

Nuts and Bolts: A Public Banking Tool Kit

Tom Sgouros*

January 9, 2013

Abstract

Being a desultory collection of terminology useful for people who wish to discuss banks and banking in a moderately intelligent fashion, accompanied with idle thoughts on the subject of banking in the public interest.

Contents

1 Prologue	2
2 Bank accounting for dummies	2
2.1 Example balance sheets	9
3 Bank operation for dummies	13
3.1 Bank risk	14
3.2 Lending priorities	15
3.3 Other banks	16
3.4 Think like a banker	18
4 Starting a bank	19
4.1 What does a bank do with its capital?	19
4.2 Where are the magic beans?	20
5 Basic government finance	21
6 Potential banking scenarios	23
6.1 Beef up a CDFI	24
6.2 Service bureau	26
6.3 Alliance of small towns	27
6.4 The big enchilada	28

*Tom Sgouros is a policy researcher and writer, based in Rhode Island, who specializes in economics, finance, development policy and other nerdy topics. Over a 25 year career, he has advised people both inside government and outside, including dozens of candidates, elected officials, and lobby groups. He is a firm believer that what our financial system needs is more democratic control, and new kinds of financial institutions to replace the, um, less than stellar ones we have now. Reach him at tsgouros@gmail.com, or 401-662-9668.

1 Prologue

This document is a rough introduction to a number of banking concepts useful to people who are dissatisfied with the current state of the banking industry in America. One of the real problems that activists have is that they are, almost by definition, dilettantes. People who spend their careers studying banking tend to be, you'll be surprised to hear, bankers. By and large, they're happy with the system. And they should be; it's theirs. The rest of us, who may feel differently, spend our time in other occupations, acquiring other expertise. Some of us build things, some of us write things, and some of us simply learn how to be good humans. Which is great, but it becomes a disadvantage when we notice that banks are messing things up for everyone and we don't have the vocabulary to discuss the problems with confidence.

Here, then, is a random list of useful concepts, a discussion of how banks work, and some suggestions for changes we could make. This is not intended as a call to arms, or an investigation into exactly how banking has gone awry, just a primer on language and practice. I apologize in advance for the confusing nature of some of it, and for its incompleteness. Banks, banking, and money in general make for a confusing subject, and none of the insiders have any incentive to make things clear for onlookers. They use obscure language to describe simple things, and simple language to describe obscure things. I hope to have helped make a little of it clearer with this document. I would be delighted to hear about omissions I've made or corrections you think necessary. Contact information is on the first page.

Activists are, almost by definition, dilettantes. But we have to be better than that to change things.

2 Bank accounting for dummies

Banks exist in what may seem a topsy-turvy world of accounting, where money they are given counts as a liability, and money they lend counts as an asset.¹ This can seem odd, but it makes the *accounting equation* ($\text{Assets} = \text{Liabilities} + \text{Capital}$) work out fine, and that's why we do it that way.

Assets A corporation's *assets* are, generally speaking, the objects and entities it uses to make money. Banks are — or should be — in the business of loaning money in order to earn money, so their loans count as their assets. This does seem odd, since loans are money that's gone out the door, but a loan is money that goes out the door with a promise to be returned along with the interest on that money.

A bank's outstanding loans are not its only assets. Likely it owns some cash, too, and possibly some intellectual property, desks and chairs, real estate, and maybe the office carpets and a couple of private jets for the CEO. These are all assets, and they all appear on the bank's balance sheet.

¹Banks even have their own generally accepted accounting principles, different from normal companies. Insurance companies and the US Government do, too, but that's pretty much all the exceptions.

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 it owes to you, it counts among the bank's liabilities.

Bankers will often refer to the *cost of funds*, which is more or less the overhead required to acquire and manage some class of deposits. It's usually expressed as an interest rate, for easy comparison to the interest rates the bank charges on its loans. For example, if a bank has calculated that its cost of funds is 0.5%, then it can make money with those funds by lending at 0.6%. This, of course, ignores reserve requirements and lots of other details, but it's useful shorthand.

Just as its assets are more than its loans, a bank's liabilities are more varied than just its deposits, and will include accrued rent to its landlords, salaries to its employees, the cost of unpaid sexual harassment judgments, and so on. Like the assets, all of these liabilities appear on a bank's balance sheet.

Capital Bank *capital* is widely misunderstood, but it's not your fault. Bankers and regulators use the word in an irritatingly wide variety of contexts. The basic definition is simple: a bank's capital is money it doesn't have to pay back to anyone.² It's also called a bank's *equity*, which is a less confusing term to use (usually). Generally speaking, the equity was originally put up by the investors in the bank, whoever they are/were/will be, each of whom received an ownership share in the bank in exchange.

There are several ways in which capital can be acquired. A bank can sell stock, for example. A mutual bank or a credit union belong to their depositors, and certain kinds of restricted deposits count as capital. But put the variations aside for a moment: for any variant of a bank (or any company, for that matter) capital is just the stuff the bank doesn't have to pay back. The *owners* of a bank might have to repay a loan they took out in order to found a bank, but that's different from the bank itself having to pay it back.

²Now you can see how the accounting equation works: stuff the bank owns (assets) is always and by definition equal to the stuff it owes someone (liabilities) plus the stuff it doesn't owe anyone (capital). See figure 1.

Assets	Liabilities
Stuff the bank has	Stuff the bank must pay back
	Capital
	Stuff the bank doesn't have to pay back

Figure 1: Accounting equation: $Assets = Liabilities + Capital$ (equity). This is the foundation of double-entry bookkeeping, and is true by definition for any company. Anyone who tells you otherwise is probably trying to sell you something you shouldn't buy.

The other important component of capital is *retained profits* or *retained earnings*. Money the bank does not pay in dividends to its owners is kept by the bank, and while the owners might have some kind of claim on that money, it's no different than the claim they have on the rest of the company. A bank's ownership structure can be complicated, so the question of how much capital there is can be complicated to answer, but the bottom line³ is the same: it's stuff the bank doesn't have to pay back to anyone. You'll see this on reports sometimes as *bank equity capital* and books will sometimes call it *accounting capital*.

Here's what capital *isn't*: money kept on hand to pay its day-to-day liabilities. That money — made up of actual cash, along with accounts at the Federal Reserve bank, or with banks that have accounts at the Fed — is called a bank's *reserves*, or should be. Unfortunately, when a bank's reserves are too low, we often say the bank is “undercapitalized” or bring up the capital requirements or the Basel Accords. In an accounting sense, you could say this is loose talk, and it's more accurate to talk about reserves and reserve requirements. The loose talk is bad for clarity, but good for preserving the mystique of banking, because it leaves everyone else confused. After all, the whole purpose behind jargon is to have a way to tell the insiders from the outsiders, so it's very effective that way.

A bank can deal with a chronic reserve shortage by selling shares in the (wait for it) . . . capital markets. But reserve shortfalls are also typically addressed by: borrowing in the Fed Funds market; secured borrowing through repurchase transactions with other banks (see footnote on page 11); lying about the value of bank assets; making a profit; or all of the above.⁴

More about the confusion Imagine for a moment a bank that has \$1 billion in loans out there. We'll call it the Bank of Hoople. They're charging an average of 3% interest, so there's about \$30 million in income each year. Suppose expenses take half of that, leaving \$15 million for the shareholders. Suppose further that this bank has \$250 million in capital, from its shareholders. Each investor is getting approximately a 6% return (15 divided by 250) on his or her investment, which isn't terrible.

In the US, *reserve requirements* are 10% for *demand deposits* like checking accounts (sometimes called *transaction accounts*), and zero for *time deposits*, accounts with a fixed term, like CDs. Of course it's more complicated than this, with smaller requirements for smaller institutions, and exemptions for the first \$25 million under these conditions, and so on, but that's the rough rule. If bank management, given their mix of customer accounts, thinks they need 5% of their total deposit base in cash to meet their liquidity needs, then the bank's balance sheet will look (very

³Accounting slang. Isn't this fun?

⁴Or by getting the Fed to loan it money at 0.25% and using it to buy Treasury bonds at 2%. This is what the Fed did (and is still doing) after the financial meltdown of 2008, to, um, recapitalize the remaining big banks.

Capital is not the same as reserves. A bank can raise capital to increase its reserves, but they are different concepts.

roughly) like this:

Assets	Liabilities & Capital
\$1 billion loans	\$250 million capital
\$40 million cash	\$790 million deposits
\$1.04 billion	\$1.04 billion

The 5% reserve of \$790 million is about \$40 million, and that's what the bank has in cash and cash equivalents: bags of actual coins and bills, along with accounts at the Fed or at other banks who have accounts at the Fed if Hoople isn't itself a Fed member.

Now suppose the FDIC comes along and says the bank hasn't calculated its proportion of accounts correctly, or reclassifies their extra-special renewable CDs as transaction accounts, and they therefore don't have enough... capital.⁵ What they mean with their loose talk is that the bank doesn't have adequate reserves to defend against the *liquidity risk* it has undertaken (see page 14), or they have other reasons to be skeptical about the level of reserves. Whatever it is, they want the bank to increase its capital — *in order to beef up its reserves*.

This is unpopular among the bank shareholders because it dilutes the value of each share. Suppose the FDIC demands the bank get its reserves up to \$60 million ASAP. The difference between that and what they already have is more than a whole year's net revenue, so the bank turns to the capital markets, and sells \$20 million in shares. Now all's good, and the balance sheet looks like this:

Assets	Liabilities & Capital
\$1 billion loans	\$270 million capital
\$60 million cash	\$790 million deposits
\$1.06 billion	\$1.06 billion

Only problem is that now the shareholders are only earning 5.5% on their investment (15/270), and they're unhappier than they were before. Boo hoo, but this is why banks resist increasing capital requirements: the shareholders' return on investment goes down.

This is one way "capital" and "reserves" get confused. The bank raised capital in order to increase its reserves, but they are very different things. This is an appallingly simplified example, and the bank could have increased its reserves in other ways⁶ this example was chosen to illustrate how the two terms can easily be confused.

⁵This is a cartoon version of what the would FDIC say, but go with it for the moment. The FDIC would have more to complain about Hoople's managers than this, but leave that to the next section.

⁶Borrowing, for example. Or they could try some creative accounting to prevent anyone from noticing the problem in the first place. In 2011, Bank of America reported \$6.2 billion in net income for the third quarter, \$4.5 billion of which was due to changes in valuation of its assets. Billions of dollars of those assets are the toxic mortgage bonds that sank AIG, and the market for them has disappeared. But Fed-approved accounting changes enacted in the aftermath of the 2008 meltdown allows BofA to keep them on their books at the value BofA thinks they ought to be instead of marking the value to the actual market.

Still more confusion Liquidity risk, of course, isn't the only risk that banks face. Shockingly, sometimes loans are not repaid. This is called *credit risk*. Banks typically account for this by discounting the dollar value of the assets on their books, but that's not all they do. They also try to keep enough money around so that a loan going bad won't wreak some other kind of havoc. Think of it this way: a \$10 bet in a poker game means a lot more to someone who only has \$20 in chips than it does to someone who holds \$1000. Another way that "capital" is used is to refer to *financial capital*, or what you might think of as the pile of poker chips the bank owns.

Bank regulators, it turns out, don't just care about reserve ratios, but also about the total amount of money the bank has (or could have) on hand, compared to the total amount of the risks it has (or could have) taken on — the pile of chips compared to the size of the bets.⁷ The basic measure of a bank's health is the *capital adequacy ratio*, or *CAR*, and is defined by dividing the pile-of-chips version of capital with the risk-of-the-bets version of the bank's assets.

Liquidity risk isn't the only risk. Sometimes loans aren't repaid. Shocking, no?

You'll occasionally hear people talk about *Tier 1 capital* or *Tier 2 capital*. This usage stems from the *Basel Accords*, the series of international banking agreements that were supposed to create more security for the international financial system.⁸ As is typical in agreements like these, the distinctions are fine and complicated. After all, the banks spend a lot of time lobbying to make these regulations favorable to themselves, and that gets reflected in very complicated definitions. But as is also typical, the intent of the regulations is straightforward, however byzantine the elaborations and compromises made en route to an actual agreement.

The short version is that Tier 1 capital is supposed to be capital — money — that measures the strength of the bank, while Tier 2 is useful capital, but maybe shouldn't be counted as contributing to a bank's strength. A bank can lose Tier 1 capital and continue to operate, while Tier 2 capital is more like stuff a bank can use to repay creditors in the event it has to be liquidated.

Roughly speaking, Tier 1 capital is the value of the stock plus retained earnings, minus intangible assets. Because a bank should be prepared to survive in the case of losing this much money, most banks will keep the value of the capital around in relatively liquid form, maybe not in cash, but in short-term, very secure, investments. (Check out the example balance sheets in tables 1 and 2, below.)

Tier 2 counts things like reserves dedicated to cover loan losses, the value of the headquarters, and maybe those carpets in the CEO's suite. Banks, of course, want all their capital to be labeled Tier 1 because it makes the look stronger and able to loan out more money, while regulators — ones that haven't been captured, that is — will assume otherwise.

⁷The attentive reader will point out that for most banks the size of the bets is usually way bigger than the pile of chips, because so many of the bets are made with borrowed money. To tell the truth, those attentive readers are kind of a pain, but it is true that the poker analogy doesn't quite work here.

⁸Ha, ha, but that's another story.

Either way, we now have a definition of capital that is different than the accounting definition, but more useful for measuring the strength of the bank. Divide by the assets and we're done, right?

Not so fast.

Some of a bank's assets are riskier than others, even if they have the same value. For example, collection of T-bills worth \$1 million might be as valuable as a collection of mortgage-backed bonds worth \$1 million, but there is a lot less risk in the T-bills. So bank regulators devised a way to weight the assets by their risk when you're adding them up. The idea is to count the assets according to the amount you think could go bad.⁹ The cash can't go bad, so you don't count that. The mortgages could go bad, but not as bad as the business loans, which are in turn less risky than the investments in credit default swaps. The result is the *risk-weighted assets* or *RWA*.

*All assets are not equal.
Some are a lot riskier
than others.*

An example will help. Remember the Bank of Hoople, from page 5? Its assets might have looked like this:

Mortgage loans	\$500 million	×	50%	=	\$250 million
Business loans	\$250 million	×	80%	=	\$200 million
Credit swaps	\$250 million	×	100%	=	\$250 million
Cash & equivalents	\$40 million	×	0%	=	\$0
Total	\$1.04 billion				
Weighted total				=	\$700 million

What this is saying is that \$700 million of the bank's assets are at risk — the bets with a real risk of failing — and this is the appropriate number to compare to the amount of financial capital the bank owns.

All the variables here, the various kinds of capital, the RWA, and other items on the balance sheet, are used by regulators and CFOs to generate a bewildering array of ratios and indicators: the Tier 1 common ratio, the leverage ratio, the tangible equity ratio, and more. They are all meant to quantify the level of risk a bank has undertaken. You have to get them right in order to come up with a plausible proposal for a bank, but when spitballing ideas, you can usually satisfy them by just using common sense — after you've spent some time thinking about what common sense means to a bank.

Resilience Using common sense might tell you, on a second look, that the bank managers in Hoople were actually running a very risky bank, despite the fact that their capital-asset ratio was pretty good. They had lots of insurance against liquidity risk, but nearly none against credit risk. Were they to lose any more than 4% on their loans, they'll be losing depositors' money. They wouldn't be able to afford the premiums for their deposit insurance.

⁹Naturally, the weights — numeric quantifications of the risk for some asset class — are also the subject of a lot of debate and revision. The calculations are sensitive. Banks are supposed to publish their RWA, but seldom publicize the calculations behind them.

In truth, they wouldn't have been able to get to the state we used as an illustration, except by some catastrophic loss of capital, say a 21st century Brinks heist, or the Joker's bank robbery in the opening scene of *The Dark Knight*.¹⁰ The FDIC would have shut them down years before. No bank wants to be as short of liquid funds as the Hoople bank is unless it can be really certain that all the players will do their part. Will the depositors leave their money there if interest rates rise? Will all the lenders repay all their loans? If a bank can answer those questions right, it can survive. If not, well. . .

Another ratio that regulators use to evaluate banks is the *loan to deposit ratio*. 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 2011 FDIC data, banks generally run in the 75-85% range, though they are commonly up in the 90s, too. The banks in table 1 are at 101%, 91%, and 71%. Bank of America has lots of lending capacity by this measure, and Washington Trust looks pretty much tapped out. BND is at 65%. The Hoople bank, by contrast, was at 126%. Obviously this is possible, but there has to be some reasoning why it's not a huge risk. A more sensible balance sheet for Hoople might look (vaguely) like this:

A bank has to be prepared to lose its capital before it loses depositors' money.

Assets	Liabilities & Capital
\$640 million loans	\$250 million capital
\$360 million securities	
\$40 million cash	\$790 million deposits
\$1.04 billion	\$1.04 billion

The Hoople managers have now invested in some securities that provide a small yield, but are presumably much more liquid than the loans if an emergency arises. There is less risk on their balance sheet. Following these guidelines usually implies that the majority of a bank's capital will be more or less liquid, at least after the startup period, and you can confirm that in the real balance sheets below.¹¹

The FDIC evaluation of a bank's liquidity rests in a set of liquidity management guidelines they publish. Examiners are supposed to evaluate the actual risks and use judgment, so mileage varies pretty dramatically. Recently, banks have been turning to more complicated ways to keep themselves liquid, relying on selling bonds (borrowing in the bond market), or on off-balance sheet tricks, and so regulating this

¹⁰The 1991 banking crisis in Rhode Island (see footnote, page 24) was triggered by the failure of Heritage S&L, a \$22 million bank whose president had embezzled \$13.8 million, almost *two-thirds* of the entire bank. Needless to say, he became a fugitive from justice within a day or two of bank examiners uncovering the problems, and fled to Salt Lake City, where he bought a condo and lived comfortably for a year and a half before turning himself in to the RI attorney general because he missed his family.

¹¹This is yet another way that capital becomes a confusing concept, since even though financial capital and the accounting capital are different things, they are usually — through the operation of various rules of thumb and regulatory ratios — vaguely the same amount of money. The Basel capital ratios use the amount of stock as a proxy for the amount of liquidity. Is this an accident or a manifestation of some deep truth of the universe? Think of it as the banking version of $e^{i\pi} = -1$.

has become trickier. The most recent round of the Basel Accords contain regulations concerning overall liquidity that are to be implemented in 2015.

Fractional reserve banking You will sometimes hear about *fractional reserve banking* but this only means the case where a bank takes in deposits and feels free to loan most of it out again, reserving only a small percentage to handle the daily demand for customer withdrawals, which is how all the known banks in the world today work. However, there are a variety of ways in which people who feel uncomfortable with the concept have sought to disguise it.

The Koran, for example, forbids usury,¹² and in order to have an economy at all, Islamic scholars have come up with ways to arrange things to satisfy the dictates of that religion, commonly referred to as *Islamic banking*. Mostly, however, these are new names for familiar things (such as a *buy-back agreement* instead of a loan) and restrictions on destructive banking practice. The principle of earning money by lending it is intact, as is the principle of lending most of the money customers deposit.

Fractional reserve banking is just banking. There are ways to disguise what's going on, but it's all just lending out most of what's on deposit.

You'll also see people talk about *full reserve banking* or *100% reserve banking*. Lending some or most of the money you deposit still happens in those regimes, but it's made somewhat more explicit to the depositor by making it clear that deposit accounts of one sort will be lent out while others will be kept as cash.

In short, while in a theoretical sense, there might be other models for banking, they are not in practice now.¹³ The models that are in practice are pretty easy to map to standard practice. "Fractional reserve banking" is just "banking" in the real world.

2.1 Example balance sheets

It's useful to look at some real-world balance sheets to understand what's going on. Table 1 on page 10 contains the balance sheets, as reported to the FDIC, of three different banks. One is Washington Trust, a medium-size bank that serves not much more than the state of Rhode Island, the next is Citizens Bank, a fairly large institution and pioneer in interstate banking that is now owned by the Royal Bank of

¹²The Bible does too, for that matter (both testaments). However, over the centuries, the Christian world has shifted from a strict observance of that prohibition — where Jews were the only ones permitted to lend money — to a much less strict version, to none at all. The conservative branches of Islam, by contrast, have moved in the opposite direction, and many of the innovations of Islamic banking are actually 20th century developments.

¹³The "shadow" banks that helped bring us the financial meltdown in 2008 might be an exception. These institutions, most of them also known as the nation's investment banks, had no reserve requirements for the derivative investments they were selling. Some customer would buy a share of some derivative tranche, and Lehman or Bear Stearns or whoever sold it, could turn around and use *all* of that money to invest in something else, like a short sale of that same security. As we know now, (a) they often did exactly that, and (b) this did not turn out well for anyone except the executives whose idea it was.

Scotland, and the third is Bank of America, a behemoth Too-Big-To-Fail bank. Let's run down the components that make up the Assets, Liabilities, and Capital.

<i>(numbers in thousands)</i>	Wash. Trust	RBS Citizens	BankAmerica
Total assets	3,044,725	107,214,881	1,658,890,050
Cash and due from other banks	48,080	9,223,473	153,430,070
Securities	487,322	10,373,672	342,649,185
Federal 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
Total liabilities and capital	3,044,725	107,214,881	1,658,890,050
Total liabilities	2,718,371	88,455,001	1,450,487,508
Total deposits	2,236,573	79,088,025	1,229,906,284
Interest-bearing deposits	1,882,329	57,025,176	843,209,101
Federal 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
Total bank equity capital	326,354	18,759,880	206,633,774
Stock	3,000	76	4,296,843
Surplus	172,241	16,350,198	184,115,344
Retained profits	151,113	2,409,606	18,221,587

Table 1: Balance sheets for the medium-size Washington Trust bank, the large regional RBS Citizens, and the huge national BankAmerica. 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 BankAmerica 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. You can also see that both BofA and Citizens borrow substantially in the Fed funds and repo markets, while only BofA lends in them. (source: fdic.gov, 9/30/2012 data)

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.

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

Securities Some securities are just nearly-liquid stores of money, and some are purchased when the bank can't find enough loans to fill out its portfolio. You can see that BofA relies on securities far more than the smaller two banks.

Federal funds sold & reverse repo agreements These are funds 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

(numbers in thousands)	
Total assets	5,868,996
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
Total liabilities and capital	5,868,996
Total liabilities	5,428,411
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
Total Bank Equity Capital	440,585
Stock	2,000
Surplus	42,000
Retained profits	396,585

Table 2: Balance sheet for Bank of North Dakota. As in table 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, 9/31/2012 quarterly report)

needs. A *repurchase agreement* (also *repo*) is also a short-term loan, generally for the same purposes, but are secured by some bonds — the ones to be repurchased.¹⁴ From a bank’s perspective (or the bank examiner’s) the important thing about 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 that market 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 some of the bank’s credit risk right in the balance sheet like this.

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 estimate of its credit risk exposure.

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’s money at risk, the regulations about what kinds of investments are kosher are less stringent, and banks can invest in deriva-

¹⁴Bank A sells securities to Bank B with a promise to buy them back in the morning. Bank A gets cash, Bank B gets securities, both get to make their balance sheets look better to regulators, though it’s not 100% clear whether the balance sheets actually *are* better. After all, they have to give it all back in the morning. A lot of these transactions are ways to turn one kind of risk into another, presumably one the bank is better defended against.

tives 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. When Nick Leeson and his unauthorized-but-encouraged trading destroyed Barings Bank in 1995, it was with bets made on that bank's trading account.¹⁵ The "Volcker Rule" was a proposal to prevent banks from most of this kind of trading. Endorsed by the Obama administration in 2010, much of it made it into the Dodd-Frank bill, though somewhat watered down. Multiple lakes worth of water has been added since the passage of the bill, in the drafting of the regulations to "enforce" it, and the homeopathic remedy that remains of the rule isn't even really in effect yet.

A bank's most important liabilities are to its depositors, but those are not the only ones. This is 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.

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.¹⁶

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.¹⁷ The total stock of Washington Trust is \$3 million.

¹⁵There is an entertaining article under "rogue traders" at Wikipedia that shows how far from unusual this kind of loss is. The article is a bit misleading because it shows no US examples. In the US, there have been ample losses in trading accounts, but one would have to say it wasn't so much due to rogue traders, but to rogue trading *departments*. JP Morgan Chase announced this past spring, that they — a federally insured bank — had lost \$2 billion on trading their own account. Morgan's trading account is four times the size of BofA's, despite having only about 10% more in assets.

¹⁶Part of that, of course, is the legacy of the brokerage part of Bear Stearns, which Morgan now owns. Unfortunately, they still have FDIC insurance, so what they *were* is not as important as what they *are*: a bank engaged in risky investments using explicit federal insurance as well as the implicit guarantee of being Too Big To Fail.

¹⁷In the tables here, this counts both perpetual preferred stock and common stock, something that

If you owned \$300,000 dollars of shares, you would own 10% of that bank, even if you bought them for \$500,000.

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 \$175,241,000, probably in several sales over the years. Not all stock has a par value. At RBS Citizens, the balance sheet has only \$1,000 in common stock and \$75,000 in preferred stock, probably because it's a subsidiary of the Royal Bank of Scotland. In those cases, the "surplus" is the whole value of the stock, and voting and ownership rights are figured in some other way. Again, the distinction is only important because the nominal dollar value of your stock is how you tell how much of a company you own.

Not surprisingly for an alternative institution, the Bank of North Dakota has an alternative definition of surplus. In the 1970s, when the North Dakota legislature wanted to put money into the BND to increase its capital, they called that additional capital "surplus," apparently just to have a place to account for it on the balance sheet.¹⁸

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 1.

3 Bank operation for dummies

A bank and the revenue streams that support it do not just spring into existence on day one. It takes effort to find deposits and effort to lend them out. It's one thing to look at the block diagram of a bank, but it's also useful to look at some of the concerns relevant to the management of a bank. Types of risk, types of lending, and the relationship to other banks are all important.¹⁹

will be appalling to accounting purists, but the distinction is irrelevant here.

¹⁸With the added benefit that future legislatures would not really have a claim on it, as they do have on retained profit.

¹⁹Plenty of these considerations have been left out of this treatment: sources of income besides lending; legal concerns; various after-markets for loans; and other services besides lending. These all deserve attention in the next version of this document.

3.1 Bank risk

A bank's operation is all about taking risks and managing them,²⁰ but there are several different kinds of risk: credit risk, liquidity risk, market risk, concentration risk, regulatory risk, operational risk. And tornadoes. Considering the different kinds of risk will help make sense of the purpose behind the various regulatory ratios covered earlier.

- *Credit risk* is the most basic kind of bank risk. Give someone a loan, and they might not pay it back.
- A bank's *liquidity risk* is the risk that it might not have enough cash on hand for customers who want their money back. Maybe it loaned too much out, or maybe too many loans went bad. A bank without plenty of cash on hand to serve its customers' needs has lots of liquidity risk. A run on a bank — when customers want money back that the bank doesn't currently have — is a liquidity crisis.
- There is a risk that market conditions will change: *market risk*. A climate of declining real estate prices exposes banks who hold mortgages to market risk.²¹ Or maybe you're a bank and took some deposits, promising to pay 1% interest. You used the money to make some long-term loans paying 3%. A couple of years down the road, interest rates rise, and your customers demand higher interest rates than a measly 1%. If you don't pay those higher rates, they'll withdraw their money and you'll have a liquidity crisis when you run out of cash. But if you pay your depositors 4%, then your cost of funds will be higher than what you're earning on them. Or maybe you bought a bunch of long-term Treasury securities as collateral, but then interest rates rise and the value of the collateral falls. In each case, your bank was overtaken by market forces that changed the risks of operating. The last two are also both *interest rate risk*, a category of market risk that bankers often mention.
- A bank that loans to too few customers (or takes deposits from too few) suffers from *concentration risk*. If something goes bad for a single one of your customers, do you want to risk your bank? Some customers, such as governments, may not be risky, but advocates for one-customer banks must be prepared to say why not.
- Banks can suffer from *regulatory risk*, when rules change. Old Stone Bank in Rhode Island, a conservatively-run bank (whose advertisements used to feature Fred Flintstone as spokesman), died when federal bank regulators asked

²⁰Hopefully small and manageable ones, but as we've seen, not always. The difference between banks that go under and banks that do not is largely a matter of degree of risk, even if bankers will deny it.

²¹The mother of all market risks was, of course, the phenomenal bets banks made on subprime mortgage backed securities in the run-up to the financial crisis of 2008. When subprime mortgages went sour in large numbers, the market for these bonds evaporated nearly overnight. Some of the nation's largest banks still have billions of dollars of these bonds on their books, with essentially zero market value. A special exception to the accounting rules was granted by the Fed to keep banks like Bank of America, JP Morgan Chase, and Citi from being declared insolvent.

them to take over two failed thrifts and a few months later changed their mind about the exceptions to the capital requirements they had made. Old Stone was liquidated and the shareholders sued the government for breach of contract. They won, but years too late to matter.

- And *operational risk* is when something else goes wrong: software glitches, lost records, customers suing over deposit slip paper cuts, embezzlement and robbery,²² executives jailed for wrongful foreclosures,²³ and so on.

Different sets of customers and circumstances can present very different kinds of risks. Some customers have highly predictable cash flows, for example. For these customers, liquidity risk is easy to manage, and so a bank's cash reserves can be lower. Or another bank might find itself lending to highly reliable customers, but with a very unpredictable source of funds. This bank has to tread carefully, even though its credit customers are very reliable.

Public money tends to be quite predictable. A government receives tax bills at legally-prescribed times of year, and the budgeted revenues and expenses are debated in public, so the ebb and flow of its finances tend to be fairly easy to predict. Typically, a bank startup (also commonly referred to as a *de novo* bank) will take a few years to lend all its money, as the bank management learns how its customers tend to behave: how much cash they need, what times of year (or month) demand is highest, and so on. A public bank could get up to speed somewhat more quickly, since the important variables are widely known or readily predictable.

Lending — like any investing — is about trading off liquidity, security, and yield.

3.2 Lending priorities

When banks lend, they look for liquidity, security, and yield. Like the joke about good, fast, and cheap, you can get generally get any two qualities out of three, but no more. Often, you have to make do with just one.

For example, T-bills — very short-term obligations of the US Government — are very liquid and very secure, but also have about the lowest yields around, measurable in units of hundredths of a percent (also called *basis points*). Or you could look for security and yield, and buy 20-year bonds, where the yield is higher, and security is great, but they aren't very liquid. Or you could opt for liquidity and yield — certain tranches of mortgage-backed bonds were quite liquid and quite profitable during the 2002–2006 period — but those investments were pretty risky, as we've seen.

A bank's loan portfolio has to balance all three of these qualities. It's not good enough to have a collection of really secure loans if the bank will suffer a liquidity crisis before they're paid back. Similarly, it's not much use to make only very liquid

²²See the tale of Joe Mollicone in the footnote on page 8.

²³Just kidding, that last one doesn't really happen, even though tens of thousands of people have been robbed of their homes this way.

and secure investments if operating costs will sink the bank because its assets have such low yields.

Again, because the flow of public funds is highly predictable, these concerns can be addressed in the design of a public bank. But because the world ultimately is not very predictable, a little humility is in order while making that design. A bank whose solvency depends on everything turning out just right won't convince the legislators and bureaucrats who need to be convinced.

3.3 Other banks

John Donne wrote that, "No bank is an island, entire of itself."²⁴ Every bank in America (the world, actually) is part of a network of other banks, each dependent on the others around it for credit, liquidity, and much more. Banks borrow from each other all the time, either in unsecured fed funds loans, secured repo agreements,²⁵ or just in deposits into accounts at their correspondent banks. Often this lending is in service of liquidity. For example, a bank running close to running out of cash on Tuesday may expect a whole bunch of customers to purchase CDs on Friday because that happens most Fridays.²⁶ A CD purchase means the bank acquires cash, but first the bank has to get past Wednesday and Thursday, so they might borrow from a friendly bank to do that. This would be a Fed Funds loan, is (probably) unsecured and also doesn't count against either bank's reserve requirements.

The Fed There are some banking relationships that are special. A bank might be part of the *Federal Reserve* system, for example, which gives it access to one of the twelve Fed branches around the country. All nationally-chartered banks are members, and state-chartered banks may apply to be. A member bank will keep some fraction of its reserves on account at the Fed, and a great deal of the processing of checks and electronic payments in the country has to do with shuffling account entries among these reserve accounts. So, for example, the First National Bank of Louisiana will send a payment to the First National Bank of Montana by asking the Fed to move some money from the Louisiana reserve account to the Montana account.

In addition to this, a bank can buy Treasury securities directly from the Fed, or sell them back. It can get and redeem coins and bills, and it has access to what's called the *discount window*, which the bank can use to borrow at very low interest rates. Discount window loans are short-term, with terms ranging from overnight to a month. They are secured loans, with collateral pledged in the form of securities kept on account at the Fed, so even though the interest rate is low, the cost of those funds is not zero.

²⁴Or something like that.

²⁵See footnote on page 11.

²⁶For whatever reason. Lots of times the bankers don't really know the why, they just observe what happens.

FHLB A similar institution with very different purpose is the *Federal Home Loan Bank (FHLB)*. Structured as a mutual bank owned by its members, the FHLB also has twelve branches around the country, though they mostly don't correspond to the Fed branch locations. Membership in the FHLB is much less restricted than the Fed, and includes banks, credit unions, thrifts, insurance companies, and community development financial institutions (CDFIs).

The point of the FHLB is to supply funds to be loaned out for long times. Indeed, the institution was the key player in creating and promoting the concept of a long-term fixed-rate mortgage, back in the 1930s.²⁷ FHLB members can borrow from it for much longer terms than they can get either from the Fed or the Fed funds markets. FHLB loans (they call them *advances*) are fully collateralized, so borrowing institutions must put up at least as much collateral as the loan amount. The collateral rules are quite strict, but much broader than at the Fed, though, so residential mortgages count, as do other kinds of lending. This makes FHLB into a conduit to the international financial markets for small institutions, who can make loans backed by FHLB funds.

The FHLB is structured in a similar way to the Fed, but for very different purpose.

The Bank of Hoople, for example, can borrow from its customers, but it's too small to borrow in the bond market. The FHLB has an excellent credit rating,²⁸ so they can borrow at low rates in the bond market, and lend what they get to Hoople, along with the low rates. Hoople bankers can add a percent or so to the mortgage rate and lend that money out. And if they do a good job with the underwriting, they can use the resulting loans as collateral for more lending from FHLB.

Neighbors The Fed is not the only bank that other banks keep accounts with. Almost every bank has what are called *correspondent accounts* with other banks. Often this is a case of a small bank opening an account with a larger bank, usually in order to have access to some service the small bank does not offer.²⁹ Small banks can use big ones in the same way the big ones use the Fed, to hold reserves, and as a quick source of liquidity.

The other important things a bank can do with its neighbors is cooperate in lending. It will often happen that a lending opportunity arises that is just a little too big for a single bank to take on. Perhaps it's a case of avoiding concentration risk, perhaps the bank is almost tapped out, perhaps it's something else. In this case, a bank will often seek to *syndicate* a loan, sharing it with cooperating banks. (It's also called *participation lending*.) One bank is typically the lead, and handles processing the

²⁷Before that, most mortgages were five-year loans, with a balloon payment that would typically be refinanced. You can see the 30-year mortgage as a big step in democratizing finance, because it involved a huge shift in risk from the *mortgagor* (owner) to the *mortgagee* (bank).

²⁸Apparently well-deserved. They came through the 2008 financial crisis essentially untouched.

²⁹Like money laundering, where big banks are much more efficient than little ones. This past year, UBS, the giant Swiss bank, was found to have facilitated tax evasion for customers of Wegelin, a very small Swiss bank. There is some evidence that global drug money may have kept the international banking system afloat during 2008 and 2009, so apparently the movement of big banks into international money laundering was really just a sophisticated strategy to reduce concentration risk.

actual loan payments, but the risk is shared. The Bank of North Dakota does a fair amount of participation lending like this, backing up banks who want to make a loan to a valued customer, for example, but can't quite afford to do it solo.

3.4 Think like a banker

One of the lessons bankers learn is that things look different from within the bank than from the outside. Take The Bancorp bank of Delaware, for example. It was established to do merchant processing of credit cards. At their inception, they took no deposits, but simply managed the payments coming from consumers to stores, via credit cards. It takes a certain amount of time for payments to settle out, so that at any one time, Bancorp had a few hundred million dollars in transit, and the loans they made came right from that fund.

From outside the bank, each merchant sees money arrive in their bank account in a matter of a day or two after the credit card purchase. None of them will perceive the money in transit from their customer to them as being loanable. The very idea would seem silly. From inside the bank, however, the "account" that has all those funds passing through looks like a single large pool of money, with roughly equivalent amounts of money flowing in and out of it each day in a more or less predictable fashion. From the outside perspective, making loans from that money might seem crazy, while from the inside it makes perfect sense.

Money looks pretty different from inside a bank than it does from the outside.

When looking for banking opportunities in the public sphere, one can't just consider static piles of money. Places where money flows through are equally important. A pension fund, for example, represents a large pool of money, and there's a lot that public bank advocates should have to say to the managers of those pools. But putting the pension fund aside for the moment, every pension manager has a bank account out of which checks are written to retirees each month. That account will typically hold a substantial balance because checks take a certain time to deposit, even direct-deposit checks.

Lending Another important point about lending is that arranging a loan and the legal documents surrounding a loan takes time and effort. Bank investors and examiners routinely say that it takes at least three years to turn a new bank into a profitable entity because that's how long it takes to arrange loans of all the money.

To a certain extent the logistics of making loans is how the really big banks become detached from their communities. In today's economy, little local banks are more likely to have a full loan portfolio than the big banks (as in the table on page 10). There are many pressures on banks to grow: the yields on bonds and other financial products get much better with a bigger pool of money to invest, and there are regulatory economies of scale. If you're earning some of your bank's income through fees, a larger customer base will produce more fees, too.

Unfortunately, one place where economies of scale can't necessarily work out is in the management of a loan portfolio. Just because a loan portfolio is large doesn't mean that the average size of a loan is large. A loan portfolio ten times bigger than another might require at least ten times as many loan officers to manage it all. A bank whose management expects to see economies of scale in their lending operation will be forced to seek ever-larger opportunities, which turn out to be precisely the opportunities that shrink the fastest in an economic downturn.

What this means is that a very large bank can seldom afford to pursue any but the most routine small loans along with its really big ones. Real estate loans are generally quite routine, and denominated in the six figures. Business loans, especially lines of credit, can be substantially smaller than the mortgage on a typical house, and the loan approval process is much more complicated. This means that small businesses tend to get the cold shoulder from the biggest banks, exactly what we've seen over the past few years.

A public bank can consciously push back against this tendency, since business lending — or facilitating business lending — might well be one of its functions. Still, even a public bank with that goal can't change the fact that it takes work to move money out the door.

There is little economy of scale in servicing a loan portfolio, so big banks need big loans.

This highlights one of the potential advantages of public banking: that governments are large debtors. The scale and predictability of a government's borrowing needs imply that a public bank able to underwrite government borrowing might be able to fill out much of its loan portfolio in a much shorter time than a regular bank might.

4 Starting a bank

One of the real problems facing public bank advocates is that a public bank hasn't been started in the US in the more than 90 years since the Bank of North Dakota (BND) was established. The financial and political world has changed a lot since then. There are real opportunities for states, counties, and municipalities to improve their economies and their finances through public ownership or control of financial institutions, but they need to be found and refined by activists who are thinking about the difficulties of starting a bank, not just about the benefits of already having one.

4.1 What does a bank do with its capital?

For a bank that's up and running, the "capital" is largely an abstraction. In an accounting sense, just the component of the bank's assets that don't have to be paid back. In the financial sense, it's the assets the bank can afford to lose without sacrificing customer money or closing its doors.

For a bank that's starting up, however, the capital is the stake with which everything begins. Before it begins operations, the capital is typically used to pay the legal and regulatory expenses of getting the bank charter, and the initial expenses of setting up the account management software. It's not unusual to pay managers during the staffing-up period, either.

The day a bank opens its doors, the capital is all it has to pay every one of its expenses: rent, salaries, opening a reserve account at the Fed, cash in the vault, and the supply of toasters to give new customers. Some of the capital is hopefully also used to make the first loans, in order to begin persuading income to flow in the door.³⁰

4.2 Where are the magic beans?

So after all this, where's the magic part, where banks create money?

In one sense the magic of money creation is, like all stage magic, an illusion that depends on where you're standing. The banker doesn't see money being created. The banker sees him or herself taking a risk by loaning out some money that's been deposited, and managing that risk somehow. Ask a banker where the money creation happens, and he or she might give you a funny look.

So this is how a bank works. Where is the money created?

From outside the bank, though, it looks different. An observer of some bank might see customers deposit a million dollars into it, and then watch while its loan officers make \$900,000 in loans out of that, keeping 10% for reserves.³¹ This is where the money is created, because the depositors still assume they have \$1 million in the bank, and the borrowers are free to take their \$900,000 wherever they want, and now the economy has \$1.9 million where before it had only one million. This is the *multiplier*, and it can be applied again by whatever bank receives the loaned money.

Note that unless the loaned money is kept on account at the lending bank, it isn't available to that bank any more. If the loaned money was withdrawn, the bank that loaned out \$900,000 now only has \$100,000 of the original million sitting around (plus the agreements with its borrowers) to manage its depositors' needs. The managers hope they made the right choices of borrowers, but managing those choices is all they can do. A single bank can't do any more than apply the multiplier once to its deposits, though a banking *system* can apply it indefinitely.

Huge banks, or banks with a dominant position in some local market, can count on a fair amount of funds being returned to them. Bank of America, for example, will see a relatively large number of the recipients of their loans doing their banking at Bank of America. Because they have so many customers, lots of the money they

³⁰Modern banks, for better and (frequently) worse, have come to rely on fee income from depositors, so there is typically income on that side of the ledger, too.

³¹This bank presumably has other deposits as well, along with some capital, and both of those could have funded other lending.

loan will make its way back into some Bank of America account. A smaller bank, or a public bank with a very small number of customers, can't count on that. Those banks can participate in the multiplier, but they cannot own the results without the deposits returning to them.

Even a smaller bank who loans out some money might be able to count on the money taking some time to exit the bank. Say the \$900,000 loan above was in service of some two-year construction project. If the customer shares the draw-down plan with the bank — as would be typical of a public construction project like building a bridge or a sewage treatment plant — the bank can continue to count on some of that money to be on deposit, and can use it accordingly, perhaps for a short-term loan or investment.

Another way the original bank can get its deposits to return is to borrow them from other banks. In this example, the original bank might seek to borrow \$900,000 from the Fed or from other banks to make up for its loans. This kind of borrowing, in the Fed funds market, is common, but the unsecured loans are for very short terms, usually overnight.

These can be rolled over ad infinitum (usually), but a bank incurs a fair amount of interest rate risk doing so, since the rate they pay will be quite volatile, depending heavily on the the borrowing bank's credit rating, the broader financial markets, and the weather. You wouldn't want to make long term fixed rate loans with this money, except maybe with the cooperation of the lender.³² Slightly longer-term money is available in the repo market, but those are secured loans, so the cost of the funds is higher than the interest rate would have you believe. Most banks will have better luck with the FHLB's secured advances to expand their lending.

A bank can borrow from other banks to increase its lending, but there are risks.

In the table on page 10, you can see the degree to which the different banks rely on borrowing from parties other than their depositors. Bank of America has \$67 billion outstanding in other borrowing and \$61 million in the fed funds market, compared to deposits of \$1.2 trillion. This is about 5-10%, and probably consistent with using that money mainly for liquidity management. Washington Trust, on the other hand, has \$417 million borrowed and \$2.2 billion in deposits. This is 19%, and consistent with the suspicion that Washington Trust is much closer to its lending limit than either of the two bigger banks.

5 Basic government finance

Government finance is a vast world of taxes, bonds, and creative financing schemes. There's nothing really basic about it, and there isn't really room enough here to do it justice. But from a banker's perspective, there are a few important features about a government and its operations:

1. First and foremost: A lot of money flows through them. Even the nation's nearly bankrupt cities collect millions of dollars in taxes each year.

³²See the footnote on page 4.

2. The money that flows through does so on a tremendous volume of transactions. Lots of small deposits in, lots of paychecks and other comparably-sized checks out.
3. They are complicated entities. A small city can be made up of a dozen or more constituent parts, with varying degrees of independence: the city, the sewer department, the water authority, the school district, the pension fund, the parks department, the self-insurance fund, the housing authority, the parking authority, and so on. Each of these entities has its own banking needs, and frequently multiple bank accounts.
4. Accountability and audit demands are high. Federal funding sources, like HUD or the Dept of Education, have fairly demanding audit requirements. Recipient governments have to keep money separate, and they often resort to separate bank accounts to do so.
5. Finances are relatively predictable. Through the course of a year, a government usually has a pretty good idea of the gross movements of money. Even when economic conditions create a funding crisis, they have usually been predicted months in advance.
6. They are big borrowers. It is quite typical for governments to depend heavily on borrowing for their operations. The flip side of having a highly predictable income stream is that you don't have much flexibility. Expensive infrastructure projects must be amortized over several years.³³ Consequently, virtually all governments in the US borrow heavily. A government can borrow either from banks or from the open bond market, and both are routine.
7. They have a high appetite for security and liquidity. Government bank deposits are typically much larger than the FDIC insurance limits. To insure against loss, governments typically demand (well, law requires them to demand) that the bank in which they deposit their funds put up collateral for all or part of the deposits. So a bank that accepts a million-dollar deposit has to put up a million dollars in T-bills. If the bank happens to have that much in inventory, great. If not, then they have to go get it, substantially increasing the cost of these funds.³⁴ This is why it's mostly only the big banks who really want government business: they're the only ones with enough collateral just lying around. Smaller banks might seek government deposits only when they want

³³Recently, governments have also become dependent on short-term borrowing — called Tax Anticipation Notes (TAN) — to cover cash flow problems. In a way, this is simply a way to say that in a climate of low interest rates, you can lower taxes simply by keeping less cash in reserve. When cash runs low, you issue a TAN, and life is good again. This seems all well and good, but interest rates won't stay low forever, and rebuilding those cash reserves in a climate of higher interest rates will be very painful when it becomes necessary.

³⁴Banks also have a program called CDARS, which is a way to share large deposits so that each deposit is under the FDIC limits. The National Bank of Dover will accept a \$500,000 deposit from the town of Dover and the the National Bank of Foxcroft will accept a \$500,000 deposit from the town of Foxcroft. Both will then take \$250,000 and deposit it on account at the other's bank. Result: each bank has two fully-insured \$250,000 deposits instead of one half-insured \$500,000 deposit. In theory, the FDIC's deposit insurance is premium-based, so — in theory — this does not increase the risk to the FDIC's insurance fund.

to shore up their capital position (the collateral, being very liquid by definition, looks good to regulators on a bank's books) or are looking for fee income.

These are the constraints on handling government funds. The cost of funds is relatively high, and there are a large number of transactions to process. On the positive side, there is a lot of money there, it's highly predictable, and the governments are big and reliable debtors.³⁵

Any public banking proposal is going to have to take into account these realities in order to be taken seriously by the legislators, executives, bankers, or regulators who might stand in its way. It also has to take into account the fact that as of right now, bond yields and other interest rates are at their rock-bottom. This makes the cost of funds low, but it also makes for very low bank revenue. A bank getting underway now will find it difficult to cover its operating costs in the near term. It's a good time to *have* a bank, but a lousy time to start one.³⁶

Any public banking proposal must take into account these realities in order to be taken seriously.

What's more, a banking proposal has to serve a currently unmet need. Many years have elapsed since BND was founded, and most of what BND does is accomplished in other states, perhaps not as well or as cheaply, but still accomplished. BND makes economic development loans; so do hundreds of economic development authorities across the country. BND does collaboration loans with local banks; so do lots of housing authority and CDC revolving funds. BND does North Dakota's cash management; so do most state Treasury Departments. This isn't to say that BND doesn't do them better or cheaper, it just means that advocates can't present those things as evidence that a public bank is a great thing without also explaining why it would do these jobs better than the existing structures.

Last, in a climate where government only seems ever to feel the knife, public banking proponents have to make the argument not only to legislators who care about the health of the local economy, but also to bean-counters who care only about the government's own bottom line. In most governments, it won't be enough just to say it will make the local economy stronger. You also have to show stronger finances, or out-and-out savings in the government checkbook.

6 Potential banking scenarios

In some respects, the public banking movement's focus on North Dakota is well-deserved. The BND is a great success, and a wonderful example of how adding some democracy to our financial system can result in greater prosperity for everyone.

³⁵Much more reliable than the ratings agencies would have you believe. The risk of default for any municipal bond is far lower than for any comparably-rated corporate bond. The state of Connecticut is suing S&P, Moody's, and Fitch for exactly this, accusing them of systematically (and purposefully) overestimating the risk of default on municipal bonds issued by Connecticut cities and towns.

³⁶On the upside, if, despite the low rates, you can come up with a design that makes sense, it will do much better in years to come.

But it's wrong to suggest there are not downsides, too. Banking is essentially the management of risk, and people's appetite for risk varies, and even more so when you're talking about public funds. It's not completely irrational for legislators to be risk-averse, and public banking does require the assumption of substantial risk.³⁷

What's more, very few of the services the BND provides to its state are not currently provided, in some fashion, to other states. All states have some form of economic development lending, for example, usually through free-standing development authorities, frequently empowered to issue bonds under the state's aegis. To a legislator it may not be completely obvious why it's an advantage to use tax dollars instead of borrowed dollars to make those loans.

It must be said, too, as Spider-man learned, with great power comes great responsibility. A public bank is well suited to lose a lot of money if it's managed badly, and it's not crazy for legislators and regulators to take that risk into account. Operational risk is, after all, one of the sources of banking risk.

But a statewide bank on the North Dakota model is not the only possible application of public banking. Here are a few possibilities, each of which would add some accountability to portions of the financial markets and could save money for governments or redirect capital to important local needs. As is obvious to anyone with eyes to see, governments vary tremendously in their circumstances, their assets, and their leadership. An ideal solution for one government might be a terrible waste for another, or a terrible risk. But the principle of public banking is sound, if only as a statement about how destructive our current financial system is. Creating more democratic accountability for our financial system helps governments, and the communities they serve.

The BND is a great model, but a state bank is not the only way to democratize finance.

Following is a random collection of ideas for banking in the public interest. They are only outlines, meant to illustrate what might be possible. To use them, an activist would have to adapt them to the local economic conditions, state laws, and institutions. None of them are as ambitious as the full-blown state bank model, but they are all ways to help put public dollars to work for public purposes, and isn't that what it's all about?

6.1 Beef up a CDFI

Several years ago, Congress, at the behest of HUD and the Treasury department, created an opportunity for communities to experiment with new forms of financial

³⁷The aversion to risk does, sometimes, create idiotic scenarios, such as in Rhode Island (can you tell where the author originates yet?) in 1991, when the state declined to keep open and operate 45 credit unions and small banks insured by a private deposit insurance scheme that failed. Keeping the credit unions open with no other insurance would have been risking over a billion dollars, a third of the state's annual budget. In the event, though, political pressure forced the state to pay back all the depositors anyway. In other words, the state paid a billion dollars. . . in order to avoid risking a billion dollars. In their defense, it must be said that the Governor's staff who made the decision not to keep the credit unions open were not the same as the legislators who later decided to pay back every dime, even for the accounts far larger than the insurance limits.

institution. A *community development financial institution (CDFI)* is not so much a definition as a niche. The idea is that Community Development Corporations (CDCs) and organizations like them often find unmet needs in the financial services landscape in the community they serve. Across the country, such organizations have created financial services ranging from revolving funds, to micro-loan efforts, to credit unions. The Treasury, by granting them special recognition, sought to solidify their position and encourage their growth. Accredited CDFIs can, for example, access lines of credit at the Federal Home Loan Banks (FHLB), and have a leg up in HUD grant programs.

What CDFIs seldom have is reliable access to very much capital. By and large, the CDCs that sponsor them are organizations used to scrounging, and through cobbling together grants, donations, and savings, many of them have achieved the size necessary to make a difference. If a city or state government wanted to provide capital to them at low cost, it could start a small bank expressly designed to do exactly that.

A very limited public bank could directly improve lending in a poor community.

The way this could work is that a pension fund or some part of the government that can make long-term un-collateralized investments might put up \$10 million as the bank's equity capital, with which it would buy T-bills, or deposit it all at the FHLB. Using that as collateral, the bank could accept \$10 million in deposits from another part of the government that needed collateral behind its deposits, but was content to make medium-term investments. The new bank could then provide a series of *laddered investments*³⁸ amounting to, say, \$9.5 million to the CDFI. The CDFI will pay interest, which would accrue mainly to the arm of the government that put up the cash. The arm that made the investment would get shares of the new institution, now worth almost twice its original \$10 million investment.

Assets:	\$20.0 million
Cash, T-bills, collateral	\$10.5 million
Loans	\$9.5 million
Liabilities & Capital	\$20.0 million
Owed to depositor(s)	\$10.0 million
Capital	\$10.0 million

This is a paper gain, of course, but funds like pension funds or self-insurance funds often have low liquidity requirements and high demand for return,³⁹ and over time the paper gain could be realized, though slowly. Depending on the terms of the CDFI lending, it could be made to be relatively straightforward to unwind in an emergency.

³⁸This means a series of long-term commitments arranged so that at any one time, one of them will mature soon. Imagine taking \$12,000, and buying a one-year \$1,000 CD each month for a year. During the second year, you're never more than a month away from getting \$1,000 back, but all \$12,000 is invested at a one-year term.

³⁹The vast bulk of most pension funds will *never* be spent on paying pensions, something that can lead one to wonder about the crisis in public pension funds sweeping the country.

Something like this would be relatively low-overhead to run, and would likely require no employees or space. How exactly to do it — how the governance would work — would depend on the banking laws of the state it's done in. There are issues of concentration risk to work out (perhaps the bank invests in several CDFIs, or perhaps the CDFI itself develops a way to spread the risk of investment), but these can be overcome in many states.

6.2 Service bureau

Another model might be to put aside the lending at first, and concentrate on solving an immediate and real problem facing municipalities and states: because of the collateral requirements, it is generally only the largest banks that can afford to offer services to even smallish governments. It takes a substantial bank to be able to put up \$5-10 million in collateral to accept a city or town's deposits, and that's a perfectly normal amount of money for a town of even 20,000 people. Those big banks, in turn, tend to care less about the communities they serve than the little banks.⁴⁰ So what you have is a situation where it is very difficult for a government to patronize the banks that care most about the community the government serves.

The general pain-in-the-neck quality of municipal customers also means that a city that goes to a Bank of America or Wells Fargo to request better service for its community will get little response. Moving from one bank to another is typically a difficult process for any customer as complicated as a government, so there is little leverage over the bank. Threats to "move our money" will likely be met with an invitation to not let the door hit you on the way out.

Using public money to lean on banks is also a way to improve the credit markets.

However, a large enough city or county, or a collection of small ones, could put together enough deposits to fund a stand-alone co-op that contracts with financial industry vendors to manage bank accounts directly for these municipal customers. Rather than hold the money or lend it themselves, the co-op would simply deposit it in local banks. Since several banks are involved, each local bank would absorb only as much in deposits as they had the appetite for.

There is almost no capital in this process, so with \$50 million on deposit, the balance sheet might look like this:

Assets:	\$50.5 million
Deposits at other banks	\$50.0 million
Management assets	\$0.5 million
Liabilities & Capital	\$50.5 million
Owed to depositor(s)	\$50.0 million
Capital	\$0.5 million

⁴⁰Key word being "tend." There are obnoxious small banks out there, you'll be shocked to know.

“Management assets” would be the software to run the bank, the agreements with the cooperating banks, the lease on the servers, and so forth.

The advantage here is both that the city could patronize banks that care about it, and that the city now has relationships with several banks instead of just one. It can ask them to bid for its business, it can ask them to participate in lending initiatives like citizen energy efficiency or lead abatement programs, it can ask them to collaborate on funding a bond issue, it can ask them to concentrate some lending in the city, or whatever else comes from having several banks around the same table with (more or less) the same goals. The organization also becomes a natural place for shared services, maybe a guarantee fund to enhance business lending, or a way to share financial management services or bonding among several governments.

Furthermore, by being part of the international financial network, and with a relationship to financial industry service providers, the co-op could provide services like sending money, or electronic bill pay, to its citizens.

Once you get everyone seated at the same table, you never know what will come out.

Such an organization, over time, could begin to accumulate some capital. Under the current low yields, it would be hard to earn very much more than the operating costs, but if a way could be found to provide capital, it would be natural to use it as collateral, lowering the cost of funds to the participating banks, and increasing the yields they offer.

Alternatively, it’s possible that over time, the cash manager running the co-op’s investments will become confident that some of the money on deposit could be used for long-term investing, and maybe use that to capitalize a small bank. Either way, the co-op, while not a bank on its own, could easily become a route to a bank.⁴¹

6.3 Alliance of small towns

Another possibility might be a *mutual bank* of small governments. A mutual bank is sort of like a credit union, where the bank’s capital is made up of *pledged deposits*. These are deposits committed for a matter of years. They typically don’t earn interest, but the bank’s earnings can be paid as dividends. Though they are deposits, and so seem as if they belong among a bank’s liabilities, the rules for mutual banks allow them to be counted as capital.

As with any public banking idea, finding the capital is a challenge in an environment of constant government cutbacks. However, with enough towns to participate, it would be a relatively small amount for each participant, and the mutual bank has the advantage that the capital remains, in a legal sense, liquid. Managed correctly, it should be possible to let any member out of the association in an emergency, though bank regulators frown on this.

A mutual bank like this could have positive cash flow from the beginning with a

⁴¹Of course, it could become a route to something else constructive, too. Sometimes you just don’t know what’s possible until you’re all sitting around a table working together on a goal.

foundation of the cities' own debt. In a climate of higher interest rates, you could do this by *refunding* bond issues⁴² to take advantage of low interest rates. As of 2013, interest rates have been so low for so long that there are very few refunding opportunities left out there. But bonds for impending large construction projects, planned correctly, could provide a base of relatively good yields for such a bank, allowing a bank like this to skip the usual few years of losses for de novo banks, something else that is probably important in conversations with public officials about banking.

Municipal bond issues, though long-term, are also fairly liquid. A seller will take some loss if interest rates rise, but because there is a robust market for these bonds, this kind of debt does not lock in a bank for the entire term of the bond, decreasing the liquidity risk to the bank.

*A cooperative bank
with several cities and
towns could work well,
and be safe.*

6.4 The big enchilada

This, of course, is a full public bank, backed by the faith and credit of the government it serves. Again, North Dakota's bank is a great model, but the challenge for public bank advocates is not just to say how good it is, but to come up with realistic ways for states to start something like it, given the constraints under which they — and banks — operate in 2013.

With any luck, this document has provided some of the tools with which educated activists can look at the business of their state, and the banking market there, and devise plans for institutions that may differ from the North Dakota model, but perhaps by responding to a different set of needs. What our nation desperately needs is a new set of financial institutions, since the ones we have are not really serving us well. I have little doubt that creative and motivated activists will be the spring from which great new ideas and institutions will flow — with a little help.

⁴²This is bond-speak for "refinancing."

Index

- 100% reserve banking, 9
- accounting capital, 4
- accounting equation, 2
- advances, 17
- apologia, 2
- assets, 2

- bank equity capital, 4
- Basel Accords, 6
- basis points, 15
- buy-back agreement, 9

- capital, 3
- capital adequacy ratio, 6
- capital, startup, 19
- CAR, 6
- carpets, assets, 2
- CDARS, 22
- CDFI, 25
- collateral, deposit, 22
- community development financial institution, 25
- concentration risk, 14
- correspondent accounts, 17
- correspondent banks, 10
- cost of funds, 3
- credit risk, 6

- de novo, 15
- demand deposits, 4
- discount window, 16

- earnings, retained, 3
- equity, 3

- Fed funds, 10
- Federal Home Loan Bank, 17
- Federal Reserve, 16
- FHLB, 17
- financial capital, 6
- fractional reserve banking, 9
- full reserve banking, 9

- interest rate risk, 14
- Islamic banking, 9

- laddered investments, 25
- liability, 3
- liquidity risk, 5, 14
- loan to deposit ratio, 8

- magic beans, 20
- market risk, 14
- money creation, 20
- mortgagee, 17
- mortgagor, 17
- multiplier, 20
- mutual bank, 27

- omissions, 13
- operational risk, 15

- par value, 12
- participation lending, 17
- pledged deposits, 27
- private jets, assets, 2
- profits, retained, 3
- public funds, collateral, 22

- refunding, 28
- regulatory risk, 14
- repo, 11
- repurchase agreement, 11
- reserve requirements, 4
- reserves, 4
- retained earnings, 4
- retained profits, 4
- risk, types of, 14
- risk-weighted assets, 7
- RWA, 7

- syndicate, 17

- Tier 1 capital, 6
- Tier 2 capital, 6
- time deposits, 4
- transaction accounts, 4