

MMT Banking Primer

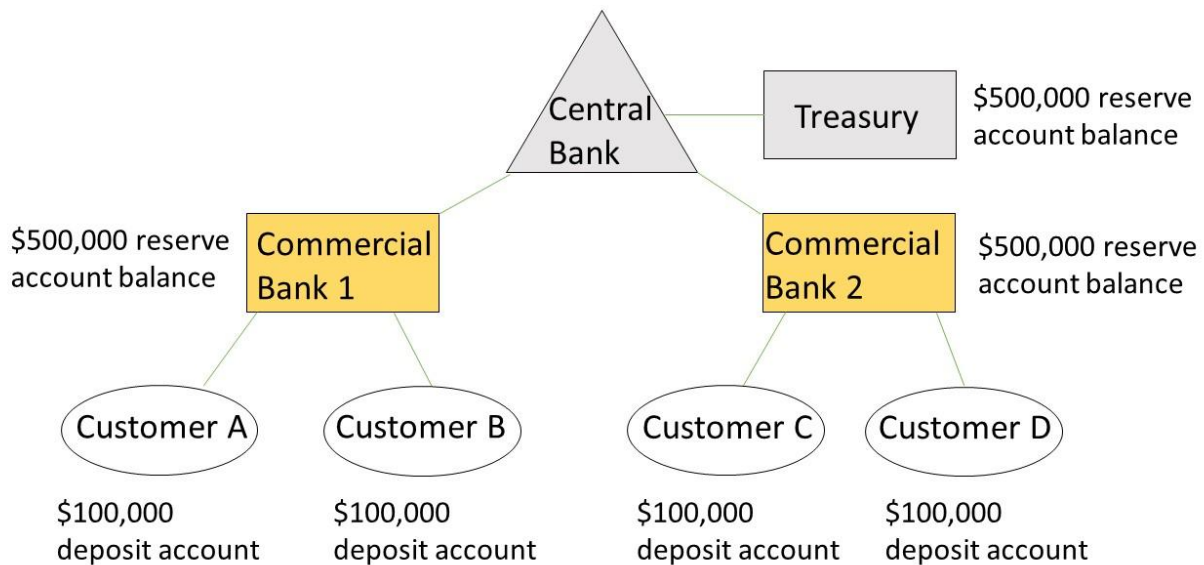
by
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Modern Monetary Theory illustrates how governments control the use of currency, including the private banking system's ability to create credit. Additionally, MMT's framework argues that governments who want to encourage households to purchase consumer goods can focus on directly increasing those individuals' deposit accounts at commercial banks—as manipulating reserve balances is inconsequential. In this short primer, we will explain the liabilities of the banking system and how the entities in the banking system interact as they hold and transfer liabilities between one another. Then, we will explain the implications this system has for the theory of state money and for monetary policy.

I. Transfers Within the Central Bank's System

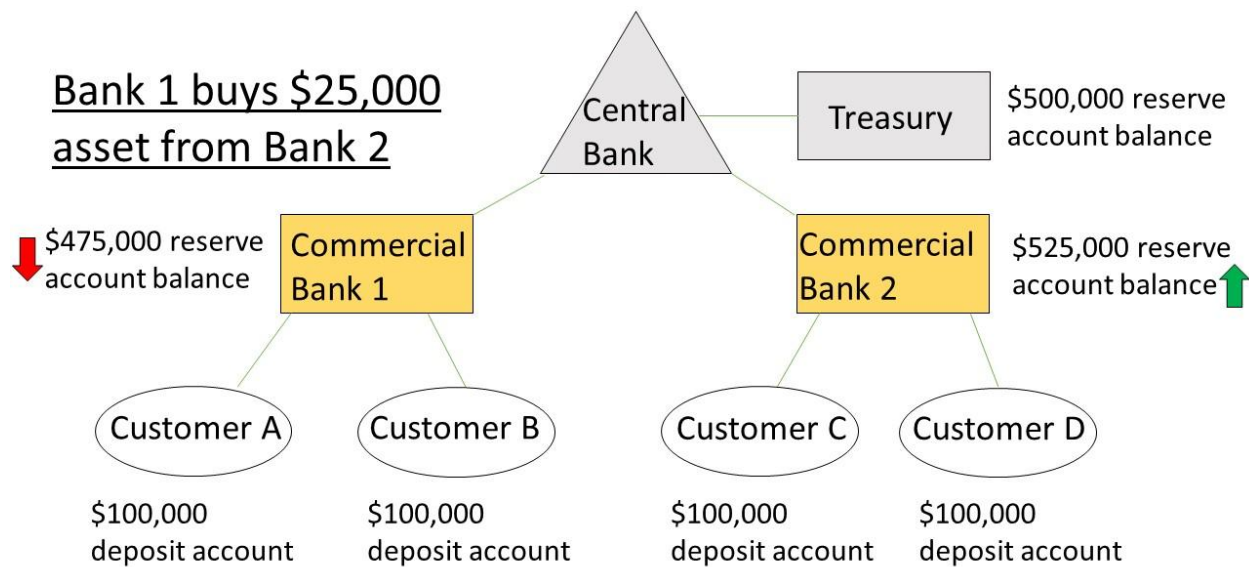
Let's start with an elementary banking system model, which includes only the Central Bank, the Treasury, two commercial banks, and four customers. In the United States the Central Bank is called the Federal Reserve, but to avoid any confusion from non-American readers, we will only refer to it as the Central Bank or the CB. In this model, the commercial banks and the Treasury each have a reserve account at the CB with a balance of \$500,000, and each of the customers has an account at their respective commercial bank with \$100,000 on deposit. The Treasury's account at the CB is also known as the Treasury General Account.

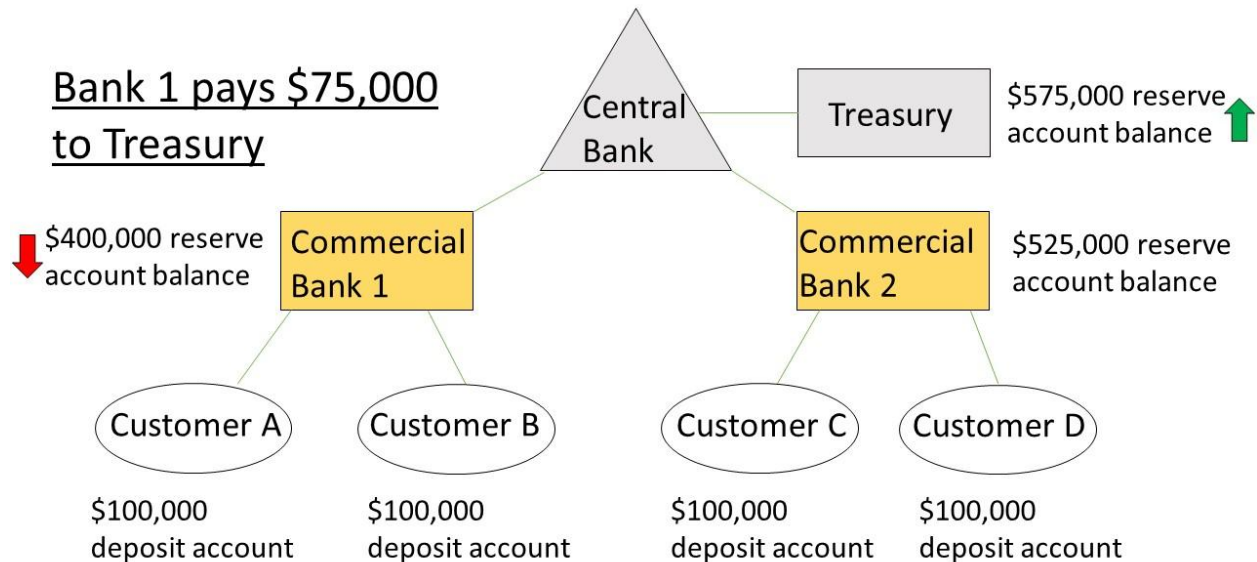


By debiting and crediting account balances, the CB accounts for transactions between the commercial banks and the Treasury, as well as between the two commercial banks. The CB

manages the ledger that records the reserve balances held by the Treasury and commercial banks, and it adjusts that ledger by crediting and debiting accounts when it receives notice that one of the entities wishes to transfer reserve balances to one of the other entities. To be clear, changing the ledger is *itself* the transfer. Reserve balances are representative numbers; there is no physical object that the either party needs to ship to the other when transferring reserves. For example, when a commercial bank pays taxes, fines, and fees to the Treasury, or when it purchases goods or services (such as stamps or electricity) from other government agencies, the CB debits the commercial bank's reserve account balance and credits the Treasury General Account. Similarly, when the Treasury buys assets from commercial banks, the CB debits the Treasury General Account and credits the commercial bank's reserve account. When one commercial bank buys assets (such as securities or real estate) from the other commercial bank, the CB debits the purchasing commercial bank's account and credits the selling commercial bank's account.

In the charts below, observe what happens when Bank 1 buys a \$25,000 asset from Bank 2, then makes a \$75,000 payment to the Treasury.





In the first transfer, Bank 1 notified the CB that it was transferring \$25,000 of reserve balances to Bank 2. The CB then debited Bank 1's reserve account balance by \$25,000 and credited Bank 2's reserve account balance by \$25,000. In the second transfer, Bank 1 notified the CB that it was transferring \$75,000 of reserve balances to the Treasury. Then the CB debited Bank 1's account by \$75,000 and credited the Treasury General Account by \$75,000.

II. Money Is a Liability

While reserve balances are simply numbers, both the Central Bank and the Treasury, as parts of the national government, are legally required to accept them in payment. Reserve balances are assets of the depositor and a liability for the bank, which, for the purpose of this primer, means a credit that the issuer or its affiliate accepts in exchange for extinguishing a tax liability or any other payment due to the issuer. In the case of reserve balances, the issuer is the CB, and the Treasury is its affiliate, so both the CB and the Treasury accept reserve balances in payment. For example, the CB deletes reserve balances from its ledger when commercial banks buy physical notes and coins from the CB or pay fines imposed by the CB. Similarly, the Treasury is legally required to accept reserve balances (which courts have described as being "functionally equivalent" to cash ([United States ex rel. Kraus v. Wells Fargo & Co., 943 F.3d 588, 602](#))) in exchange for forgiving fines and tax liabilities and for specified goods and services that several statutes require some government agencies to sell. For example, 39 USC 403 obligates the United States Postal Service provide postal services and to sell stamps at "fair and reasonable rates and fees" (39 USC 403); 16 USC Chapters 12 through 12H collectively require the Secretary of the Army and the Secretary of Energy to operate hydropower facilities and sell the electricity "at the lowest possible rates" (§ 825s); and 38 U.S. Code §§ 7301 and 7302 require the Veterans Administration to deliver healthcare to Veterans who tender the required copay under 38 CFR § 17.36. The U.S. is not unique in this regard. For example, [Bahamian](#) law and

[Chinese](#) law both require the maintenance of an electricity corporation that sells power at reasonable prices. Because commercial banks need reserve balances to pay government fines, to extinguish their tax liabilities and to make other payments to the Treasury, they are willing to sell goods and services in exchange for these necessary reserve balances when making payments within the banking system—not only to the national government but also among each other.

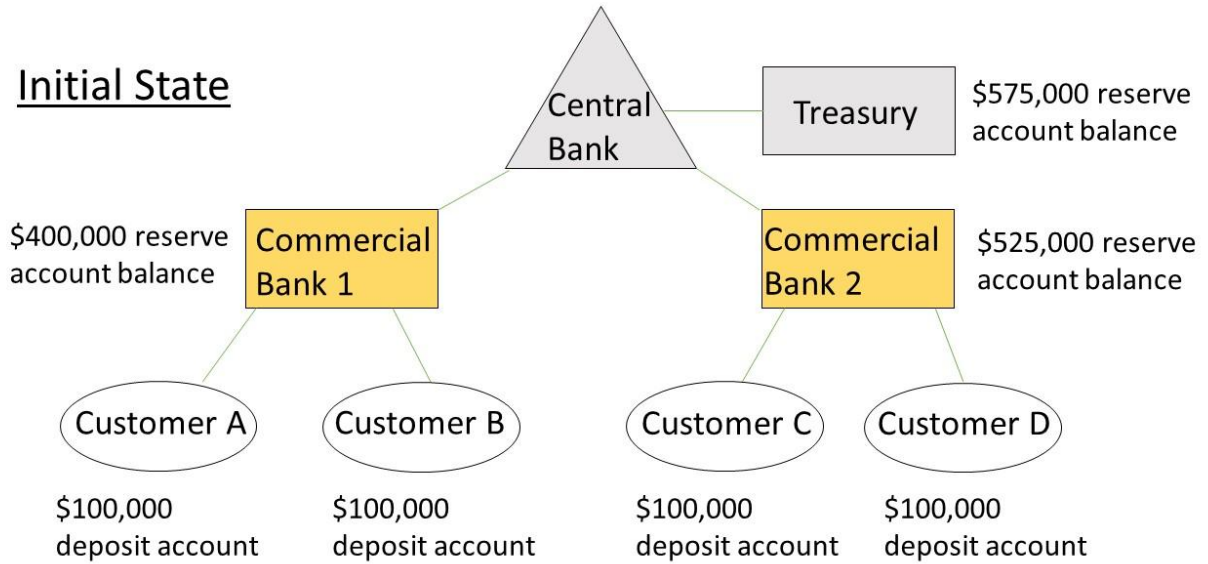
Similarly to how reserve account balances are assets that measure claims that commercial banks have against the national government, the units of account in individual bank accounts, which are usually called deposits, are likewise the depositor's assets that measure the claims that account holders have against banks. If someone has a \$100 bank deposit, they have a \$100 asset, and the bank has a \$100 liability (a redeemable credit) outstanding. A bank can directly redeem its deposits (debit the depositor's account) by giving the customer cash that the bank purchases from the CB or by selling financial assets to the customer, such as certificates of deposit, bonds, or any other asset that it holds. A bank can also redeem deposits by transferring them to a recipient's account at the same bank. It does this simply by debiting the account of the transferor and crediting the account of that recipient. Or, if the recipient's account is at another bank, reserves can be transferred to the reserve account of the recipient's bank, and the recipient's bank will credit the recipient's account at his bank. When depositors at commercial banks make payments to the Treasury, the Fed debits the commercial bank's reserve account and credits the Treasury's Fed account, while the commercial bank debits its depositor's account.

Payments between individuals who have accounts at the same bank occur by debiting and crediting deposit accounts. Recall that customers A and B have accounts at Bank 1 and customers C and D have accounts at Bank 2. If A makes a payment to B, Bank 1 debits A's account and credits B's account.

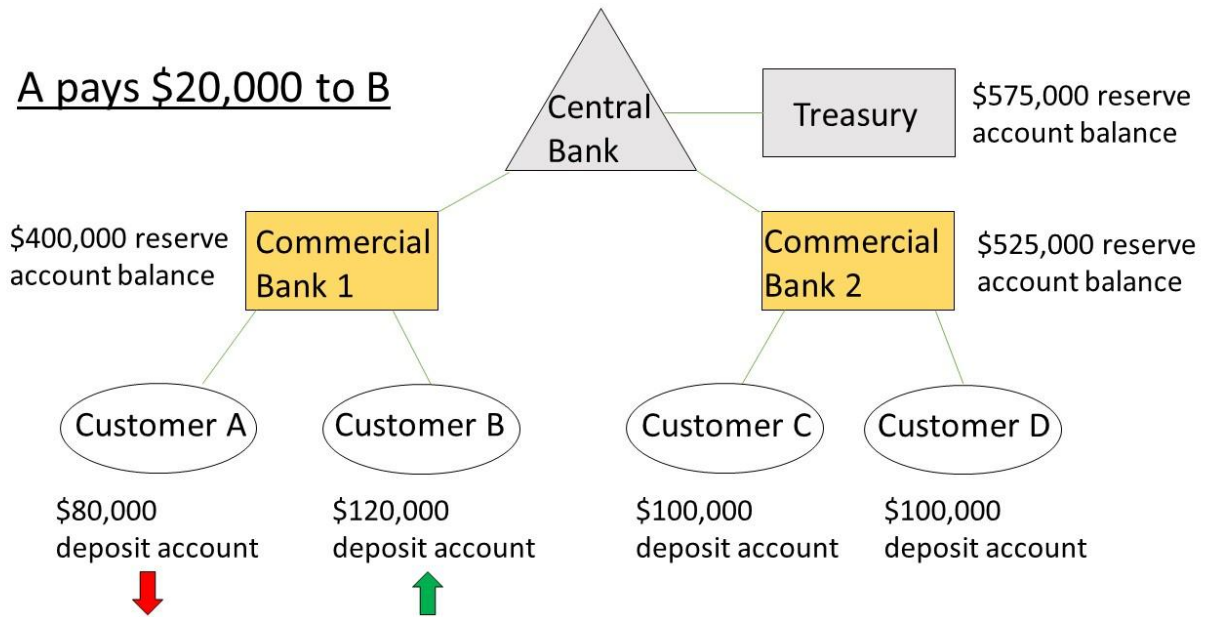
Payments by customers to the Treasury and to customers of other banks are slightly more complicated. Because individuals don't have reserve accounts and you cannot literally transfer an entry on a ledger to someplace outside the ledger, these types of payments are processed by multilateral agreements to increase and decrease liabilities. When a customer at Chase Bank makes a payment to a customer at HSBC, what literally happens is the Chase Bank customer asks Chase Bank to convince HSBC to give the HSBC customer a deposit. Then, to compensate HSBC for its increase in liabilities, Chase transfers reserves to HSBC. Then, to compensate Chase for its loss of assets, the Chase customer agrees to surrender some of their deposits to Chase. In other words, the payor is giving up their claim against their bank to induce the recipient's bank to issue a liability to the recipient, with several intermediate steps.

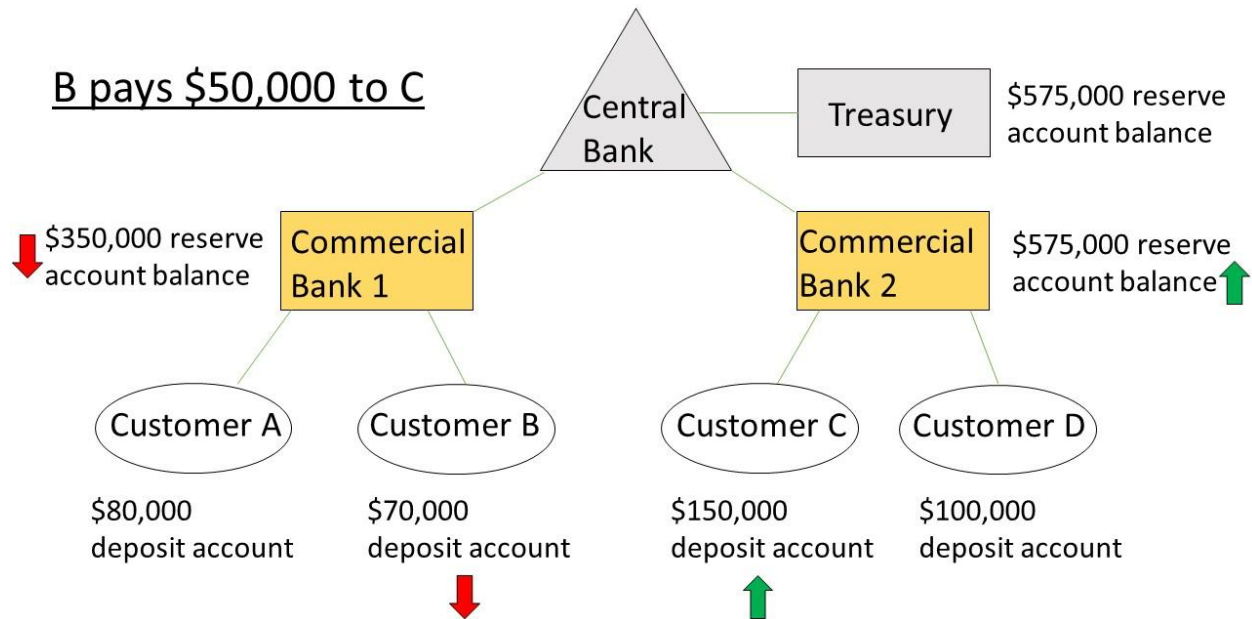
If an individual makes a payment to the government, the bank debits the customer's account and requests the CB to transfer reserves from the commercial bank's account into the Treasury General Account. If A, a Bank 1 customer, makes a payment to C, a Bank 2 customer, Bank 1 debits A's account, Bank 2 credits C's account, and both banks request the CB to debit Bank 1's reserve account and credit Bank 2's reserve account. Bank 1 transfers reserves to Bank 2 to offset Bank 2's new liability: C's deposit. C now has the right to request cash or payment from Bank 2, and transferring reserve balances to Bank 2 ensures Bank 2 can comply with C's requests. Like payments between A and B, payments between C and D settle without transferring reserves because they have deposit accounts at the same bank. In the charts below, observe what happens when A makes a \$20,000 payment to B, then B makes a \$50,000 payment to C.

Initial State



A pays \$20,000 to B





In the first transfer, Bank 1 merely debits A’s deposit account by \$20,000 and credits B’s deposit account by \$20,000. In the second transfer, B tells Bank 1 that it wants to pay C. Bank 1 tells Bank 2 to increase C’s deposit account by \$50,000, and to compensate Bank 2 for increasing Bank 2’s liabilities, Bank 1 tells the CB that it wants to pay Bank 2, so the CB debits Bank 1’s reserve balance account by \$50,000 and credits Bank 2’s reserve balance account by \$50,000. To compensate Bank 1 for the loss of its reserve balances, Customer B agrees to surrender some of its liabilities against Bank 1, so Bank 1 debits B’s deposit account by \$50,000. When executing the transfer from B to C, usually the debiting and crediting of deposit accounts occurs instantly, and the debiting and crediting of Bank 1 and Bank 2’s reserve balance accounts occurs later, by some time set by the CB. Regardless of the actual time of execution, the legal requirement to complete the reserve balance transfer comes into existence the moment Bank 2 agrees to credit C’s deposit account.

It is very important for banks to manage the amount of liabilities depositors hold against them. Because banks are regulated entities, they are required to record and account for each transaction they make, including all deposits they issue. Every time a bank issues a deposit, whether it issues a loan, it pays its employees for their labor, buys some asset from one of its customers, or makes a charitable donation, this action is recorded as an expense that the bank must account for when recording its retained earnings, which has significant regulatory impact which we will discuss later. When banks extend loans, they offer deposits in exchange for a written agreement, or “note,”¹ promising to give the bank more financial assets—cash, reserves, debt relief, deposits at another bank, etc. In this sense, when banks lend, they sell deposits in exchange for notes promising payment with interest. From an accounting perspective, the

¹ Not to be confused with a “banknote”, a note or promissory note is usually colloquially called a loan contract. When someone buys a loan contract or a note, they are buying the right to payment from the person identified as the “issuer” of the note or the person identified as the “borrower” in the loan contract.

difference between a bank buying the labor of its CEO with a \$1 million bonus and buying a note from (making a loan to) a customer for \$1 million is that the note is an asset that offsets the increased liability represented by the additional deposit. When the bank gives the CEO the \$1 million bonus, it must record this transaction as a \$1 million reduction in its retained earnings, but when the bank makes the \$1 million loan, its retained earnings remain the same and will increase when the borrower pays interest.

III. Regulations Affecting Banks

Now that you know what bank liabilities are and why they issue them to customers in exchange for value, the next step is learning what regulations limit banks' ability to issue loans, accept deposits, and clear payments without penalty: capital adequacy ratio requirements and liquidity coverage ratio requirements. These regulations in their current configuration, which most countries use in some form, were developed by the Basel III Committee in 2009.

A. Capital Adequacy Ratio Requirements

Capital adequacy ratio requirements mandate that a bank keep, based on a percentage of its assets, a certain amount of money that meets specific qualifications. Collectively called "capital," this money consists of proceeds from sales of their equity, retained earnings from asset sales, and interest collected on loans. For clarity, "capital" in most contexts refers to the value of the obligation to pay shareholders upon a liquidity event, but in the regulatory context, it is an [accounting](#) residual that refers to the funds paid in exchange for those shares, and the *funds themselves* can be thought of as a subset of the bank's assets. Money that is encumbered—specifically, money that banks borrow and must repay—does not count towards a bank's capital. The money that comprises the regulatory capital is held in the form of reserve balances, deposits at other banks, and cash. For clarity, everything of value that the bank holds is one of its assets. However, only assets that the bank obtains from certain sources count towards its capital. Borrowed funds do not count towards a bank's regulatory capital; proceeds from sales of equity, retained earnings from sales of assets, and interest income do count towards a bank's regulatory capital.

Capital adequacy ratio requirements exist in two forms. One compares a bank's capital to its overall assets, and the second compares a bank's capital to a risk-weighted subset of its assets. When calculating risk-weighted asset numbers, banks must multiply the value of each asset by a risk weight percentage assigned by regulation. For example, the regulations assign a 100% risk weight to deposits at financial institutions, corporate stock and unsecured loans; a 50% risk weight to residential mortgages; and a 20% risk weight to bonds issued by States. Most importantly, reserve balances, cash, and bonds issued by the national government have a risk weight of 0%, meaning they do not count towards the total. Note that certain funds, such as proceeds from sale of the bank's equity which is held at a correspondent account at another commercial bank, can count both towards a bank's capital *and* towards its risk-weighted assets, meaning that a capital-deficient bank can approach satisfying the capital adequacy ratio by solely accumulating deposits at other banks but will likely need at least *some* cash, bonds, or reserve balances to fully satisfy the capital adequacy ratio requirement. Because cash, bonds, and reserve balances carry this zero risk weight, banks will always have demand for them.

To illustrate, consider a bank that owns (i) \$100 in corporate stock, liabilities against other financial institutions, and unsecured loans; (ii) \$250 in residential mortgages; (iii) \$400 in State bonds; and (iv) \$1000 in cash, reserve balances, and US Treasury bonds. Such a bank would have a risk-weighted asset total of \$225 (see chart below). The regulations instruct banks to maintain a total capital ratio of 8%, meaning our hypothetical bank would need to have \$18 in capital.

Asset	Value	Risk Weight	Risk-weighted Value
Liabilities against other financial institutions, corporate stock, and unsecured loans	\$100	100%	\$100
Residential mortgages	\$250	50%	\$125
State bonds	\$400	20%	\$80
Cash, reserve balances, US Treasury Bonds	\$1000	0%	\$0
Total	\$1,750	--	\$225

B. Liquidity Coverage Ratio

The liquidity coverage ratio requires banks to keep a certain amount of a specified type of liquid asset called a high quality liquid asset (“HQLA”) based on a percentage of their liabilities. HQLAs consist of reserve balances, assets issued or guaranteed by national governments, and qualified stocks and bonds. The regulations require banks maintain a level of HQLAs at 1:1 ratio with the sum of various percentages of the bank’s liabilities, called the Net Cashflow Amount. The actual [regulation](#) that defines total net cashflow amount has too many sub-parts to discuss in this primer, but to get a general understanding of how it works, know that total net cashflow amount includes 3% of insured customer deposits, 10% of uninsured customer deposits, and 10% of the amount of money the bank has committed to originate retail mortgages in the last 30 days. For example, if a bank has \$1,000 in insured deposits, \$2,000 in uninsured deposits, and has originated \$5,000 in retail mortgages in the last 30 days, its net cashflow amount is \$730 (see chart below).

Liability	Value	Multiple	Net Cashflow Amount
Insured Deposits	\$1,000	3%	\$30

Uninsured Deposits	\$2,000	10%	\$200
Retail Mortgages Originated in Last 30 days	\$5,000	10%	\$500
Total	\$8,000	--	\$730

Similarly, the regulators take a complex series of steps to [calculate](#) the HQLA amount, but this primer will use a simplified description. The regulations define two types of liquid asset. Level 1 includes reserve balances and securities issued by the US Treasury or other national governments; Level 2 (split into 2A and 2B) includes securities sponsored or guaranteed by government enterprises other than the US Treasury, corporate debt, Russel 1000 stock, and municipal bonds. To calculate a bank's HQLA amount, take the amount of its Level 1 assets and add an amount of its Level 2 assets equal to *at most* 2/3rds of its Level 1 assets. For example, if a bank has \$9 in Level 1 assets and \$3 in Level 2 assets, its HQLA amount equals \$12, and if a bank has \$9 in Level assets and \$6 in Level 2 assets, its HQLA amount equals \$15 . However, if a bank has \$9 in Level 1 assets and \$500,000 in Level 2 assets, its HQLA amount still equals \$15 (because the Level 2 assets are only allowed to contribute \$6 to the HQLA amount, as \$6 is 2/3rds of \$9), and if a bank has \$0 in Level 1 assets and \$500,000 in Level 2 assets, its HQLA amount equals \$0. Consequently, banks must maintain at least some Level 1 assets to avoid civil penalties. See the chart below, and for a spreadsheet that you can play with to simulate how different liquid asset amounts affect the HQLA amount, click [here](#).

Bank	Level 1 Assets	Level 1 Contribution to HQLA Amount	Level 2 Assets	Level 2 Contribution to HQLA Amount (max of Level 2 Assets and 2/3 of Level 1 Assets)	HQLA Amount
A	\$9	\$9	\$3	\$3	\$12
B	\$9	\$9	\$6	\$6	\$15
C	\$9	\$9	\$500,000	\$6	\$15
D	\$0	\$0	\$500,000	\$0	\$0

Banks must maintain an HQLA to Net Cashflow Ratio of 1:1, but please note that the regulations do not require banks to acquire HQLAs before issuing deposits, nor do they require banks to acquire capital before acquiring assets. However, they do influence banks' activity; empirical studies of banks show that banks that approach the limits of the capital and liquidity guidelines will [temporarily](#) reduce [lending](#) until they can obtain additional capital or liquidity. In very extreme circumstances, they may alter their lending [standards](#) to favor safer, more liquid loans.

IV. What Happens When Banks Run Low on Liquidity?

If a commercial bank runs low on liquidity, it can still process payments by using mechanisms at the Central Bank and by borrowing from other commercial banks.

A. Central Bank Mechanisms: The Overdraft Facility and the Discount Window

Adherence to the capital ratio requirements and liquidity coverage ratio requirements grants banks free access to two mechanisms at the Central Bank that provide them with flexibility to process more transactions—the overdraft facility and the discount window. The overdraft facility allows banks to have negative balances in their reserve accounts at the CB up to an amount called the net debit cap. The size of a bank's net debit cap depends on how well it follows the capitalization and liquidity requirements, but the cap can be zero for struggling banks. A bank that makes a payment in excess of its net debit cap can still use the overdraft facility but must pay a penalty and risks being shut down by regulators if it continues to exceed its net debit cap. Banks which use the overdraft facility must obtain reserves to bring their balance back to zero by the end of the day. For example, If Bank A has a reserve balance of \$500, but needs to make a \$700 payment to the Treasury, the CB will credit the Treasury General Account by \$500 and debit Bank A's reserve account by \$500, resulting in Bank A's reserve account measuring negative \$200. Bank A must then pay the CB \$200.

The discount window allows commercial banks to borrow reserves directly from the CB, which serves as a lender of last resort when banks cannot borrow reserves from each other. Maintaining access to both of these processes allows banks to maintain their operations without penalty, even when running low on capital and liquidity. The CB imposes various rules that deter unlimited use of the discount window, including the requirement to pledge collateral and restrictions on how borrowed funds may be used. Additionally, the amount banks can borrow is limited by their regulatory capital.

B. Interbank Lending

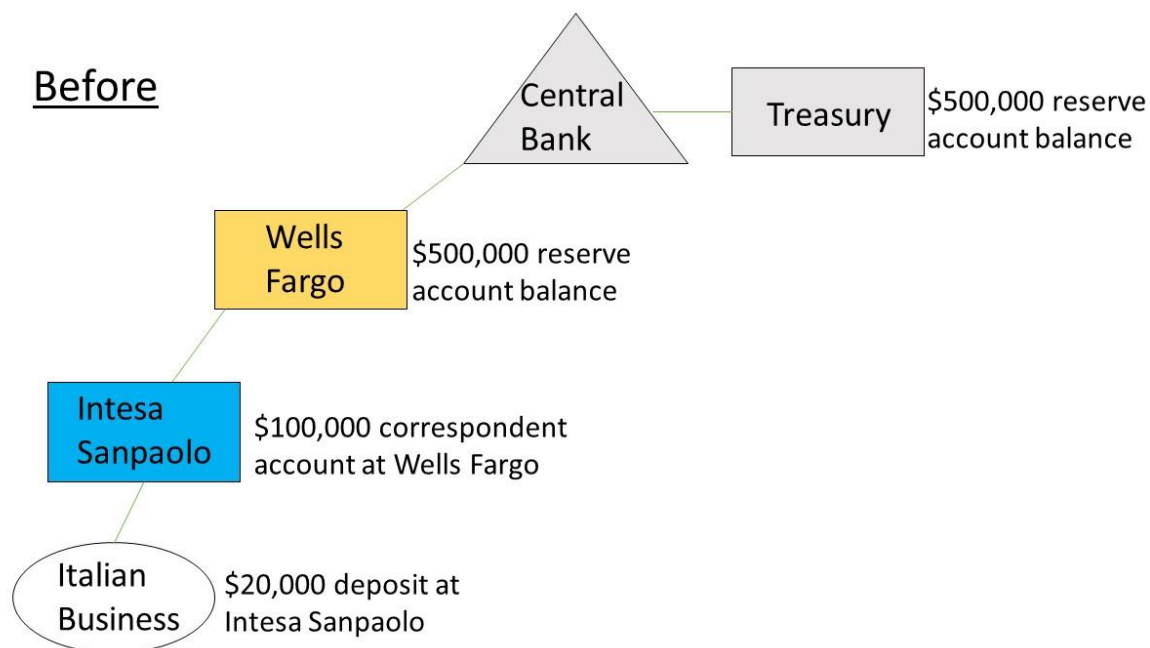
One of the ways banks can eliminate negative balances from overdrafts is to borrow reserves from one another. Banks that lend reserves charge interest on these loans, and the number of total reserves existing among all banks determines the rate of interest. When there is an abundance of reserves in the system, banks charge a lower rate of interest to lend to one another, but they will always charge more than the passive rate of interest that the CB pays on reserves. If a bank receives 2% interest on reserves from the CB, it would never make sense to charge only 1% in interest when lending to another bank because it could simply do nothing and receive more. When reserves are plentiful, banks also compete with each other for loan customers by offering lower rates, which reduces the average overall interest rate.

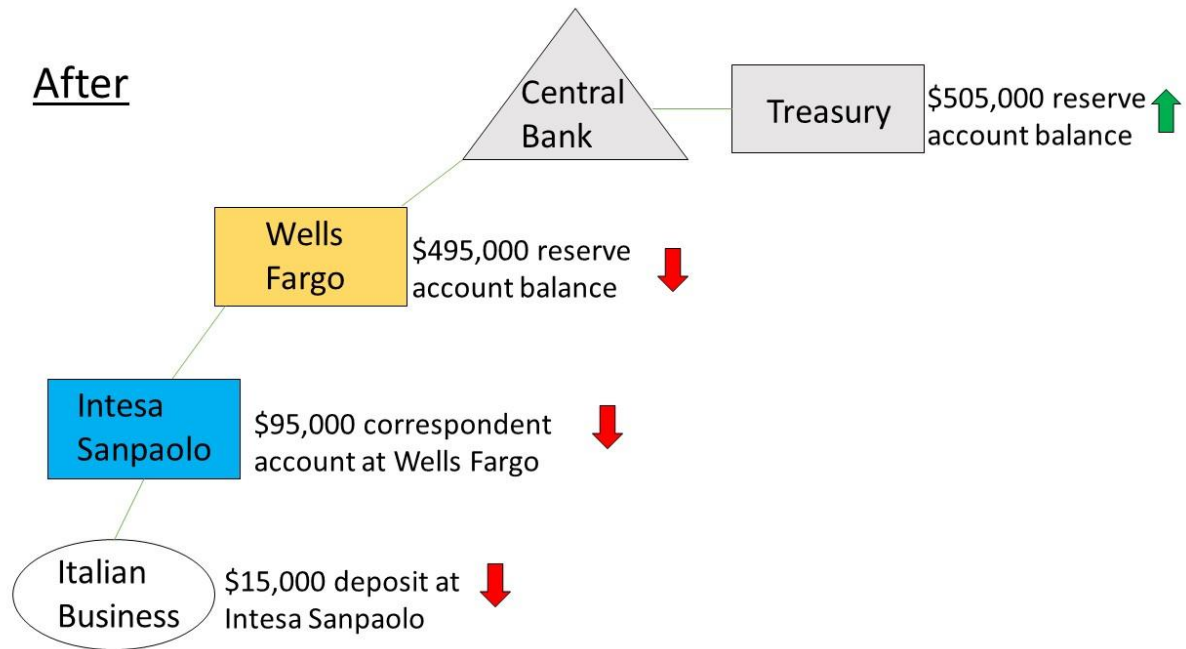
Similarly, debiting reserves raises interest rates by making reserves more scarce, although banks will almost never charge more than the CB charges to use the discount window. A bank which can borrow from the CB at 1% interest would never pay 2% interest to borrow from another commercial bank. In this sense, the interest paid on reserves and the discount window form a [corridor system](#) that places upper and lower bounds on the interbank lending rate. That being said, if there were a system-wide shortage causing liquidity issues and banks begin to exceed their net debit caps, rates would likely have no ceiling.

V. Shadow banks, Eurodollar banks, and Payments

Until now, we have exclusively discussed banks which have accounts at the Central Bank. But some financial institutions, called shadow banks, provide banking services denominated in a given currency despite existing outside the direct supervision of the ordinary financial laws and regulations of the country originating that currency. For example, Eurodollar banks, defined as banks outside the United States that issue dollar-denominated liabilities, represent one type of shadow bank. Because shadow banks do not have accounts with the nation's CB, Eurodollar banks and other shadow banks must hold deposits with an entity that *does* have an account at the CB in order to finalize payments to the Treasury,

Consider a hypothetical individual who does business in both the United States and Italy. She has \$20,000 in a dollar-denominated account with Intesa Sanpaolo, an Italian bank, and needs to make a \$5,000 payment to satisfy a fine imposed by an agency of the United States national government. To make an international payment like this one, commercial banks have correspondent accounts with banks in the country of the recipient. Suppose Intesa Sanpaolo has a \$100,000 correspondent account at Wells Fargo in the United States and Wells Fargo and the Treasury each have \$500,000 in their reserve balance accounts. First, Intesa Sanpaolo debits the business owner's dollar account by \$5,000, leaving \$15,000. Next, Intesa Sanpaolo requests that Wells Fargo process a payment to the Treasury General Account. Wells Fargo then debits Intesa Sanpaolo's account at Wells Fargo by \$5,000, leaving a balance of \$95,000, and finally Wells Fargo requests that the CB debit its account at the CB by \$5,000 and credit the Treasury General account by \$5,000. Wells Fargo's reserve balance account now holds \$495,000; the Treasury General account now holds \$505,000; and the payment settles.





Similarly, if someone wants to make a payment from an account at a shadow bank to an account at a commercial bank that is a part of the CB system, generally the shadow bank must have an account with a CB member-bank that has adequate reserves, access to the overdraft facility, or is willing to pay a penalty for an overdraft. CB member-banks can accept deposits at other banks in lieu of payment in reserves, but regulations limit such interbank liabilities unless the bank issuing the deposit is another CB member-bank that meets certain capital adequacy requirements. In other words, shadow banks can issue liabilities denominated in the national currency, but they must rely on CB member-banks to process many types of payments. Most importantly, shadow banks always ultimately rely on CB member-banks to process payments to the government.

VI. Implications

The structural and legal aspects of the banking and shadow banking systems discussed above have important consequences for two areas of economics discussed by MMT: chartalism and monetary policy.

A. Implications for Chartalism

The theory of chartalism claims that the government, through its agents which include the commercial banking system, can attempt to provision itself by demanding as payment an asset that only it can create (monopolized currency). Critics of chartalism assert that it must not *actually* be the case that governments have monopolized currencies because (1) commercial banks (particularly Eurodollar banks) can issue as many deposits denominated in the government's unit of account as they want, in a number that exceeds the total amount of the

state's base money (reserves, reserve bank notes, and coins) created by the government; (2) the Central Bank will always satisfy the need for reserves by allowing an automatic overdraft; and (3) the Treasury debits the TGA when it spends and is usually not allowed an overdraft.

Regarding the first criticism, to my knowledge, people who make it almost never explicitly state what immediate practical consequences they think stem from the difference in size between reserves and deposits; no one ever states *exactly* what the government cannot do because—and *only* because—of this fact. But as far as we can tell, the insinuation seems to be that if the government imposes a tax that the private sector does not want to pay, commercial banks can simply either (1) issue deposits to the Treasury and declare the tax paid, avoiding any punishment for non-payment; or (2) use the overdraft facility or the discount window to pay the Treasury without attempting to obtain reserves. Readers of this primer will recognize that the structure of the banking system and the requirements imposed by banking regulations make this criticism unconvincing. The Treasury does not accept payments from banks in the form of commercial bank deposits; to clear a payment to the Treasury, you must credit the Treasury General Account with reserve balances. Only CB member banks in good standing can do this; shadow banks and Eurodollar banks cannot.

The ability to create a bank deposit is relatively inconsequential; what matters is the ability to clear payments. In order for a shadowbank deposit to affect the value of the government's currency in that currency's country of origin, it must be able to redistribute real resources in that country. Because various regulations in every country essentially require citizens to have domestic bank accounts (as opposed to exclusively using offshore banks), shadow banks have very limited ability to affect the real economy without relying on correspondent accounts at CB member banks.

Regarding the second criticism (that the Central Bank will always satisfy the need for reserves by allowing an automatic overdraft), it is true that the CB always grants an automatic overdraft to prevent the payment system from breaking down, but this does not mean that commercial banks can spend as much as they want without penalty or that reserve balances are a pure residual with no impact on economic activity. Using the overdraft facility is not free; banks must post collateral to use the overdraft facility or the discount window, and Banks that use the overdraft facility must obtain reserve balances to clear the overdraft. The only way to get reserve balances to clear this overdraft is to borrow or purchase them from another entity with a reserve balance account or to sell assets directly to the CB, which only sells reserve balances for assets it deems eligible. Commercial banks cannot simply will infinite amounts of reserve balances into existence, just as bank customers cannot will money into their checking accounts, and if a bank fails to repay its discount window loans or clear its overdrafts, regulators will dissolve the bank. This means that commercial banks always need an income in base money and will always accept base money in payment, or else they will rely on correspondent accounts with a bank that does have such income.

Although there is a continuous need by banks to obtain net reserves to clear payments without penalty, banks can sometimes postpone this process. For example, in the US, commercial banks facilitating tax payments can use a Treasury Tax and Loan Account (TT&L), which is an account where tax payments are temporarily held. However, this does not eliminate the need to transfer reserve balances because the balances in TT&Ls are debited with a corresponding reserve transfer within 48 hours of being deposited. Additionally, banks who use TT&Ls must post collateral at the Fed equal to 100% of the balance of their TT&L. If crediting a

TT&L were “payment” in a meaningful sense, no collateral would be required. Consequently, it is misleading and unhelpful to characterize use of a TT&L as “paying taxes in deposits then settling with reserves”. A more legally and operationally accurate description is that the taxpayer surrenders deposits to his or her commercial bank in exchange for the bank’s promise to transfer reserves on the taxpayer’s behalf to the Treasury, and the TT&L is simply an accounting of the collective payments to the Treasury that the commercial bank has committed to paying. The payments, however, are not actually complete until the reserve transfer. The only reason TT&Ls exist is for logistical convenience; it is more efficient for a commercial bank to keep a running tally of all the reserves it needs to transfer to the Treasury and make one big transfer at the end of the day than it is to make thousands of small transfers throughout the course of the day. The existence of TT&Ls does not negate the fact that banks need income in base money.

After pointing out why banks need to obtain the state’s base money, critics of MMT usually claim that this “[sounds like the money multiplier theory and not the endogenous money theory](#)” (emphasis added). Careful readers will notice that this argument does not rebut any empirical claims but merely invokes a label, which it misapplies. The money multiplier is the specific claim that banks need to get reserves first before they can issue deposits and that banks will only issue as many deposits as their current supply of reserves allows. As [described by the Federal Reserve](#), the money multiplier claim is that

“the amount of money (deposits) banks ‘create’ is a fraction of the reserve requirement ratio set by the Fed. For example, if a bank subject to a 10 percent reserve requirement lent an additional \$100 of funds, \$1,000 (or $100 \times 1/0.10$) in total would ultimately be added to the money supply. In this case, reserves in the banking system would create 10 times as many deposits.”

The money multiplier is *not* the claim made by MMT; MMT’s claim as stated in this primer is as follows: “Banks need income in government liabilities to clear overdrafts, repay discount window loans, and meet other regulatory requirements and will *always* accept units of the monetary base or government bonds in payment. Because taxpayers as bank customers rely on banks to settle most payments to the government, assets which are denominated in the government’s unit of account—which banks must use—will always have value to taxpayers.”

With regards to the third criticism (that the Treasury debits the TGA when it spends and is usually not allowed an overdraft), while it is true that the Treasury must spend from the Treasury General Account, the Treasury has several means to [bypass this self-imposed funding constraint](#) and credit the Treasury General Account with any number it chooses. It can mint coins, issue tax anticipation bills, credit TT&Ls, and coordinate with the CB to perform indirect monetary financing. Critics of MMT have claimed that the Treasury can only spend without taxing or borrowing if the CB cooperates, but we emphasize here that only one of the four methods that the Treasury uses to bypass self-imposed funding constraints relies on cooperation with the Central Bank. Therefore, any money that the Treasury “has” in the Treasury General Account is an administrative accounting residual, not a reflection of accumulated wealth or any meaningful limit on its ability to spend. Any time the Treasury declines to use these bypass methods, it is making a political decision, not observing a legal requirement. In contrast, commercial banks have no ability to simply bypass the need to obtain reserves to clear overdrafts and repay discount window loans.

Moreover, before commercial banks can purchase bonds from the Treasury or pay taxes and clear any associated overdrafts or discount window loans, the reserves used in those transactions must first be created by the government and transferred to the commercial banks, either (i) when the CB lends to the commercial banks; (ii) when the CB purchases assets from the commercial banks; or (iii) when the Treasury spends. Once enough reserve balances are in the system for it to run, the government, through some combination of actions by the CB and the Treasury, must continue to give reserve balances back to commercial banks. If the CB halted all open market operations and if the Treasury stopped spending (*or even merely ran a surplus*), commercial banks could not **indefinitely** continue settling tax payments. In that scenario, in which the government **permanently commits** to no longer add net reserve balances to the banking system but continues taxing the private sector, rates would rise, regulatory capital would fall, and every single commercial bank would eventually fail. Consequently, the system as currently designed requires the government to continue giving base money to the private sector, which is why MMT states that the government is the monopoly issuer of the asset it demands from the private sector in payment.²

B. Implications for Monetary Policy

Just as the banking system's structure colors our understanding of chartalism, it also provides three important insights into why monetary stimulus has limited impact on spending. When the government wants to increase spending by private individuals, it needs private individuals to gain and then spend bank deposits. Some economists believe the government can encourage commercial banks to issue more bank deposits to their customers merely by having the CB issue more reserve balances by purchasing assets from commercial banks. However, commercial banks do not issue deposits free of charge even when they have additional reserve balances; they issue deposits in order to buy assets, labor, and promissory notes (to earn interest income). A shortage of bank deposits does not indicate a need for more reserve balances; it reflects a lack of creditworthy borrowers who desire to sell promissory notes and a lack of wealthy individuals who want to sell their assets to banks. For this reason, the first insight is that if the government wants to stimulate private spending, it can do so most effectively by directly increasing deposits held by individuals, rather than by merely increasing bank reserves and hoping that banks will extend deposits to individuals.

If the Treasury conducts fiscal policy by directly increasing deposit accounts and transferring corresponding reserve balances to the commercial banks, then it can stimulate individual spending. For example, in order to directly increase your deposit account at First Republic Bank, the Treasury can offer to send First Republic Bank reserve balances on the condition that First Republic Bank increases your deposits by the same amount. This is what the Treasury did by providing stimulus checks during the Covid-19 pandemic; when it sent out the

² Even if you reject the MMT claim that the Central Bank (whose leadership is appointed by the government and is legally required to remit all of its profits to the Treasury) is a part of the government and insist that the Central Bank is somehow a private agent, the system as currently designed only works because the government's regulations deem that the Central Bank's reserve balances are legal tender, carrying a zero-risk weight and serving as a level-1 liquid asset.

final stimulus checks in March, deposits and reserve balances at commercial banks increased, and personal consumption expenditures immediately rose by [4.2%](#) that month.

The second insight is that the private sector can continue to spend, even if the government issues bonds and engages in deficit spending. Some economists believe that selling bonds “crowds out” private-sector spending by draining the reserve balances that the private sector needs to clear payments. This theory fails to note that swapping reserve balances for bonds replaces those reserve balances with a high quality liquid asset that can be used as collateral to obtain additional reserve balances—therefore, the bank’s liquidity coverage ratio and ability to clear payments remain unchanged. No private sector spending has been crowded out. Private sector spending is only crowded out when the CB deliberately raises rates, which is a political choice that most MMTers find [empirically misguided](#).

Finally, the third insight is that we should not expect monetary policy—specifically, the CB exchanging government bonds for reserve balances—to significantly affect the relative price level. Conventional economic theory states that if reserves become scarce and the interest rate rises, banks will issue fewer loans, leading to less spending. This narrative omits the fact that banks are primarily restrained not by reserves directly but by capital and liquidity requirements; they will always lend if they think borrowers can repay. Granted, the interest rate has some impact on this profitability analysis, but [it is not dispositive](#). If every agent in the economy receives more money in interest payments because rates have risen, this additional income may allow for greater spending in some circumstances: If more people spend money, investments may become more profitable, which may at least partially offset the fact that the person running the investment must pay higher interest expenses to their bank. If this offset occurs, then increasing interest rates may not deter lending. Additionally, even if raising rates deters some lending, it may not deter purchasing in a proportional amount. Businesses can finance their investments through debt, equity, or retained earnings. If the cost of debt rises, businesses may make the same purchases for their investments by financing them with less debt and more equity and retained earnings. If they are unable to rebalance their financing profile this way, they may simply pass the increased cost of financing onto customers, elevating the relative price level.

VII. Conclusion

Banks have a great deal of freedom, but are forced to operate within the confines of a strict regulatory framework, where they rely on actions by the government’s Central Bank to maintain stability and liquidity. The government, therefore, is not an exterior appendage that latches-on to a pre-existing financial system. Rather, the financial system emerges from the government’s institutional structures. Because of this relationship, the government has a duty to its constituents to ensure that the financial system works to their benefit. This goal can only be achieved through a proper understanding of how this legal structure impacts economic incentives. With luck, this primer has shed some light on how the banking system actually operates and how various policies affect it, and we hope that readers are better equipped to evaluate proposals to reform it.