Introduction

Part I centered on two basic macroeconomic paradigms, which we defined as M→G vs. G→M. In this part, we will concentrate upon the IS-LM model. The purpose of IS-LM is to provide insights into the macroeconomic drivers of interest rates. The model could be called "MP-AD," for "monetary policy" and "aggregate demand," but we shall stick to the conventional labeling, where LM denotes the "loanable funds market" and IS denotes "investment-savings."

IS-LM was developed in the mid-1930s to explain interest rates during periods of economic stagnation. It was invented by Keynesian economist John Hicks and popularized by Keynesian economist Alvin Hansen. During the War, of course, the economy had roared back to life, and so, for decades, the Hicksian framework was regarded as a kind of classroom gadget. As the neoclassical counter-revolt gathered momentum in the inflationary 1960s and 1970s, the economic proposition which grows out of IS-LM—that private savings can actually hinder growth—was dismissed as false.

As the Great Stagflation of the 1970 and early 1980s receded to the Great Moderation,[*] a consensus developed that Depression-style downturns were extinct. In the hubris of the era, fiscal countercyclical policy prescriptions became taboo. At best, fiscal policy robbed Peter to pay Paul. At worst, it created a useless and burdensome macroeconomic drag which undermined national competitiveness. In other words, the M→G paradigm had clawed its way back into dominance. The best thing that government could do for the market—and for the broader business environment—was to get out of the way. Amid such atmospherics, IS-LM became seen as the residue from an era which had passed and would not return.

But it turned out that the business cycle was not dead: when the benign deflation of the Great Moderation became the severe deflation of the Great Recession, the IS-LM model catapulted back into relevance. IS-LM enables us to understand the zero-bound rate environment. Many market participants assumed that rates were zero-bound because of Fed policy—*because* the Fed was holding interest rates "artificially" low—but IS-LM spells out the *limits* of the monetary power during periods of severe deflation. This is important because, during the Great Moderation, the prevailing wisdom had become that an independent central bank was the only policymaking institution required by a market economy. Its job was to keep prices stable and, if things got a bit sluggish, to jumpstart the economy with lower rates.

The experience of the past several years, however, is that monetary authorities are unable to jumpstart the economy. Moreover, the problem of maintaining price stability shifted from containing inflation to trying to induce inflation. As the Fed moved into this new landscape, many people were simply unable to adapt to its facts, demonstrating the power of "dead economists and political philosophers." In fact, the landscape of low inflation and sluggish growth is an old landscape, not a part of our living memory, perhaps, but definitely a part of our economic history. And while there is much to be said for the Great Moderation premise that macroeconomic volatility has been largely reduced (with

[*] It was a "great" secular cycle, extending from the Great Depression to the Great Prosperity to the Great Stagflation to the Great Moderation. This long-range cycle adheres to K-wave theory (named after the Russian economist Nikolai Kondratiev), where an economy progresses from severe deflation to benign inflation to severe inflation to benign deflation—and from there back to severe deflation.

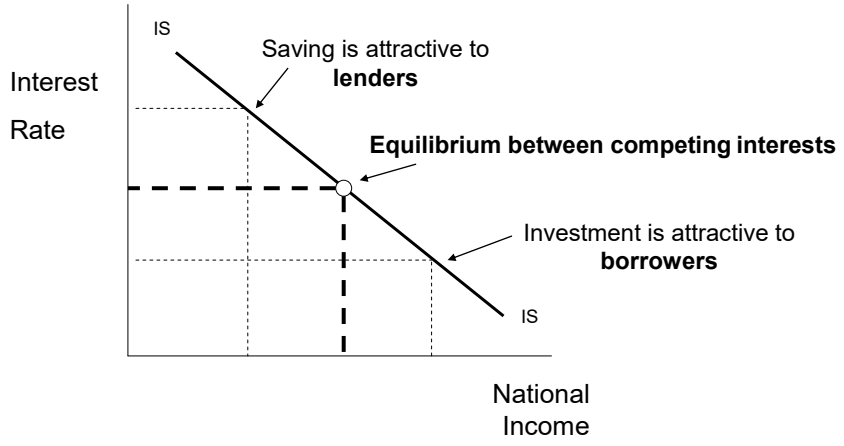
the frightening exception of the 2008 Crash), we still need an explanation for why rates remain persistently low.

Intermediating Savings and Investment

IS-LM begin with the distinction between investment and savings. It is a distinction which has been obscured over the past decades by the financialization of the American economy. When the Hicksian model was released in 1937, financial categories like savings and investments, money and bonds, were more intuitively distinct from one another. Today, eight decades later, these categories seem mixed into the same soup. Certainly, "money" and not only bonds earn "interest," and families think of themselves as "investing" and not "saving."

But although the evolution of financial products has made the categories more fluid, the underlying drivers of the IS-LM model are still the same. Families continue to have different—and evolving—risk tolerances. These differing risk tolerances are intermediated by financial institutions—generally banks—as they reallocate capital from risk-free checking and savings deposits to risk-taking investment. The intermediation process is depicted in the graph below:

Transmission from Savings to Investment



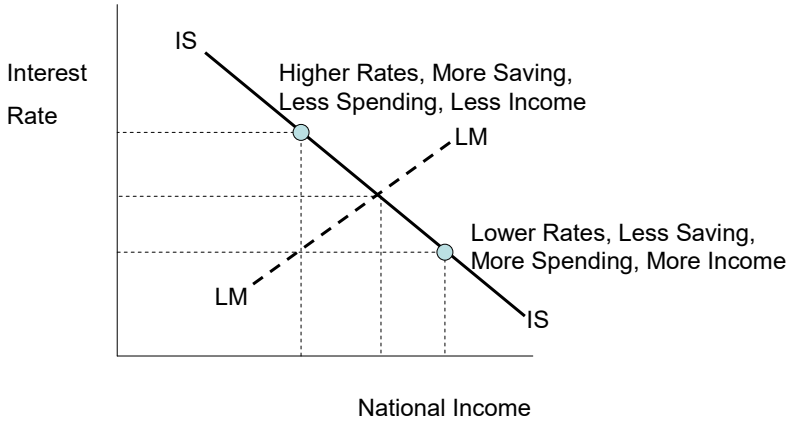
The IS curve reflects the intermediating trade-off. Conceptually, when rates are high, families *buy* bonds in order to save, and when rates are low, families *sell* bonds in order to spend. Conversely, when rates are high, entrepreneurs are dissuaded from borrowing, but when rates are low, entrepreneurs borrow more. The interest rate is an equilibrium price which balances these competing motivations.

In the IS-LM conception, the basis of the bond market is its role as *safe-haven* for capital. Treasury paper is debt issued by the very borrower—the United States government—that

prints the currency which redeems its borrowing. As a conceptual matter, there is no default risk in owning the public debt of a currency *issuer*. There may be inflation risk with public debt, and that risk may be significant or even terrifying, but *default* risk is a problem for currency users, not currency issuers. Currency *users* must earn the currency which redeems their obligations. They cannot merely print it.

In the graph below, we see the relationship between the IS curve and aggregate demand (AD), keeping in mind the relationship between spending and income, where every dollar spent in the economy is a dollar earned somewhere else in the economy:

IS: The Spending/Saving Tradeoff



It is important to note that IS is effectively a stalking horse for aggregate demand. Not only does it exhibit the same price/quantity relationship as a demand curve, but household savings is the reciprocal of household spending: every dollar that a household saves is a dollar that it does not spend, and vice versa. As such, we can see the IS curve as a proxy for the AD curve. We shall circle back to this. For now, however, please allow me to reflect briefly upon the relationship between private savings and public debt.

Private Savings

Public debt wears different hats. It is a liability for taxpayers, something that is owed, but it is also the supply of risk-free savings in the economic system, i.e. something that is *owned*. Market rates for treasuries are a signal of the public appetite for savings, where rates go up when the supply is too plentiful and rates go down when the supply is too scarce. Even in hard times, and unlike private debt, public debt never has to be paid down. Quite the contrary, it can and should grow alongside the economy, now slower and now faster, depending upon the level of private sector expansion. In other words, public debt is a store of value for the private sector: when it decreases (leaving inflation out of the equation), private sector wealth is decreased.

Ultimately, the rates paid to savers rise or fall due to factors which decrease or increase risk-aversion. When the public feels frisky about its economic prospects, capital exits the treasury market and is channeled into other investment sectors that promise greater returns—but also hold the possibility of default. When the public feels nervous, capital returns to treasuries for save haven.

So credit is, in its first iteration, a function of capital allocation away from safe-haven and towards the prospect of default. It is that prospect—default risk—which drives spread, i.e. returns. And while pricing credit must *also* factor prospective inflation and erosion of purchasing power, the *real* return on risk-taking investment derives from the fact that the upfront capital may be lost and therefore must be compensated.

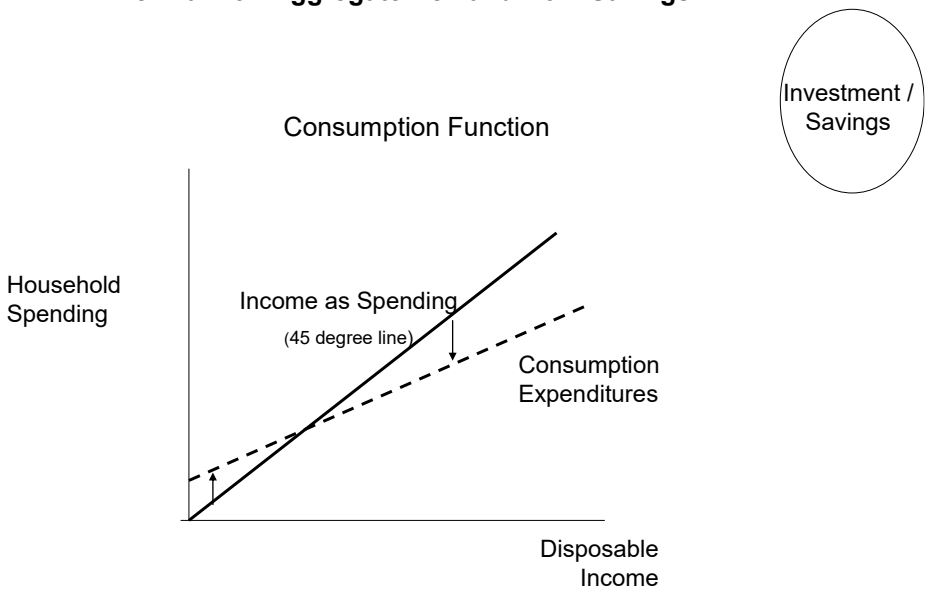
So as family capital is allocated between "job-creating" risk and "job-destroying" risk aversion, public debt plays an indispensable role in the decision making. Not only does it represent markets which have been created by government out of thin air, where deficit spending increases household income, but it also represents the supply of risk-free savings. And while the demand for public debt is variable, contingent on the oscillating risk-appetites of the public, a persistently low-rate environment should be indicative of a shortfall of supply.

The Consumption Function

To dive a little deeper, using the national income equation ($Y = C + I + G$), if household savings is denoted by "S," then theoretically, $C + I = C + S$, because $I = S$. Families accumulate and businesses invest, but if everything is being intermediated properly, then "S" should equal "I," where $Y = C + S + G$.

The problem arises from what is called the "consumption function." The consumption function builds upon assumptions about the relationship between disposable income and economic consumption. In the first place, every living human being consumes some base level of economic output. In the second, the more disposable (post-tax, post debt-service) income grows, the more consumption increases, but *not at the same pace of income growth.* The further right one moves along the consumption function, the larger fraction of disposable income channeled into *savings*, or wealth accumulation.

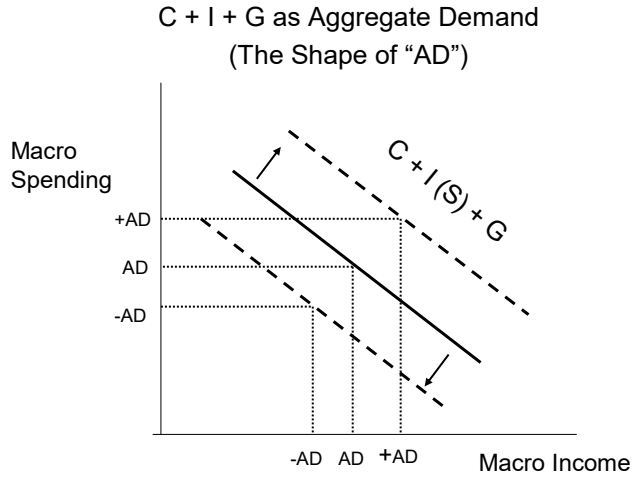
The Drain on Aggregate Demand from Savings



The arrow pointing up on the left side of the graph is "dissavings," which comes either in the form of households drawing from previous savings and/or from some external subsidy (probably government transfer payments, but also charitable or family contributions). The arrow pointing down on the right side of the graph is "savings" and represents the pool of funds available for capital investment.

If one follows the consumption line further to the right, past the visual representation on this piece of paper and towards the highest strata of earners (the so-called "1%", or more properly, the 0.1% or even the 0.01%), the portion of income that is actually consumed becomes decreasingly important relative to the portion that is posted to net wealth, or "saved."

The consumption function shows us that *aggregate spending*, or demand, is very dependent upon the transmission of savings into investment. If household savings *are* channeled into business development, then economic space is excavated from the entrepreneurial activity and income multiplies through the wider system, shifting AD to the right. When those savings are *not* effectively channeling into business development, then the demand curve (or AD) clicks to the left, as spending is reduced without a corresponding uptick in private investment.



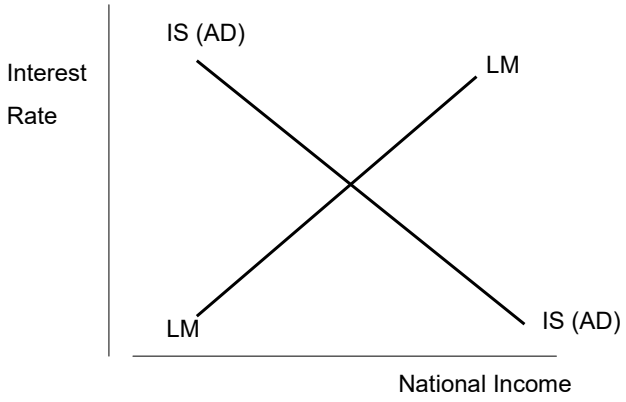
So the transmission between savings and investment is vitally important. So long as risk-free savings is being channeled into risk-taking investment, the system should work just fine.

The Basic Framework

The purpose of IS-LM is to provide macroeconomic insights when the system does *not* work just fine. Under the IS-LM framework, rates are determined by central banks in the short term (LM) and by economic growth and inflation in the longer term (IS). The bridge between the two is investor expectations, where rates are basically a function of the growth and inflation forecasts of the buying public. These expectations are tempered by monetary policy, which exercises control over the supply of bank reserves, but also by a range of other factors.

In the IS-LM framework, interest rates are determined by two broad variables: 1) the demand for goods and services, and 2) the demand for money. The demand for goods and services is represented by the IS line and the demand for money is represented by the LM line.

The IS-LM Framework



Again, this glance at the model shows us an investment-savings (IS) curve shaped like a demand curve, where rates serve the function of price and national income serves the function of quantity. The money market (LM) curve is upward sloping, like a supply curve. It expresses the relationship between rates and income assuming a fixed quantity of money.

LM: the Demand for Money

In a "normal" environment, where private investment is driving economic development and the importance of fiscal policy to the economy is less conspicuous, the velocity of money is "stable" and the demand for money is basically "transaction demand." The public wants to hold cash balances for purposes of conducting business.

Higher national income means more cash holdings are required for transaction purposes. Assuming a fixed money supply and the stable demand for it, higher national income means higher interest rates are required to convince families to reduce their cash balances and hold "safe-haven" bonds. Lower national income—again, assuming a constant stock of money and stable demand for it—means a lower interest rate threshold is necessary for the public to part with cash and buy bonds.

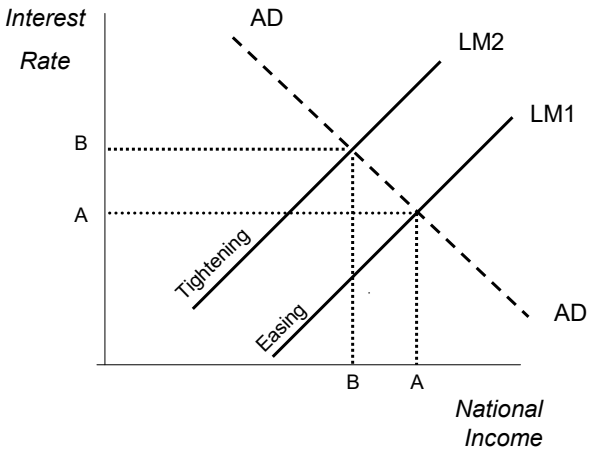
But there are some environments where the demand for money is *not* only for transaction purposes. Part of that demand is to hold money as an *asset*.[*] This is a different motivation than simply holding cash balances to conduct business. In "normal"

[*] Keynes also argued that there was a "speculative" demand for money, where investors want to hold money for purposes of increasing their wealth, which is possible during a deflationary period. For our purposes, we will subsume speculative demand into demand for money as an asset.

environments, people who own money are happy to put it into bonds, where they will get a better return. But there are moments in time when the public becomes indifferent between treasuries and money.

With this form of liquidity preference in mind, shifting nominal LM to the right is, in central bank parlance, "easing," and shifting to the left is "tightening." Here is a graphical representation of this:

LM: the Proxy for Monetary Policy



When central bankers want to be "accommodative," nominal LM is shifted to the right. In other words, bank reserves are managed to bring down the price of money (interest rate) by increasing its supply. Assuming constant IS, "easing" lowers rates and increases income, as denoted by A. When the central bank wants to "tighten," nominal LM is shifted to the left, which has the effect of elevating rates and decreasing income, as denoted by B. As you know, to the extent income is also nominal, and not real, shifting LM to the left is an effective way of purging inflation from the system. It is also an effective way to prevent inflation from *entering* the system. Conversely, shifting LM to the *right* is an effective way to stimulate demand and, at some points along the business cycle, restore growth to the system.

In fact, LM is where Keynesian economics *has* been consistently applied. While *fiscal* policymakers have been focused over the past several years on perils of public debt, which is *not* a Keynesian concern during a period of severe deflationary pressures, Keynesian insights have been feeding the policy-response on the *monetary side of things* over the past several decades. And indeed, since the Great Depression, through Democratic and Republican administrations, central banks have become relatively effective at managing overall spending by maneuvering LM, learning through trial-and-error how to use the relationship between the supply of money, which it controls, and the demand for money, which it does not, to goose *aggregate demand* in slumps and trim

aggregate demand in booms**.** The trial-and-error has basically involves finding NAIRU, or the "non-accelerating inflation rate of unemployment," and using *that* variable to maintain both economic growth and financial stability.

Liquidity (or Growth) Trap

By definition, macro is about the relationship between demand and supply. The "science" of macro, such as it is, has to do with the tilt in that relationship. Some people are more disposed to a demand-side explanation of macroeconomic phenomena and others to a supply-side, but the rational tilt is a function of economic time. When the cycle is inflationary, the tilt would be more to the supply side, i.e. more of a market focus, less government spending and a flatter tax burden. When the cycle is deflationary, the tilt would be more to the demand side, i.e. less of a market focus, more government spending and a more progressive tax burden.

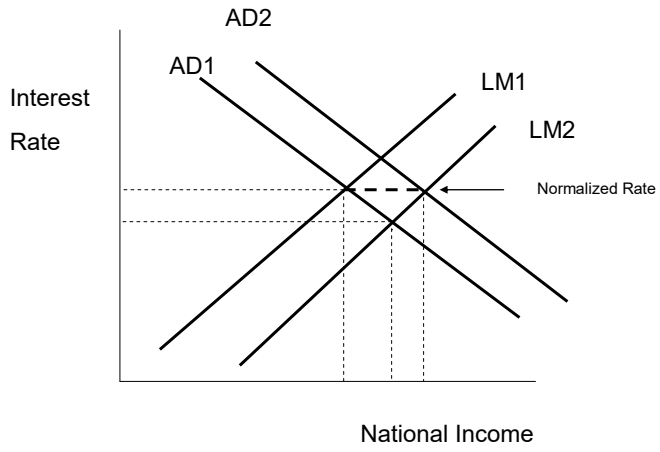
In recent decades, using counter-cyclical policy to facilitate more spending in the private sector, and therefore more national income, has generally fallen on the *monetary* authority. There have been exceptions. Security emergencies can induce fiscal expenditure and when that occurs during a business slump, it provides an economic benefit. Heightened concerns about the Soviet Union helped provide a path to recovery during the severe recession of the early 1980s. Similarly, the "War on Terror" helped jumpstart a flagging economy in the early 2000s. And, of course, the classic example is the Great Depression, which was not effectively ended until the public works program known as "World War II." [*]

But shifting AD to the right through deficit spending is a blunt instrument, and although it can be a very effective way to revitalize commercial activity, its inflationary perils, combined with broad antipathy towards "big government," have made it exceedingly difficult to build any kind of public consensus for it—particularly since the Great Stagflation period of the 1970s. Again, the exceptions have been security crises, but the bottom line is that, from a *policy* perspective, the proactive governmental response to business slumps has generally fallen upon the Federal Reserve, which has managed it, with varying (and perhaps increasing) degrees of effectiveness since the Great Depression.

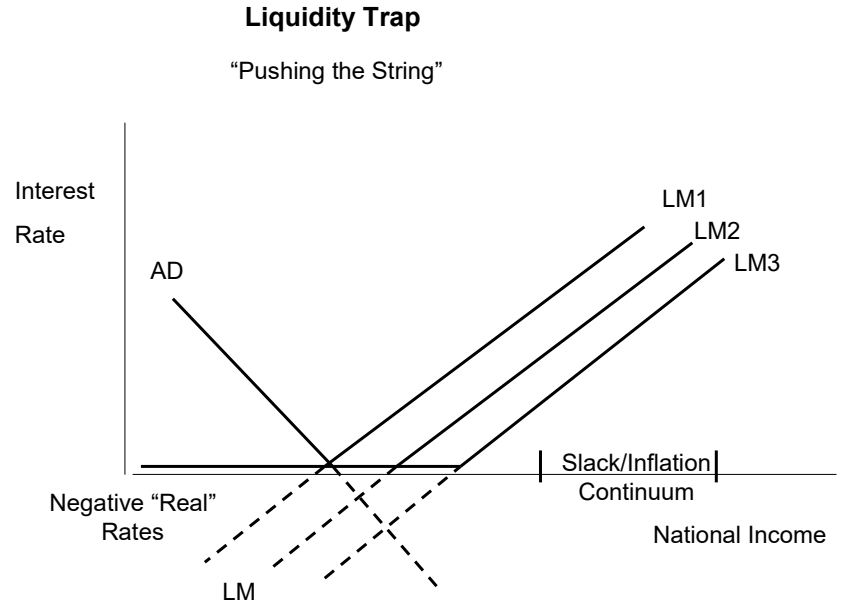
To reiterate, the graph below is a process of which you are familiar. To juice up aggregate demand (AD1), the central bank shifts LM to the right (from LM1 to LM2). This has the effect of creating more income, ultimately leading to a rightward shift in aggregate demand. When that occurs, rates eventually normalize.

[*] Government spending during the war years crested at just below 50%. In other words, almost 50% of family income during that period came from a government check.

Central Bank Action in a Downturn



In *this* downturn, however, monetary policy has not produced "escape velocity." The "Great Stagnation" has defied the efforts of central bankers to kick-start a new wave of growth through LM manipulation. The reason is that *asset demand* for money has been so pronounced that families cannot be induced to spend or invest, no matter how low rates are. When combined with income polarization concentrating savings in the hands of families with lower "marginal propensities to consume" ("consumption function"), the shortfalls in aggregate demand are so pervasive that, regardless of the Fed's extraordinary stimulus efforts, business growth cannot find traction. The graph below shows the monetary problem:



Here, where liquidity preferences are very high, the central bank shifting LM to the right *cannot* push rates any lower. This inhibits rightward shifts of IS. Nominal rates hover near zero as savers are motivated to hold money, not simply for transaction purposes, but as an asset. Nominal rates cannot go below zero, since savers would simply abandon bonds and hold money, but as a practical matter, the public becomes indifferent to the choice between treasury debt and money, since the issuer of the debt is also the issuer of the currency which redeems the debt.

When savers are more concerned about the return *of* capital than the return *on* capital, they are willing to pay a premium to dispense with default risk. Such conditions can protract over a long period of time, particularly if there is no significant expectation that inflation will resurface. If *risk*-to-capital is rewarded by capturing nominal GDP growth, then longer-term returns to risk-*free* treasuries should theoretically equal inflation itself. And though treasury rates over the past few decades, leading up to the crash in 2008, ran against this precept, one might reasonably expect that it will be enforced, and then some, over the next few decades.

In the 1940s and 1950s, the experience of a severe deflationary shock was jarring enough to imprint itself on public expectations in the form of a reduced inflation premium. Despite the inflationary uptick in federal outlays, the memory of the Great Depression was strong enough to enforce lingering worries that another severe downturn could be around the corner. This reduced inflation premium created erosion of financial wealth which did not really end until treasury yields finally started rising in 1958, almost two decades after the recovery began. So when we think about the proper levels for risk-free treasuries, and notwithstanding the memory of those who live today, it is not ahistorical to see longer-term nominal GDP growth as captured by risk-*taking* securities and baseline treasury rates as roughly corresponding to inflation. Some of the "inflation plus" return

in treasury rates we have seen since the mid-century has to be attributed to flat wages and rent-extraction, not to the growth-creating capabilities of capital investment.

Investment Implications of IS-LM

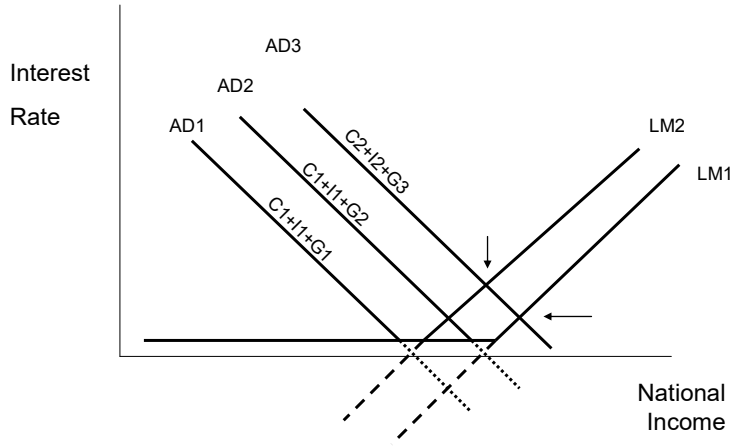
You will remember from Part 1 that Say's Law states supply creates its own demand. No one's productivity comes at the expense of another. If a person can produce something of value, then he will have money in his pocket. Under the M→G macroeconomic paradigm, there is no "crowding out," with one notable exception: when *government* spends. One more public road means one less factory built through private efforts. A community may want to make that choice, but it should be aware that it *is* a choice. There is no long-term and meaningful change in aggregate demand or economic growth. On the contrary, scarce resources are transferred from more efficient (business) to less efficient (government) hands. As such, there are scenarios in which our republican (small "r") form of government is itself unreasonable, since it can become a mechanism by which people can be dispossessed of their property to no net effect.

In the Keynesian view, there *are* deflationary intervals along the business cycle when demand *can* create supply, when government spending can "crowd-in" income and not be drawn at the expense of some segment of the private sector. As the slow rebound from the crash of 2008/2009 demonstrated, business cycles can still be brutal, with practical consequences which could imperil capitalism itself. In the Keynesian macro, low treasury rates indicate the demand for savings is high and spending is low, so the Keynesian counter-cyclical would treat those rates as a signal from the market that it needs government to step in and serve as a customer of last resort.

What IS-LM *does from an investment standpoint* is identify the peculiar circumstances where fiscal policy does *not* crowd out the private sector and predict how the economy responds to those various policy-scenarios, both fiscal intervention / austerity and monetary easing / tightening. IS-LM weaves government into the equation, along the lines of G→M, and provides a predictive map for the economic effects of policymaking, particularly during deflationary ebbs in the business cycle. And again, it is a map that has been accurate over the past years in a way that the pre-Keynesian, M→G framework has not.

Over the past several years, many investors have bet that rates would rise and have blamed the Fed when rates stayed low or went lower yet. In the IS-LM version of things, manipulating LM can have a positive effect on aggregate demand, and therefore the drift and direction of rates, but that does *not* mean the Fed has caused rates to stay low. Similarly, the fact the monetary policy is inconsequential to the upside when the economy is ensnared in a growth trap does not mean that monetary policy is inconsequential generally. There are many economies which have suffered because central banks prematurely tightened. Still, despite the risks to an economy in a zero-bound rate environment posed by wrong-headed monetary policies, the action is almost entirely on the fiscal side.

Fiscal Intervention (Crowding In)



In the graph above, fiscal increases from "G1" to "G2" do not lead to higher rates, despite AD being shifted to the right. When deficit spending increase further, from "G2" to "G3" occur, then rates start to rise, as stimulated aggregate demand creates new business opportunities, more competition for capital and, importantly, more inflation. At that point, it becomes appropriate for central banks to think about tightening (LM2)

The path to economic recovery is through harnessing lower real rates. This is either achieved from the wage deflation generated by leftward shifts in IS-LM or the monetary inflation generated by rightward shifts in IS-LM. The difference is the relative pain and instability inflicted in the meantime; pain and instability that brings very little disciplinary benefit, given that human nature tends to forget the lessons of hard times in the hubris borne by periods of economic stability. [*]

From the investment standpoint, perhaps the greatest practical benefit to IS-LM that it provides a framework for thinking through the secular/policy split in the direction of rates—for dividing that part of interest rates that is determined by exogenous policy from that part of interest rates that is determined by market forces. At all times, when there is a move in rates, investors need to ask themselves if secular (IS) factors are at work or whether monetary (LM) factors are more at play. In other words, is a rise in rates more the result of aggregate demand shifting right? Or expectations regarding monetary policy shifting left? And although an accumulation of government policies *can* lead to secular change, the bottom line for investors should be whether or not aggregate demand has managed to extricate itself from the liquidity trap, and *that* piece of work—escape velocity—either requires some "regime-changing" countercyclical policy designed to boost inflation or a longish passage of deflationary time.

[*] A very recent example is the repeal of the Dodd-Frank legislation and its Volcker Rule, which is now seen, almost a decade later, as an obstacle to profitable banking rather than a public safeguard.

Concluding Thoughts

There is something naïve about the idea that the economy will grow at maximum capability if government will only give entrepreneurs and risk-taking investors—"job creators" in the current vernacular—everything they want. IS-LM shows how job creators become job destroyers: when capital moves out of risk-taking investment and towards the safe-haven of treasuries, jobs are destroyed, and no less than jobs are created when capital moves out of safe-haven and towards risk-taking. In fact, however, job creation and job destruction is not part of the risk-taking, entrepreneurial equation. Entrepreneurs and investors are motivated to build and preserve family wealth, and it is in that behavior where IS-LM makes sense.

Perhaps the most ironic thing about Keynesian economics, given its reputation for "social engineering," is its implicit faith in the productive capabilities of business enterprise. The underlying assumption is that when business has sufficient markets, then some combination of appetite and ingenuity will propel the private sector into a wave of self-generated growth, where the profit-motive leads to expanding incomes and the excavation of new economic space via the development of new products and productive techniques. In other words, Keynesian economics says that all business *needs* is customers and that businesspeople will manage the rest. The alternative view seems to rely upon a much more delicate psychological balance of confidence, certainty, and social exaltation for producers to work their magic.

Although the IS-LM macro is a simplification, as all models are, it does explain why interest rates have behaved differently than many investors anticipated. Moreover, it is a macro that can incorporate analytic devices, like Taylor's Rule and Phillips Curve,[*] to augment factual understanding. Finally, it must be said that professional economists have tweaked and fooled around with IS-LM in ways that even educated laymen find difficult to follow. For instance, there is a professor at MIT who claims that IS bends up and LM bends down. At the end of it, though, IS-LM provides a "big picture" context for interpreting the rate environment and the data flowing from it.

We know that with real growth, interest rates will elevate in a sustained and protracted way. Therefore, we should be open to the idea that a robust and flexible American economy will be restored to growth sooner rather than later, and *without* policy support. In other words, and as noted at the outset, we must *always* be ready to rethink our assumptions, to accept that our model has it wrong. IS-LM has been more right than wrong, but there will come a time when it is more wrong than right. Conversely, though, when policy follows a track that does not, per IS-LM, seem to promote growth, we need to be open to the prospect that higher rates signal neither inflation nor growth, but is simply the leftward clicking of either monetary policy or aggregate demand—or both.

IS-LM provides a sort of calm port in a turbulent market, with guideposts that help us find the story that fits to the data. The challenge with IS-LM, as it is with any quantitative conception of the world around us, is using it to abstract out the noise while

[*] Although in the popular imagination, Philips was "debunked" back in the 1970s, the Fed continues to use refined versions of the model in their decision-making.

being open to the changing facts on the ground. It falls upon our worldly wisdom to know the difference. For the time being, and notwithstanding rising popular hostility towards austerity regimes, that wisdom seems to point towards a protracted period of low rates, given broader secular and global deflationary pressures, combined with the unwillingness, or inability, of politicians and policymakers to go "all in" to fight it.

Civis Jones