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A Functional Approach to Money

Abstract

Any large-scale market economy requires a stable frame of reference against which the price system can operate. This is the function that money serves. Money is two things: a standard pricing unit and the tokens people use to pay those prices.

The market chooses as its money a stable standard of value. For the market to operate freely, money's stable purchasing power cannot originate *within* the market. It must be exogenous—originating from the outside. This generally means that institutions whose motivations are external to the market will manage the flow of consumer spending.

Price stability is required for money to function as money. There are certain things we can do with money and certain things we can't. Managing the economy's money means navigating the constraints of a stable price level in a way that maximizes desired social and economic outcomes.

The nature of money derives neither from the state and its laws nor from commodities and their physical properties. Instead, it derives from the market's need for a standard of value. Only by understanding the constraints imposed by money's primary function can we hope to get the most out of our macroeconomic policy.

Money Is Two Things

Some people believe that gold is the purest form of money and that state-issued money is somehow less sound. For others, the story of money starts and ends with the state. There are even those who feel that Bitcoin possesses all the desirable properties of money and is “incorruptible” by the government.

Wherever you position yourself in the “definition of money” debate, it will always be true that the market economy requires a pricing and payments standard. This standard is what I call money.

Money is two things. It's both the standard unit in which markets set their prices, *and* also the standard-value tokens we spend to pay those prices. For the purposes of this paper, I will refer to the standard unit as the “money unit” and the standard-value tokens as “money tokens.”

“The dollar” is the money unit. “A dollar” is a money token.

“Do not these correspond to the classical functions of money, as laid

down in textbooks, to be (1) a standard of value and (2) a means of payment?” (Hicks 1989, 42)

You spend your dollars—money tokens—to pay dollar prices. A five-dollar note can purchase a five-dollar sandwich. Money is what we spend to buy stuff.

Paper money and coins are money tokens. Bank deposits are money tokens too. If you have money in the bank, that’s generally as good as having money in your wallet. Sometimes it’s even better. After all, you can’t spend a five-dollar note to buy socks on Amazon.

Money as a Pricing Standard

The adoption of a single pricing standard allows market participants to “speak each other’s language.” Money—specifically the money unit—functions as the language of trade. This is *why* money exists. Without a common money unit, markets can’t set prices, supply can’t meet demand, and trade breaks down—or fails to establish itself in the first place.

For good reason, history has never seen any large-scale economies with goods priced directly in terms of other goods. Be it ounces of gold, dollars, or something else, the market will coordinate on a common pricing standard.

“[T]he function of money as a standard, if it is no more than a standard, is to make it possible to form a price-list, in which the values of a number of commodities are reduced to a common measure. Without its help, there would be a distinct price-ratio between each pair of commodities, and these would not need to be consistent with one another.” (Hicks 1989, 44)

The money unit solves a computational complexity problem. A pricing standard allows the market to form an apples-to-apples price list. Without it, large-scale trade becomes unworkable.

Tokens as a Medium of Exchange

When we describe money as a medium of exchange, we’re really talking about the money *tokens*. These are easily-traded objects that represent a fixed number of money units’ worth of purchasing power. Instead of trading goods directly for goods, we can trade goods for universally recognized money tokens. Money tokens are what resolve the so-called “double coincidence of wants.”

“The first difficulty in barter is to find two persons whose disposable possessions mutually suit each other’s wants. There may be many people wanting, and many possessing those things wanted; but to allow of an act of barter there must be a double coincidence, which will rarely happen.” (Jevons 1875, 4)

Everybody wants money tokens. They serve as a useful intermediate exchange medium precisely because they're denominated in the standard money unit.

Hierarchy of Tokens

Not all money tokens are the same. The hierarchy of money and credit (Hawtrey 1919; Mehrling 2012) is really a hierarchy of money *tokens*. At the top of the hierarchy sits the base-money token, which forms the *basis* for the money unit. For example, if the money unit is ounces of gold, then the base-money tokens are actual ounces of actual gold.

Subordinate money tokens—such as bank deposits and other forms of credit—are ultimately promises to pay base-money tokens.

“Money-Proper in the full sense of the term can only exist in relation to a Money-of-Account.” (Keynes 1930, 3)

For Keynes, “money-of-account” was the money unit and “money-proper” was the payment token denominated in that unit. Keynes recognized this important distinction.

Unfortunately, Keynes also tried to draw a line between “money-proper” and “acknowledgments of debt”—that is, credit tokens. But such a distinction mostly just obscures what's really going on.

“[W]e want to avoid sterile debates about what is money and what is credit, and stand instead on the point that the system is hierarchical in character.” (Mehrling 2012, 394)

All money tokens are denominated in the money unit and, in many contexts, are freely interchangeable with each other. The base-money tokens and the subordinate money tokens are all ultimately the same *kind* of thing.

In modern economies, such as that of the United States, the base-money tokens that sit atop the token hierarchy are the liabilities of a central bank. The global economy includes many different standard money units, each having its own central bank and its own base money sitting atop its own hierarchy. These token hierarchies interact with each other through international trade and foreign exchange markets.

Money as a Store of Value

When people save money, they prefer to hold assets that provide a positive return over time. That is, you won't get the best bang for your savings “buck” by stuffing cash in your mattress.

“Money is made to go. [People] want coin, not to keep it in their own pockets, but to pass it off into their neighbours' pockets.” (Jevons 1875, 82)

Another way to put it is that money is the thing you spend, not the thing you save.

“That money, on occasion, can be a store of value—that, as one used to say, it can be hoarded—is of course not to be denied. But this is no distinguishing property of money as such. Any durable and resellable good can be a store of value.” (Hicks 1989, 42)

Most people aren’t going to save money by stuffing it in mattresses. But maybe they would if those mattresses paid interest. That’s what Treasuries are. Treasuries are government-issued money tokens that pay interest. They pay you for doing the equivalent of stuffing cash in a mattress.

A money token that pays enough interest can serve as a decent savings instrument. But the money tokens that we hold for savings are generally not the same ones that we spend for payment.

The Price Stability Constraint

People need to be able to reason about market prices without worrying about the unit in which those prices are expressed. An “ideal” money remains as neutral as possible. It sits outside the influence of market forces. It is exogenously stable.

“Bearing in mind that value is only the ratio of quantities exchanged, it is certain that no substance permanently bears exactly the same value relatively to another commodity; but it will, of course, be desirable to select as the standard of value that which appears likely to continue to exchange for many other commodities in nearly unchanged ratios.” (Jevons 1875, 15)

In the absence of market-wide institutions, the market will tend to settle on a widely valued commodity as its base money. But government institutions, if available, are in a position to use macroeconomic policy to ensure money’s stability. They can create a “near-perfect” commodity for use as the market economy’s base-money token.

Fiat money is a special kind of synthetic commodity money whose stability is managed by institutions. A well-managed fiat money system will always win out against a natural commodity such as gold. Only with fiat money are there institutions standing at the ready to push back against market forces that would otherwise move the price of the money itself.

If the state hopes to remain the issuer of its economy’s base money, it must maintain a stable standard of value. This price stability requirement constrains both fiscal and monetary policy. If our institutions fail to honor this constraint, the market will find something else to use as its money.

But there is a tension in the way we’ve set up our monetary policy. If we put the central bank in charge of maintaining the stable level of consumer prices—as we do today—then that limits what they can do with respect to facilitating the

financial sector’s smooth functioning. The central bank can’t easily prop up consumer prices while simultaneously tightening lending conditions to prevent an unstable expansion of private credit.

Money as a Promise

We know that subordinate money tokens are promises to pay base-money tokens. But in any monetary system managed by institutions—whether based on a physical commodity or a fiat token—base-money tokens represent a promise too: the promise of price stability.

Managed Money is similar to Fiat Money, except that the State undertakes to manage the conditions of its issue in such a way that, by convertibility or otherwise, it shall have a determinate value in terms of an objective standard. (Keynes 1930, 8)

A fiat money completely untethered from an “objective standard” would be unworkable. A stable price level implies that money tokens can claim a standard amount of goods and services from the economy. Base-money tokens—and all money tokens—are promises to pay *goods*.

So-called “inconvertible” notes are still convertible in a broad sense that the government is making a promise about what the market will sell you. And they’re keeping that promise by using macroeconomic policy to ensure a stable price level.

“Might we not invent a legal tender note which should be convertible, not into any one single commodity, but into an aggregate of small quantities of various commodities, the quantity and quality of each being rigorously defined?” (Jevons 1875, 327)

Jevons had imagined using a market basket of goods to index people’s debt contracts to inflation. Instead—as history has born out—we used economic policy to stabilize the price level and prevent inflation in the first place. That makes a lot more sense. A stable money unit is more compatible with the smooth functioning of the market.

Managing the Token Flow

The economy is a machine that produces goods and services for consumers to buy. Money tokens flow from consumers to producers to claim goods and services flowing in the opposite direction.

“[T]he picture is . . . that of a flow of monetary streams passing through various markets in the opposite direction to the flow of goods.”
(Menšík 2014, 374)

A stable price level implies that the flow of money tokens (spending) remains proportional to the flow of goods (economic output). If one of these flows moves,

the other must adjust to match.

“[I]t often makes but little difference whether the money in question is State-Money or Bank-Money. The aggregate of both may be called Current Money.” (Keynes 1930, 9)

For Keynes, “current money” roughly comprises all the money tokens that are actually being spent in the economy. The important insight here is that managing the token flow doesn’t mean just managing the flow of base-money tokens. It means that institutions must manage *general* spending, regardless of whether those institutions issued the particular tokens being spent.

Tokens all up and down the hierarchy contribute to the spending flow. And most of the money tokens that people spend are *not* issued by the state.

Money as a Legal Construct

We must be careful not to let our story of money end with the state. Fiat money is managed by the state, but the state operates within the constraints imposed by the function of money as the market’s standard of value.

“Money is a creature of law. A theory of money must therefore deal with legal history.” (Knapp 1924, 1)

Knapp is wrong. It is *not* true that a theory of money must deal with legal history. Suppose we dive into the legal history of money without first understanding why markets *need* money. In that case, we’re not going to be able to make proper sense of that history with respect to the constraints under which the law was operating.

History can certainly tell us about the mechanics of how states engineered their monetary systems to meet the needs of the market. A variety of legal and institutional approaches can satisfy money’s price stability constraint—and it can be instructive to examine when and why states employed particular mechanisms.

But we can only ascertain the essential nature of money by examining its necessary function in the economy. Money is what it does. It is defined by its function. Legal history can describe the process by which our institutional machinery came to be, but it *cannot* explain the underlying reason for money.

Chartalism and Metallism

Knapp’s “chartalist” view insists that the value of base money comes from the state and its institutions. The opposing “metallist” view insists that the value of base money comes from the intrinsic value of an underlying metal. There are certainly contexts in which either or both of these stories are relevant to the functioning of a monetary system. But neither one tells us about *why* money must function the way it does.

“To-day all civilised money is, beyond the possibility of dispute, chartalist.” (Keynes 1930, 5)

I dispute this. A money token can “get” its value through a number of different proximate mechanisms. What ultimately matters is that the value of the base money token—along with its accompanying hierarchy of subordinate tokens—remains sufficiently stable to serve as the basis for the economy’s money unit.

Price stability helps us understand why gold and silver were appealing standards in contexts where institutions hadn’t fully matured. The prices of these metals are reasonably stable compared to other commodities we might choose. In this sense, the metallists are right.

We can also sympathize with the chartalist perspective. Well-functioning institutions can keep a money unit artificially stable. Then again, a poorly managed fiat money can quickly deteriorate to being worse than gold.

Ultimately, neither side sees the forest for the trees. Chartalism and metallism are both wrong. The nature of money derives neither from the state and its laws nor from commodities and their physical properties. The nature of money derives from a computational complexity problem that any large-scale market economy must address.

The Veil of Money

When money functions close to ideal, money’s function is something most people don’t have to think about. Nominal prices are a reasonable approximation of real prices, and liquidity—access to money tokens—is reasonably close to being free. By its nature, the plumbing of money is meant to be abstracted away from. Money can be treated as merely a veil covering the real economy that lies beneath.

But by assuming properly-functioning money, we risk losing sight of the conditions necessary for its proper functioning.

“Abstracting from money, both the economics and finance views have in effect treated liquidity as a free good and, even more, offered up their theories of such an ideal world as the norm for monetary policy. According to that ideal, liquidity should not be scarce at all; users of the monetary system should be making decisions based on their intertemporal budget constraints, not their immediate cash constraints. Ideally, money should be just a veil obscuring the real productive economic processes underneath, and the job of the Fed is to get as close to that ideal as possible. The rate of interest should reflect the price of time, not the price of liquidity.” (Mehrling 2011, 6)

Perry Mehrling’s “money view” examines the machinery of money *tokens* by representing them as assets and liabilities on balance sheets. Instead of treating

money as a veil to be seen through, the money view treats money as the central object of study. Awareness of the ordinarily behind-the-scenes plumbing can help us make sense of contexts where we face the costs and constraints imposed by maintaining the veil.

Money's defining characteristic is that the goods market can use it as a neutral and efficient standard of value. Its "veilness" lies at the very heart of its function. But the monetary system money is not automatic. Public institutions work in concert with self-interested private actors to ensure money's proper functioning.

Conclusion

There are many answers to the question of *what* money is. But there is just one answer to the question of *why* money is. Only by examining the primary function of money can we understand the implications of—and the limitations to—manipulating it.

The market will find a stable standard-value unit of account against which to set its prices, along with corresponding standard-value tokens with which to pay those prices conveniently. Money's price stability can originate from the promises and actions of government institutions, from the universally accepted value of a particular commodity, or from a combination of both. The "purest" form of money is whichever one the market chooses.

We don't want our money to get in the way of our real economy. So, how can our institutions manage our money such that our desired social outcomes are constrained only by our economy's real productive potential?

Properly functioning money allows prices and quantities to adjust to clear individual markets. But at the level of the macroeconomy, prices—either real or nominal—cannot adjust. So quantities have to do the heavy lifting. But how can quantities adjust when the price level is fixed? And why would they?

By understanding money's function as an exogenously stable building block, we can begin to fruitfully explore these types of questions.

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