Lecture 9B: Macro Perspectives: Historical Backdrop

When we think about economies a fundamental question is ‘are they equilibrium seeking or prone to booms and crashes’? Classical economic theory, starting with Adam Smith and culminating with Walras, contended that price signals in the marketplace lead us inexorably, to equilibrium conditions. Think of the Edgeworth box diagram, expand upon its notions an envision equilibrium in the goods market, the market for labor and the bond/money market, and you find yourself in a world in which the *invisible hand* drives the economy toward simultaneous multi-market balance.

The diagram below is a stylized history of macroeconomic schools of thought. The seminal break with traditional classical economic thinking occurs, not surprisingly, amid the Great Depression. Economists confronted a world with vast unused capacity, numbing levels of unemployment and no trajectory for rebound that suggested improvement.

Keynes wrote the **General Theory of Employment Interest and Money** amid this global economic wreckage. Paul Samuelson, in reviewing his work (“Lord Keynes and the General Theory” Econometrica, 1946) stated, “Keynes denied that there is an invisible hand channeling the self-centered action of each individual to the social optimum. This is the sum and substance of his heresy.”
What followed after Keynes? Economists dedicated to classical traditions fought back. Monetarists like Milton Friedman argued that central bank policy errors were capable of explaining the Great Depression. Small ups and downs for economic activity were lamentable but unavoidable. That said, it the eyes of Milton Friedman bad monetary policy is what made the Great Depression ‘Great’. Freidman asserted that central banks had the power to prevent a repeat of the Great Depression. Deliver sufficient money to the economy, he ventured, and a 1930s style plunge for the economy can and will be avoided. Furthermore, monetarists believed that keeping monetary policy on the right track would allow price signals to do their jobs helping to continuously move the economy toward equilibrium.Keynesians tried to strike a middle ground. They very much wanted to preserve the equilibrium seeking characteristics of a market based economy. At the same time they wanted a framework that acknowledged the risk of self-reinforcing economic downturns. They built a model that attached ‘sticky wages’ to an otherwise self-correcting system. The result? In the short run output will shift, not prices, when the economy falls below full employment.

The Classical School, Flexible Prices and Technologically Determined Supply

We remember that the Solow Growth model tells us about the economy’s long run output potential. It is a function of the growth rate of the labor supply and the growth rate of labor productivity. Labor productivity, in turn reflects changes in capital deepening, changes in the education of workers and changes in the technological advances in machines. In other words, long run supply potential is determined by demographics and technology. Changes in monetary policy have no ability to change these variables. Real business cycle and new classical economists embrace the essential notions of classical economists and the Solow growth model. They simply argue that the economy in the short run—say over one to two years—is no different than the economy in the long run. They assert that output is fixed, a function of technology/demographic inputs. They contend that markets are efficient. They assert further that prices are completely flexible. Therefore, shifts in monetary policy, as the graph below shows, confront a vertical aggregate supply curve. Monetary policy changes exclusively move prices in this framework. Thus the central bank need only focus on inflation. It has no power to affect the real economy. This view also assumes that monetary authorities have the power dictate what the level of money will be. They imagine a world wherein the central bank, by changing the level of reserves in the system, can raise or lower the stock of
money in the system. As they think money can be set outside the system, they are said to believe in ‘exogenous money’.

Classical School → Prices are flexible, output fixed

New Keynesians, Sticky Prices and Business Cycle Dynamics

New Keynesians accept the Classical notion that markets are efficient. But they contend that market prices are sticky in the short run. Because wages and prices don’t adjust quickly to changing macro changes, output levels adjust in the short run. Therefore, shifts in monetary policy, as the graph below shows, confront a horizontal supply curve. Monetary policy changes move output with prices frozen in this framework. Thus the central bank can affect output levels in the short run, notwithstanding the fact that output is technologically/demographically determined in the long run.
Mainstream Keynesians and New-Keynesians also embrace the notion that monetary authorities have the power to dictate what the level of money will be. They argue that the quantity of broad money is a function of the level of ‘high powered money’ and the ‘money multiplier’.

Unlike monetarists, they accept the fact that targeting overnight rates to control the growth rate in broad money makes more sense than the monetarist approach, wherein you explicitly target money. Nonetheless, Keynesians, like monetarists, imagine a world wherein the central bank, by changing the level of reserves in the system, can raise or lower the stock of money in the system. As they think money can be set outside the system, they too believe in ‘exogenous money’.

**Hyman Minsky and the Post-Keynesians**

Post Keynesian economists, notably Hyman Minsky, objected to the conceit that the central bank had a spigot that spewed money on command. More precisely they rejected the idea that money could be exogenously determined by the central bank. According to Post-Keynesian thought, the central bank influences interest rates and thereby can influence loan creation. In other words, monetarist and Keynesians who embraced the neo-classical synthesis were in agreement that central bank open market operations drive the right hand side of bank balance sheets. No, say Post-Keynesians, central banks influence the left hand side of bank balance sheets. Loan creation drives money creation and not the reverse.
Why is this important? In an economy in retreat it may be very hard to rekindle animal spirits and restart bank lending. Consider the Japanese experience in the 1990s. Simple minded monetarists argue that the BOJ was asleep at the switch, failing to drive M2 growth back to healthy levels. The problem, of course, was that the collapse of asset values delivered a persistent deflation in Japan and reserve stuffing into banks did nothing to change this picture. M2 failed to grow because lending never recovered. You can’t make loans grow by making narrow money measures grow. You need to find a way to get loans growing and then you will discover that you are achieving your money growth targets.

**A Framework That Embraces Equilibrium via Rational Maximizing Economic Agents**

Monetarists were dedicated to the proposition that appropriate monetary policy rescued the notion of an equilibrium seeking system. Paul Anthony Samuelson, in many ways the father of the neo-classical synthesis, played a central role in preserving much of that notion in the Keynesian retort to monetarism. Samuelson’s dissertation was published with the audacious title *Foundations of Economic Analysis*. The effort provided a spectacularly complete and mathematically elegant system:

> Samuelson’s magnum opus ...did more than any other single book to spread the mathematical revolution in economics...[The] book shows how virtually all economic behavior can be understood as maximizing or minimizing subject to a constraint.

*J.R.Hicks did something similar in his 1939 book, Value and Capital. But while Hicks relegated math to appendixes, Samuelson flaunts his in the text.*

(Source: The Concise Encyclopedia of Economics)

Samuelson went on to combine the accelerator model for investment with the Hicks-Hanson version of income determination to create a business cycle model. Thus his efforts were prodigious. But he also, in the eyes of post-Keynesians, made mincemeat of two critical aspects of the insights of John Maynard Keynes. Samuelson resurrected the notion that an economic system is best described in terms of rational maximizing economic agents—Keynes stressed the overwhelming uncertainty that decision makers confronted.
MARKETS SHOULD BE COMPLETELY FREE

F. A. HAYAK
JOSEPH SCHUMPETER
ADAM SMITH
EDWARD PRESCOTT
MILTON FRIEDMAN
PAUL SAMUELSON

FREE MARKETS: J.M. KEYNES (1)
CHAOTIC, PRONE TO BOOM/BUST CYCLES J.M. KEYNES (2)
HYMAN MINSKY

FREE MARKETS:
EQUILIBRIUM SEEKING,
MARKET OUTCOMES
GENERALLY OPTIMAL

MARKETS SHOULD BE HEAVILY RESTRAINED

(1) KEYNES, ACCORDING TO KEYNESIANS
(2) KEYNES, ACCORDING TO POST-KEYNESIANS
Secondly, and perhaps as importantly, he greatly elevated the importance of mathematics in economic discourse, ending the notion that the best economists were well rounded thinkers. Keynes brilliantly described the unique attributes that a good economist should possess:

*The study of economics does not seem to require any specialized gifts of an unusually high order. Is it not, intellectually regarded, a very easy subject compared with the higher branches of philosophy and pure science? Yet good, or even competent, economists are the rarest of birds. An easy subject, at which very few excel! The paradox finds its explanation, perhaps, in that the master-economist must possess a rare combination of gifts. He must reach a high standard in several different directions and must combine talents not often found together. He must be mathematician, historian, statesman, philosopher—in some degree. He must understand symbols and speak in words. He must contemplate the particular in terms of the general, and touch abstract and concrete in the same flight of thought. He must study the present in the light of the past for the purposes of the future. No part of man's nature or his institutions must lie entirely outside his regard. He must be purposeful and disinterested in a simultaneous mood; as aloof and incorruptible as an artist, yet sometimes as near the earth as a politician.*

Sadly, after Samuelson worked his magic, elite academic economics departments made a mad rush toward becoming increasingly out of touch centers of applied mathematics. On the right, rational expectations gave way to real business cycles (RBC). This was countered, on the left, with a New Keynesian theory that gave birth to dynamic stochastic general equilibrium models (DSGE). These models shared a starting point that evoked the premise of Samuelson’s *Foundations* text. A rational, forward looking representative agent was the protagonist in both theories. The math was elegant and complex, but the linkage to most real world issues, over several decades, all but disappeared.

In the aftermath of the Great Recession many highly thought of macro theorists have acknowledged that these micro foundations - macro pursuits were fools errands.
Paul Krugman:

Golden Oldies: Economics is basically about incentives and interaction — or, as Schelling put it, micromotives and macrobehavior. You try to think about what people will do in certain circumstances, and you try to understand how individual behavior adds up to an overall result. What economists have known since Bagehot (with regard to financial markets) and since Keynes (with regard to goods and labor markets) is that under some circumstances seemingly reasonable individual behavior adds up to very unreasonable macro outcomes. Bagehot wrote of panics in which the collective desire to shed risky assets and debt produced a downward spiral; Keynes of situations in which the collective desire to save but not invest led to mass unemployment. And in both cases these arguments suggested a case for government intervention to undo or limit the bad macro consequences of reasonable individual behavior.

But notice that I’ve framed this in terms of “reasonable” behavior; it’s a lot harder to tell these stories in terms of perfectly rational, maximizing behavior. One response — a pretty good response — is, “So?” After all, maximization isn’t a fact about human behavior, it’s a gadget — an assumption we use to cut through the complexities of psychology... useful if it clarifies your thought, but by no means an axiom or a law of nature...

But from the 1970s onwards... the drive to base everything on maximizing behavior narrowed the profession’s thinking... led... to a total forgetting of the great insights about interaction. We created an economics profession which believed that Keynesian economics, and for that matter Bagehotian finance, had been “proved wrong”; whereas all that had really happened was that those things proved hard to model in terms of perfectly rational maximizing agents. Again, so? ... The point, though, is that something went terribly wrong. Put it this way: if all we had known when this crisis struck was 1950-vintage macroeconomics, we would probably have done a better job of responding.

At Bretton Woods, Larry Summers was interviewed by Martin Wolf:

Martin Wolf: How far do you feel that what we have experienced in the last few years suggests that economists just did not understand what was going on?

Larry Summers: There are things economists did not know. There are things economists were wrong about. And there are things where some economists were right.

When I was in the government, I got a lot of papers in the mail. To the first approximation, I attempted to read all of the ones that used the words "leverage," "liquidity," "deflation," or "depression." I attempted to read none of the ones that used the
words "neoclassical," "choice-theoretic," "real business cycle," or "optimizing model of..." There were more in the second
category than there were in the first. But there were a reasonable number in the first. And they told you a lot.

There is a lot in [Walter] Bagehot['s 1873 Lombard Street] about the crisis we just went through. There is more in Minsky.
And there is still more in [Charles] Kindlberger['s 1978 Manias, Panics, and Crashes.] There are enormous amounts that are
essentially distracting, confusing, and problem-denying in the stuff that is the substance of the first year course in Ph.D.
programs. I think economics knows a fair amount. I think economics has forgotten a fair amount that is relevant. And it has
been distracted by an enormous amount.

I do not think that in general macroeconomics kept up with the revolution in finance, as it was realized that asset prices show
large volatility that does not reflect anything about fundamentals. I do not think contemporary macroeconomics adjusted or
adapted to changes in the patterns of financial intermediation, and the ways in which that took place. I think people who were
practical understood concepts of liquidity finding its way into price inflation or asset price inflation and being problematic
either way, but those concepts were at the very edge--or in many cases not even at the very edge--of contemporary
macroeconomics, to the great detriment of contemporary macroeconomics.

I would have to say that the vast edifice in both its new Keynesian variety and its new classical variety of attempting to place
microfoundations under macroeconomics was not something that informed the policy-making process in any important way.

**Schumpeter, the World of Commerce, and the Price of Progress**

Joseph Schumpeter had little use for Samuelson’s *Foundations* text. Most importantly, he rejected, wholesale, the proposition that
capitalist economies were equilibrium seeking. He thought the theory of the firm, where company operators were busy making sure
that the marginal cost of the last item produced would just equal the price set by the market, was a comical caricature of the world of
commerce.

Capitalist economies, he ventured, are driven by risk taking entrepreneurs who work tirelessly into the night in an attempt to violently
overthrow the existing economic order. They are not price taking factory technocrats. Instead they are risk taking commercial
revolutionaries. For Schumpeter, describing capitalist economies without entrepreneurs as your central focus was “*like casting Hamlet
without the Prince*”. It is entrepreneurial drive, he asserts, that give rise to climbing living standards. This “truth” means, in turn that
we must accept the fact that these innovations unleash a creative destruction that wrecks havoc on the existing economic order. Henry
Ford drove buggy whip makers into oblivion. Sam Walton put tens of thousands of small retailers into bankruptcy. This dynamic
disruptive process belied the notion of seeking equilibrium. It lifted living standards even as it subjected many to bankruptcy.
Bankruptcy has to be allowed to unfold. The losers must be allowed to disappear. From Schumpeter’s perspective, **creative destruction is simply the price of progress.**

For Schumpeter, government intervention on behalf of struggling enterprises was a heresy *despite the fact that he envisioned a world of bankruptcy, job destruction, economic dislocation and disequilibrium.* Thus he was very much at odds with mainstream conservative thinkers. They argued against collective intervention, on the grounds that markets, in due time, would push the economy back toward equilibrium. For Schumpeter, the marketplace delivered a controlled chaos. Its ultimate resolution drove societies ahead. But economic dislocation was inescapable. It came with the territory.

**Minsky, the World of Finance, and the Cost of Capitalism**

As noted above, Schumpeter was captivated by the upside potential of risk taking entrepreneurs. Hyman Minsky, one of his students at Harvard, centered his theories on risk taking in the financial world. He put forth a thesis that was consistent with Schumpeter’s, in the sense that it too rejected the notion of an equilibrium seeking system. For Minsky, however, there were enormous dangers to the system from financial disruptions. In Minsky’s world Central bank and Big Government intervention were absolutely necessary to prevent deflationary destruction and economic depressions.

Minsky developed the financial instability hypothesis. The financier not the technological innovator is the key actor in Minsky’s drama. Minsky defined the world in terms of cash flows. People, companies and banks all had cash inflows and cash payments. For the system to operate in an equilibrium state, most entities needed to be able to meet their cash payments in a timely fashion. To do so, actors had to make decisions about how much cash to keep around—to cover unanticipated contingencies—and they had to decide about how much debt they could safely incur, given their sense of their cash generating capabilities.

Minsky’s critical insight relates to how these judgments are made. In a world that is pervasively uncertain, and very complex, the recent past informs opinion about the future. And conviction levels about the future are a function of the longevity of the circumstances that define the recent past. More simply, the longer good times endure, the more confident people are that they will persist. And attending that confidence is a willingness to increase risk taking. For Minsky, therefore, *stability is destabilizing.*

Minsky viewed the credit cycle as one that evolved over three phases:
Box II

MINSKY’S THREE STAGES OF CAPITALIST FINANCE

Hedge Finance:

• Early cycle, with vivid memories of recession in place.

• Conservative estimates of cash inflows are used when making financing decisions. Thus business as usual will provide more than enough money to pay cash commitments.

• Cash-on-hand is available, in any case, to cover disappointments.

• Debt commitments tend to be long-term fixed interest rate.

• Cash is available to pay off both the interest and principal, so refinancing is not needed.

• The margin of safety is high.

Speculative Finance:

• Mid-cycle after several Goldilocks growth years.

• Consensus estimates of cash inflows are considered “dependable estimates”. Therefore, debt levels rise. Expected cash inflows, if they arrive, provide only enough money to make interest payments on debts. Debts are “rolled over”.

• Cash on hand for emergencies, shrinks.

• Debt becomes shorter-term and must be continuously refinanced. This makes the borrower hostage to short-term changes in lender’s willingness to extend credit.

• The margin of safety is lower.

Ponzi Finance:

• Late-cycle, only distant memories of recession remain.

• Consensus estimates of cash flows ARE NOT expected to cover cash commitments.

• Cash for emergencies is all but missing.
DOT Com frenzy of the late 1990s show that people’s attitudes about the future, at times, can become spectacularly irrational. These events are easy to analyze using Minsky’s framework. But crazy notions about the future are not necessary for the financial instability hypothesis to unfold. Instead, one need only assert that, over time, conviction levels about the sustainability of a benign backdrop build. One of Minsky’s great insights was his anticipation of the paradox of Goldilocks. Because rising conviction about a benign future, in turn, evokes rising commitment to risk, the system becomes increasingly vulnerable to retrenchment notwithstanding the fact that consensus expectations remain reasonable, relative to recent history.

In sum, almost everyone recognizes that lunatic levels of enthusiasm invite large economic declines. Minsky’s insight is that widespread comfort in the enduring nature of benign times also invites destabilizing methods of finance which, ultimately, produce economic declines from small initial disappointments.

Why Banks Are Special: Money is Endogenous!

Minsky and his Post-Keynesian acolytes believe that both Classical and Keynesian thinking are fundamentally flawed because they see the world of finance as of secondary importance. Post-Keynesians believe that capitalism is a financial system and that the world of finance is center stage.

Perhaps the most important claim of Post-Keynesians is the ‘endogenous nature of money’ in a capitalist system. Recall that both New Classical and New Keynesian economists believe Central banks can ‘exogenously’ determine the money supply. No less an authority than Paul Krugman defends this notion. Professor Scott Fullwiler’s in a blog transcribed below does a thorough job of disputing Paul Krugman’s mainstream assertions:

Krugman’s post: “There are vehement denials of the proposition that banks’ lending is limited by their deposits, or that the monetary base plays any important role; banks, we’re told, hold hardly any reserves (which is true), so the Fed’s creation or destruction of reserves has no effect. This is all wrong, and if you think about how the people in your story are assumed to behave — as opposed to getting bogged down in abstract algebra — it should be obvious that it’s all wrong.”

Yes, I will argue here that banks either individually or in the aggregate are not limited by their deposits and the monetary base doesn’t constrain bank lending, but my argument as well as that of the endogenous money crowd in general … has nothing to do with whether or not banks “hold hardly any reserves.”
He continues: “First of all, any individual bank does, in fact, have to lend out the money it receives in deposits. Bank loan officers can’t just issue checks out of thin air; like employees of any financial intermediary, they must buy assets with funds they have on hand. I hope this isn’t controversial, although given what usually happens when we discuss banks, I assume that even this proposition will spur outrage.”

In fact it is wrong, and in fact that is not controversial. Let’s start with a basic bank and its customer and do T-accounts for both. The bank creates a loan and a deposit “out of thin air,” and the customer has now a new liability (the loan) and an asset (the deposit) as shown in Figure 1.

![Figure 1: Bank A creates a loan for Customer 1](image)

As is well known, and by the logic of double-entry accounting, the bank does make a loan out of thin air—no prior deposits or reserves necessary. But this isn’t really the point Krugman wants to make, so let’s just move on. Krugman continues: “But the usual claim runs like this: sure, this is true of any individual bank, but the money banks lend just ends up being deposited in other banks, so there is no actual balance-sheet constraint on bank lending, and no reserve constraint worth mentioning either. That sounds more like it — but it’s also all wrong.”

Actually, that’s not the argument I would make whatsoever. Neither would any person who understands endogenous money, horizontalism, the circuit, etc. The number of banks involved has nothing to do at all with the argument. Our argument is valid if we consider only 1 or 1 million banks. So, again, let’s keep going.

Krugman: “Yes, a loan normally gets deposited in another bank”

Actually, a loan doesn’t get deposited in another bank—a deposit gets deposited in another bank. The loan is a bank’s asset, and a deposit is a bank’s liability. Here we see the very beginnings of the importance of remaining clear on accounting if one wants
to truly understand what “loans create deposits” means. If we assume, as per Krugman’s example, that Customer 1 takes the proceeds of the loan and deposits them in, say, Bank B, then we have Figure 2 below:

Figure 2: Customer A withdraws proceeds from the loan from Bank A and deposits in Bank B

This is a bit more complicated than Krugman made it sound, isn’t it? Let’s walk through this slowly.

Customer 1 withdraws the deposit from Bank A, which is the “–Deposit” on Bank A’s liability/equity side, and the “–Deposit @ Bank A” on Customer 1’s asset side. Customer 1 then makes a deposit in Bank B, which is the “+Deposit @ Bank B” on Customer 1’s asset side and the “+Deposit” on Bank B’s liability.

But how does the deposit get from Bank A to Bank B? Let’s assume it’s done by electronic transfer here (that is, Customer 1 instructs Bank A to transfer the funds from the account at Bank A to the account at Bank B) since Krugman wants to discuss currency withdrawals below. Note that as far as the banks are concerned, this is the equivalent to Customer 1 spending the proceeds of the loan and the recipient of the spending being another customer that banks at Bank B—that is, in either case the deposit simply moves from Bank A to Bank B.

Now, let’s also assume that Bank A had no reserve balances on hand when it made the loan. How does it transfer reserve balances to Bank B? As it turns out, the Fed provides an overdraft for any payment sent in which a bank’s account goes below zero—that is, the payment is never rejected when it occurs on the Fed’s books. The Fed does this as part of its legal obligation to promote stability in the payments system (more on this in a minute). The rub is that the Fed requires Bank A to clear this
overdraft by the end of the day, which Bank A will most likely do in the money markets (such as the federal funds market, often via pre-established lines of credit). So, on the liability/equity side for Bank A, we end with “+Borrowings” in the money market to clear the overdraft.

Note underneath Bank A’s balance sheet I’ve shown the totals or net changes to its balance sheet overall, which is simply a loan created offset by borrowings in the money markets on the liability/equity side. So, the loan was made without Bank A ever needing to meet reserve requirements, without needing reserve balances before making the loan, and without needing any deposits. Can Bank A just continue to make loans forever this way without ever needing any of these? The key here is to understand the business model of banking—which is to earn more on assets than is paid on liabilities, and to hold as little capital (equity) as possible (since that’s generally more expensive than assets). The most profitable way to do this is to make loans (that are paid back, obviously, so credit analysis is an important part of this) that are offset by deposits, since deposits are the cheapest liability; borrowings in money markets would be more expensive, generally. So, Bank A, if it is not able to acquire deposits is not operationally constrained in making the loan, but it will find that this loan is less profitable than if it could acquire deposits to replace the borrowings.

If Bank A wants a more profitable loan but is not able to acquire deposits, it can raise the rate charged to Customer 1 and thereby preserve its spread, which can result in Customer 1 taking his/her business elsewhere. But it can still make the loan. In other words, it is not deposits or reserve balances that constrain lending, but rather a bank’s own choice to lend given the perceived profitability of a loan—which can be affected by the ability to obtain deposits after the loan is made—and also given a perceived creditworthy borrower (someone has to want to borrow, after all, if a loan is going to be made) and sufficient capital (since regulators will want the bank to hold equity against the loan).

A digression is in order here on the central bank and the payments system. According to the Fed’s data in 2011 payments settled using Fedwire (the Fed’s main settlement system) averaged $2.6 trillion per business day, or about 17% of annual GDP each business day. A significant percentage of these payments themselves settled a still larger dollar volume of transactions previously netted on private payments systems. And the US is not unique in this regard; as I explained here (see Table 1), in other countries payments settled on the central bank’s books each business day routinely average between a low of about 10% and a high of over 30% of annual nominal GDP. As the monopoly supplier of reserve balances (since the aggregate quantity can only change via changes to its own balance sheet), it is the central bank’s obligation to ensure the stability of the national
payments system. All central banks therefore provide reserve balances to their banking systems on demand at a price of the central bank’s central bank’s choosing.

Note that it cannot be any other way. If the central bank attempted to constrain directly the quantity of reserve balances, this would cause banks to bid up interbank market rates above the central bank’s target until the central bank intervened. That is, central banks accommodate banks’ demand for reserve balances at the given target rate because that’s what it means to set an interest rate target. More fundamentally, given the obligation to the payments system, it can do no other but set an interest rate target, at least in terms of a direct operating target.

What does this mean for our present context? It means simply that there is no quantity constraint on the quantity of reserve balances the central bank will supply, and thus there is no reserve constraint on a bank or on the banking system’s ability to create loans. Central banks stand ready to provide reserve balances at some price always. They can adjust this price up or down if they are concerned about the expansion of credit or monetary aggregates, and this increase in price can be passed onto borrowers who may then not want to borrow. But this means that the manner in which a central bank can exert control over credit expansion is indirectly through its interest rate target, not through direct control over the quantity of reserve balances…

Krugman summarizes: “So there is in fact no automatic process by which an increase in bank loans produces a sufficient rise in deposits to back those loans, and a key limiting factor in the size of bank balance sheets is the amount of monetary base the Fed creates — even if banks hold no reserves.”

As above, the quantity of reserve balances the bank is holding has nothing to do with it. Krugman is correct that there is no automatic process that will enable a bank or the banking system overall to keep deposits equal to the amounts of their loans created, but as I’ve explained that represents a potential reduction in the profitability of the loan, not a quantity constraint on a bank’s or the banking system’s abilities to create loans out of thin air. The only relevant quantity constraint on creating a loan is capital—assuming capital requirements are strictly enforced—not reserve balances, not reserve requirements, not deposits, not the monetary base, etc. The latter can only affect the loan decision by influencing the profitability of the loan—a price effect of monetary policy, at best—and similarly the borrower’s decision can be affected by the fed funds rate set by the Fed (and the rate the bank charges as a markup over this), which is another price effect. The reason for this is that a central bank defends the payments system every day, every hour, every minute, at some price. This is the essence or fundamental truth of central banking, and anyone not understanding it doesn’t understand central bank operations.
In short (!), the money multiplier model is wrong because it has the causation backwards—banks create loans based on the demand by borrowers, perceived profitability, and capital they are holding. The quantity of currency held or in circulation and quantity of reserve balances held or in circulation at the time of the decision to create the loan have nothing to do with it. If there are reserve requirements, then the quantity of reserve balances may increase as lending may increase reserve requirements and the central bank will have to raise the quantity of reserve balances circulating to achieve its target. Similarly, if credit creation raises the public’s demand for currency, then the central bank will have to increase currency in circulation, as well. It also means that the loanable funds model is wrong. Banks are not constrained by deposits whatsoever, but the quantity of deposits they can raise after making a loan to replace a withdrawal will affect the profitability of the loan. Again, the constraint is a price constraint, not a quantity constraint.”

**In Conclusion: Monetary Policy Works, At Banks, by Changing Net Interest Margins**

Professor Fullwiler goes to great lengths to show that money is created endogenously. The Fed, of course, has the ability to greatly influence this dynamic. It does so, in traditional times, by raising or lowering the fed funds rate. If we think about the model presented above, how does this work? Bank A, in the end, has an asset, its loan to the customer, and a liability, the monies it owes in the fed funds market. The bank is in the business of making profits. Its profits are greatly influenced by its net interest margin, defined as the average interest rate on its loans minus the average interest rate on the money it borrows. For bank A the net interest margin is simply the interest rate on the loan minus the interest rate on monies it borrowed—the fed funds rate. If the fed raises the fed funds rate, and the borrower cannot handle a higher rate, the bank will not make the loan. The point? By moving the funds rate the fed tries to influence the pace of lending. But it does not create reserves that are automatically lent. As Professor Fullwiler says,

- **Banks are not constrained by deposits whatsoever, but the quantity of deposits they can raise after making a loan to replace a withdrawal will affect the profitability of the loan. Again, the constraint is a price constraint, not a quantity constraint.”**

**Sources:**
- Barbera, “*If It Were A Fight They Would of Stopped It in 2008*”
- George A. Akerlov, “*The Missing Motivation In Macro Economics*”
- Faust and Leeper, “*The Myth of Normal*”