in the same proportions.

Joint government ventures could enable establishing a public bank in areas with smaller economies and tax bases.

### **Treasury Department CDFI Grants.**

The United States Department of the Treasury operates a program titled Community Development Financial Institutions Fund. This fund provides grants for the establishment of Community Development Financial Institutions (CDFI's). The Community Development Financial Institutions (CDFI) Fund was established by the Riegle Community Development and Regulatory Improvement Act of 1994 to promote economic revitalization in low-income communities. To quote from its website:

*The CDFI Fund's mission is to increase economic opportunity and promote community development investments for underserved populations and in distressed communities in the United States. The CDFI Fund invests in and builds the capacity of community-based, private, for-profit and non-profit financial institutions with a primary mission of community development in economically distressed communities. These institutions – certified by the CDFI Fund as community development financial institutions or CDFIs – are able to respond to gaps in local markets that traditional financial institutions are not adequately serving. CDFIs provide critically needed capital, credit, and other financial products in addition to technical assistance to community residents & businesses, service providers, and developers working to meet community needs.*

If the region served by the public bank's establishing government entity includes a qualified "economically distressed community," there are two programs within the Community Development Financial Institutions Fund that might potentially be accessed to contribute to the capitalization of a public bank.

**The CDFI Fund Financial Assistance Awards (FA):** A CDFI may use an FA award for financing capital, loan loss reserves, capital reserves, or operations. FA awards are made in the form of equity investments, loans, deposits, or grants, and the CDFI is required to match its FA award dollar-for-dollar with non-federal funds of the same type as the award itself..... and

**The Bank Enterprise Award Program (BEA Program):** The BEA Program complements the community development activities of insured depository institutions (i.e., banks and thrifts) by providing financial incentives to expand investments in CDFIs and to increase lending, investment, and service activities within economically distressed communities. The BEA Program would require the public bank to be a member of the FDIC.

Awards are based on activities within three categories:

1. CDFI Related Activities: Equity Investments, Equity-like Loans, Grants, Loans, Deposits/Shares, & Technical Assistance to Qualified CDFI Partners.
2. Distressed Community Financing Activities: Affordable Home Mortgage Loans, Affordable Housing Development Loans, Small Business Loans, Home Improvement Loans, Education Loans, and Commercial Real Estate Loans.
3. Service Activities: Deposits, Community Services, and Financial Services

Details on this Treasury Department program can be found at:

<http://www.cdfifund.gov/>

### **Municipal Bonds**

For earning interest, the public bank or the established government entity can issue municipal bonds. A bond pays interest-only until the end of its term, when the principal is due and is paid back. Municipal bonds are attractive to investors because the interest earned is tax-free.

If issued by the bank, the interest and the ultimate principal payments would be made by the bank. This would increase the bank's costs and impact the interest rates it would need to charge. If issued by the government entity, those costs would have to be paid by that entity in which case it is crucial that it have the revenue needed to support those costs. However, bank profits should increase that revenue more than the bond interest costs because the amount of interest generating loans will much larger than the amount of bonds sold.

Bonds are secured by the full faith and credit of the issuer. The interest rates paid on bonds is determined by the bond market's perception of the risk of nonpayment. The perception of that risk would most likely be lower if the bond was backed by the full faith and credit of the government entity rather than a public bank, with which the market is not familiar. So, the interest rate is likely to be significantly lower if issued by the government entity. Depending on rating (A, AA or AAA), current twenty-year municipal bond rates range from 4.55% down to 3.75%.

The main advantage of capitalizing the public bank with a bond is that it would free the funds of the government entity to be deposited in the bank where they would be available for loan. Because of the money multiplier effect of loans, the potential return on investment is most likely better if the funds are available for loan and bonds are paid for than if the funds are tied up as bank capital.

An additional advantage of capitalizing the public bank with municipal bonds is the opportunity for "buy-in" by the local community.

### **Special Assessment Bonds**

A special assessment bond is a type of municipal bond used to fund a development project. Interest owed to lenders and the ultimate principal is paid from a special, additional property tax levied on the community benefiting from the particular bond-funded project. Unlike a traditional municipal bond, a special assessment bond may not be secured by the full faith and credit pledge of

the issuing government, in which case it is perceived as riskier by investors and would pay a higher interest. However, if secured by the full faith and credit pledge, because there is additional revenue needed coming from a special tax assessment rather than just from existing revenue sources, the interest rate paid on these bonds may be lower than traditional municipal bonds.

The advantage of a special assessment bond used to initially capitalize a public bank is that the principal, interest and servicing costs would be covered by the special tax assessment rather than coming from the bank's profits. This would enable the bank to make loans at a more competitive rate.

**Pension funds.** Pension funds, by nature, look for investment alternatives that offer reasonable return at low risk. In the recent recession, pension funds took major losses, because of the risk-involved investments of Wall Street. A public bank could be an attractive alternative investment for pension funds. The Bank of North Dakota has provided a model track record of security and consistent return. Most likely, however, only pension funds of local government and industry employees would be likely to invest in the initial capitalization of a local public bank. Large municipalities are likely to have their own government employee pension funds. However, employees of smaller government entities are frequently going to be enrolled in a statewide pension fund such as CalPERS in California. Should there be local pension funds, these can be approached for investment in the public bank as shareholders.

### **Financial Endowments**

A financial endowment is a transfer of money and/or property donated to an institution. We are most familiar with these in the context of educational or nonprofit endowments. However, we should consider the possibility that there are supporters of our local community who might be willing to make an endowment for the capitalization of a public bank. These might be wealthy philanthropists, nonprofit funds or companies with a vested interest in the local economy, education and infrastructure. An endowment for a public bank should still be considered as a nontaxable donation.



## **Chapter 7 Developing the Loan Portfolio based upon the Public Service Mission of your Bank**

Public banking is banking operated in the public interest, through institutions owned by the people through their representative governments. Public banks can exist at all levels, from local to state to national or even international. Any governmental body which can meet local banking requirements, theoretically may, create such a financial institution.

Lessons to be Learned in Chapter 7:

- List of different sources of bank income:
  - Which sources are most relevant to your public bank?
  - What are the credit needs of your community?
- How bonds are used for Infrastructure. As an example, review how the Vermont Municipal Bond Bank has been assisting Vermont's municipalities with access to long-term bond financing since 1970
- How Other States and Vermont have plans to combine other public loan agencies with their banking startup. Their Bank, which would supply the deposits, would then already have an experienced loan function.

7.1 Public banking is distinguished from private banking in that its mandate begins with the public's interest. Privately-owned banks, by contrast, have shareholders who generally seek short-term profits as their highest priority. Public banks are able to reduce taxes within their jurisdictions, because their profits are returned to the general fund of the public entity. The costs of public projects undertaken by governmental bodies are also reduced, because public banks can charge low-rates of interest to themselves. Reducing interest/ fees has been shown to reduce the overall cost of such projects by, on the average of 37%.

When the public interest demands, the mission of public banks is to respond immediately, to assure the long-term prosperity of the community. In the U.S., the [Bank of North Dakota](#) is a prime example of such a public bank.

### **7.2 Sources of Bank income**

Banks earn money in numerous ways. The basics have to do with the classic investment advice of buy low, sell high. Banks take funds at a low interest rate

through the banking network and lend it out at a higher rate. They also have added a number of services for which they receive income.

With the decline in interest rates over the past decade, large private banks have increasingly turned to fee income. These kinds of fees are not only the ones you pay on a checking account or on credit cards, but they have enlarged their work to include fees on business services like trust management, brokerage processing, and bond issuances.

Large private banks can be profitable with almost zero interest rates, particularly when the Federal Reserve lets them borrow at those rates, and they have all this fee income built into their business model. Smaller private banks, who tend not to have the fee income of the larger ones, are having difficulty. Here's a short and incomplete list of the many ways banks make money besides interest rate arbitrage.

**7.2.1 For larger Private Banks** many retail services and charge fees are standard. Also, many additional services are available in the area of Investment Banking:

**Loans.** Commercial loans, Home mortgages, Student loans, basically any loans that are secure and make good business sense for the bank. Basically a loan is an investment, and these days, since banks are private corporations and are able to borrow at near zero interest from the Federal Reserve, the banks are purchasing private businesses, airports, railroads, water industries.... and only lending out an estimated 70% of what they could lend. This trend of moving away from the original intent of the banking function has been detrimental to many small businesses.

**Bond sales** This is an investment bank function, however many big banks now have sister investment banks within the same holding company. A government or company that wants to issue bonds generally has them purchased by some bank for resale on the open market. Thus the bank is the *underwriter* of a bond. The bank will build profit into the transaction. Banks are frequently both the financial advisor to a city & the underwriter of its bonds. This is an obvious conflict of interest, however its been a long-standing relationship.

**Payment processing** A bank charter is essentially permission to transform checks into money and the other way around. Lots of money market funds exist that are not part of some bank. These funds will need this kind of service, which is why the checks for a fund you might own typically don't have the fund company's name on them, but some bank's instead.

**Financial Advice.** Financial advice on the joint financing of community projects can earn consulting fees.

**Lockbox Service** A government, agency, or company that sends out bills and receives payments, can use a *lockbox service* to receive the funds. This is an address to which customers send their bill payments, and the bank facilitates turning those payments into account balances.

**Consumer fees** Fee income from bank account customers has become increasingly important to banks. This includes the familiar account maintenance fees, ATM fees, overdraft fees, money transfer fees, and so on. Banks also charge merchants a fee when they take a debit card in a transaction.

**Credit card processing** A credit card customer is essentially a borrower and so pays interest on his or her balance, but even customers who pay off their balance each month are subject to a variety of fees: late fees, annual fees, over-the-limit fees, and more. The most notorious is the *swipe fee*, also called the *interchange fee*, charged to merchants who accept a card for payment. Swipe fees for credit cards earn banks over \$30 billion each year, in the US alone.

**7.2.2) For Public Banks,** these are some of the bank services suggested:

**Letters of credit.** For a fee, a bank will commonly offer its reputation, its credit rating, for a business that needs to buy something on credit. The Letter of Credit (LOC) assures the seller to that business that payment will be forthcoming,.... and it's ok to ship. LOCs can be used in loan transactions to substitute the public bank's credit rating for the other community bank's credit rating. This allows the borrower to borrow at a lower rate.

**Bond sales.** Some public agencies are able to offer bonds at a market value. The County or Agency that wants to issue bonds generally has them purchased by some bank for resale on the open market.

**Provide a Credit Commons.** Several economic exchange systems run off the credit commons concept. One of the most long lasting is the Switzerland WIR Bank. The WIR Franc is an electronic currency reflected in clients' trade accounts and there is no paper money. The Bank serves as the central "commons". WIR has perfected the system by creating a credit system which issues credit, in WIR Francs, to its members. The credit lines are secured by members pledging assets. This ensures that the currency is asset-backed.

**Loans.** Community Loans should be the bread and butter for the public bank. Its mission statement should be written around its service to the surrounding community. The public bank can organize methods of providing business loans,

student loans, community infrastructure loans, basically any loans that are secure and make good business sense for the community.

**Because of the importance of the Loan Portfolio to the mission of public banking, the next section shows how to estimate the size of your public bank, based on the credit needs of your City or County.**

### **7.3 Public Bank Startup-Capital Example based on Credit Requirements**

You've done your due diligence research and identified the credit needs not being met by the banks doing business in the area serviced by the government entity you propose forming a public bank (or being met at too high a fee and interest cost). Additionally, you have selected the categories of credit which best meet your criteria for the public bank to service. These criteria are likely to include: low credit risk, greatest positive economic impact on the area served, increase in ability to attract investment to the area served, greatest likely increase in government tax and fee revenue, and positive social benefits. Putting the credit needs of those categories together will give you a total loan demand.

If you are using the Bank of North Dakota business model in which the public bank only loans money in partnership with local and regional community banks, the next step is to determine what share of the partner loans that the public bank will assume. This will, in most cases, be determined by the credit aversion of the treasurer of the government entity whose duty it is to protect its funds.

However, since this business model assumes that community banks partnering in any loan stands behind the public bank is recovering the money should the loan default, the underwriters and management of those banks will also have a say in how much risk they are willing to accept in making the public loans.

- The first section of the charts below shows the estimated un-met credit needs for the categories of credit being targeted
- The second section of the charts shows the share of each loan that the public bank could take on for each category
- The third section shows the resulting loan portfolio of the public bank. And, there are two scenarios presented here.
- The first is a public bank for a single county or city. There are three examples shown by County 1, County 2, and a City

- Alternatively, a joint powers agreement could be established, in this case between two counties and one city, in which case the final column applies

	County 1	County 2	City	Joint Powers Agreement
Un-met Credit Needs by Category/Focus				
Business Lines of Credit	\$5,292,000	\$7,145,000	\$4,234,000	\$16,671,000
Business Equipment and Expansion	\$10,980,000	\$14,823,000	\$8,784,000	\$34,587,000
Business Startup	\$2,697,000	\$3,372,000	\$2,563,000	\$8,632,000
Real Estate - Affordable Housing	\$24,000,000	\$28,800,000	\$16,800,000	\$69,600,000
Renewable and Energy Conservation	\$6,000,000	\$6,900,000	\$4,200,000	\$17,100,000
Student Loans for Local Study	\$282,000	\$0	\$170,000	\$452,000
Farm/Agriculture	\$549,000	\$577,000	\$55,000	\$1,181,000
Total credit needs	\$49,800,000	\$61,617,000	\$36,806,000	\$148,223,000

Public Bank Share of Partner Loans (avg.)	County 1	County 2	City	JPA
Business Lines of Credit	55.0%	50.0%	50.0%	
Business Equipment and Expansion	65.0%	60.0%	60.0%	
Business Startup	50.0%	40.0%	60.0%	
Real Estate - Affordable Housing	70.0%	65.0%	50.0%	
Renewable and Energy Conservation	60.0%	80.0%	65.0%	
Student Loans for Local Study	60.0%		70.0%	
Farm/Agriculture	60.0%	50.0%	70.0%	

Public Bank Loans by Category/Focus	County 1	County 2	City	Joint Power
Business Lines of Credit	\$2,910,600	\$3,572,500	\$2,117,000	\$8,600,100
Business Equipment and Expansion	\$7,137,000	\$8,893,800	\$5,270,400	\$21,301,200
Business Startup	\$1,348,500	\$1,348,800	\$1,537,800	\$4,235,100
Real Estate - Affordable Housing	\$16,800,000	\$18,720,000	\$8,400,000	\$43,920,000
Renewable and Energy Conservation	\$3,600,000	\$5,520,000	\$2,730,000	\$11,850,000
Student Loans for Local Study	\$169,200	\$0	\$119,000	\$288,200
Farm/Agriculture	\$329,400	\$288,500	\$38,500	\$656,400
Public Bank Loan Portfolio	\$32,294,700	\$38,343,600	\$20,212,700	\$90,851,000

Average Public Bank Share	64.8%	62.2%	54.9%	61.3%
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The ultimate capital requirements for the public bank can be determined by applying the ratios discussed above to the total of the public bank's loan portfolio (the line titled "Public Bank Loan Portfolio "). The following chart shows the calculation for risk weighting of the proposed County 1 bank's assets.

It assumes an initial capital investment of \$10 million combining equivalents and cash and government securities which, from discussions with the California Dept. of Financial Institutions, is an approximate baseline for establishing a bank.

<b>Asset</b>	<b>Amount</b>	<b>Risk Weight</b>	<b>Risk Weighted Amount</b>
Cash and equivalents	\$5,000,000	0	\$0
Government securities	\$5,000,000	0	\$0
Interbank loans	\$0	0.2	\$0
Mortgage loans	\$16,800,000	0.5	\$8,400,000
Ordinary loans	\$15,494,700	1	\$15,494,700
Standby letters of credit	\$0	1	\$0
<b>Total</b>	<b>\$42,294,700</b>		<b>\$23,894,700</b>

Based on this risk weighting, in order to comply with healthy standards of capitalization, the bank would need to have the following amounts based on those capitalization standards:

County 1 Loan Portfolio	\$32,294,700
Tier 1 Leverage Ratio (5%)	\$1,614,735
Tier 1 Risk-Based Ratio (6%)	\$1,433,682
Total Risk-Based Ratio (10%)	\$2,389,470

Even the most demanding of these ratios only requires capital under \$2,400,000. The initial capital investment of \$10 million easily meets the requirements. As a reference, County 1 shown in these charts is based on data for Nevada County, California. Nevada County currently has approximately \$155-\$200 million in short and long-term investments. The \$10 million initial capital investment to establish a public bank represents between five and seven and half percent of its investment portfolio. Thus, Nevada County, California can establish a public bank with very low risk to its public funds.

As a further reassurance to the treasurers responsible for the government funds invested in a public bank, it should be noted that the estimate shown in the charts above represent the loan portfolios of an established bank that has been in

operation for some years. It would not be necessary, nor would it be likely, that the public bank would reach this level of loan portfolio without a "ramp up" period during which time the actual risks can be more fully evaluated.

#### **7.4 State's Banking Plans to use Previously Established State Lending Authorities to form their new Public Bank**

**7.4.1 The Vermont Economic Development Authority's (VEDA)** lending activity in FY 2013 coincided with the state's recovery from the significant damage wrought in the prior fiscal year by Tropical Storm Irene. In FY 2012, VEDA delivered an unprecedented level of emergency financing to devastated businesses and farms. This year, the Authority saw commercial, small business and agricultural financing demand normalize to pre-disaster levels. The remarkable resiliency of Vermont's businesses and farms has never been more evident. In town after town, businesses and farms met adversity by reinvesting, rebuilding, and charting new growth plans for the future.

To help support these investment efforts, a new source of sustainable energy financing at VEDA was created in FY 2013 through the passage of H.395. The new Vermont Sustainable Energy Loan Fund will provide a strong impetus to the many Vermont businesses and farms – both large and small – that seek to invest in their energy futures in sustainable ways, lower their carbon footprint, and increase their bottom line. Since its inception in 1974, VEDA has approved 7,056 separate financing instruments totaling over \$2.0 billion

**7.4.2 The Vermont Housing Finance Agency (VHFA)** was established in 1974 to finance and promote affordable housing opportunities for low- and moderate-income Vermonters.

Since its inception, VHFA has assisted approximately 27,000 Vermonters and their families purchase primary residences; and provided financing, development & management support, subsidy administration and tax credits to approximately 8,400 units of multifamily rental housing.

**Activities.** VHFA's primary activities include: [Single-family homeownership mortgage financing programs](#), Multifamily programs including: [Multifamily loan programs](#) [Asset management and monitoring](#) HAP contract administration [Federal and state Housing Tax Credit programs](#).

## **Funding**

VHFA operates with an average staff size of 40 and receives no general appropriation of State funds. Its loan programs are funded primarily through the issuance of tax-exempt bonds. VHFA operates on the net funds generated from fees and interest income that amounts to the difference between its cost of funds and the interest rate charged on its investment in loans. Bonds issued by VHFA are secured by the cash flows of the underlying loans made by the Agency, and are not obligations of the State of Vermont.

### **7.4.3 The Vermont Student Assistance Corp. (VSAC)**

The Vermont Student Assistance Corporation was created in 1965 as a public nonprofit agency to help Vermonters who want to go to college or other training after high school. VSAC provides grants, loans, scholarships, career education planning, and general information about how the student, or others in their family, can acquire the education they need.

**Mission.** Our mission is to ensure that all student Vermonters have the necessary financial & information resources to pursue their education beyond high school.

**VSAC Newsline.** Visit VSAC's online newsroom at [www.vsacnews.org](http://www.vsacnews.org) to find our press releases, annual reports, background information on VSAC (including bios of our management team and FAQs on our finances and programs), bios of our board members, and research briefs containing findings from our surveys of Vermont high school and college students.

### **7.4.4 Bonds used for Infrastructure.**

**Debt Management & Bonds.** The Office of the State Treasurer is responsible for the issuance and management of the State of Vermont's debt in a prudent and cost-effective manner. The State Treasury issues long-term debt consistent with authorization by the legislature. The full faith and credit of the State is pledged to the payment of the State's general obligation bonds.

**General Obligation Bonds.** General Obligation bonds are used for numerous purposes such as construction, renovation of state office buildings and state recreational, cultural, health, correctional and educational facilities; making grants to municipalities for the purposes of funding wastewater and drinking water facilities upgrades.



The Treasurer also is authorized to issue short-term notes for the purpose of raising funds to pay the expenses of government for which appropriations have been made but for which anticipated revenues have not been received.

**Transportation Infrastructure Bonds.** The State sells Special Obligation Transportation Infrastructure Bonds to pay for the rehabilitation, reconstruction or replacement of State and municipal bridges, culverts, and roads. These bonds have a useful life of 10 years. The bonds are *not* full faith and credit obligations of the State, but rather are repaid from motor fuel transportation infrastructure assessments of \$0.03 per gallon of diesel fuel and two percent of the retail price of each gallon of motor fuel.

**Muni Bonds Used by the County.** The Vermont Municipal Bond Bank has been assisting Vermont's municipalities (including school districts and fire districts) with access to long-term bond financing since 1970. Because the VMBB is highly rated, it is able to get access to very low interest rates. These low interest rates in turn result in lower cost of borrowing for municipalities. To date the VMBB has issued loans totaling over \$1.6 billion for Vermont capital projects.

### **Self-Check:**

1. Identify which of the listed sources of bank income are most relevant for your public bank?
2. Define the credit needs of your community, so that the size of your loan portfolio can be identified
3. Question to reflect on: which of the Key Principles are reflected by the information in the chapter ?

### **Conclusion for Chapter 7.**

The Starting point to establishing the initial size of your bank is to estimate the size of the loan programs or bond funding that could be handled by the creation of your public bank. To estimate the size, survey the credit needs of your departments and of the community. By knowing the credit requirements for the size of the loan portfolio, your team should be able to estimate the size of the deposits needed and the associated amount of capitalization required.