The Ultimate Confidence Game

Every day we exchange useful goods and services for mere symbols of value, on little more than the conviction that others will do the same. The exchange in turn helps justify the conviction. When crises expose the underlying fragility, other symbols vie to replace. Money proves the power of belief; it fosters massive division of labor and knits economies together.

Financial markets chronically confuse beliefs with reality. That’s their job, along with unwinding the confusion and helping make beliefs real. They’re so pervasive that we ordinarily take their smooth operation for granted.

To rekindle our sense of wonder, this chapter focuses on the safest thing we know in finance: cold hard cash. What is it? What makes it safe? How does it evolve? As we will see, uncertainty and learning permeate what we think we know best.

Money as Liquidity

To give is better than to receive. This is especially true of money. I give you some ciphers; you give me something I can directly use.

This inequality renders most commerce absurd. When two people trade, neither wants to get ripped off. The values exchanged ought to be approximately equal.

Fortunately, the stores I frequent don’t realize that. They encourage people to cart away valuable items or have them delivered. All they demand in return is the deposit of qualified symbols with the cashier. These sym-
bols are nearly always government-issued paper known as fiat currency, or electronic claims to the same. Their direct usefulness apart from trade is negligible.

Sometimes a government desperate for revenue prints fiat currency with wild abandon. As inflation spirals into hyperinflation, people stop accepting it for exchange. They demand another currency or payment in kind. That happened in Germany after World War I, with dire repercussions. It has happened in other countries too, most recently in Zimbabwe.

But none of that seriously worries my providers. Consequently, even though I am no fool, I don’t insist on payment in kind for my own goods and services. In fact, accepting fiat currency has a lot of advantages. It is easy to count, easy to transfer, and easy to use for comparisons. Best of all, it’s easy to sell quickly, at very low transaction costs and limited wobble in purchasing power. I call that liquid. The real goods and services I offer are much less liquid.

Curiously, these rational calculations on my part encourage others in their apparent foolishness. They confuse my willingness to accept fiat currency with lack of worry. Indeed, some of them dare to claim that they’re unusually rational and accept fiat money only because of the apparent foolishness of people like me.

In short, fiat money is the ultimate confidence game. People sell real values for known tokens just because everyone else does. That confidence is incredibly useful. It weaves together a decentralized, global division of labor. It encourages longer-term investment. It can even support itself, up to some ill-defined point. But it also bodes huge risks.

Are you wound up yet? I hope so. We take money far too much for granted. But before you panic, let me confess to exaggeration. No money is normally devoid of intrinsic value. The Appendix provides more nuance.

Historically, money arose out of barter, the direct exchange of goods. Barter is inefficient because it requires a double coincidence: each must want what the other offers. When wants don’t match, traders quickly realize the merits of extending the circuit. But it’s hard to juggle a simultaneous multilateral exchange.

To simplify, find a useful good that is easy to transport, store, measure, and divvy up. Call this the money-good $M$. If ten people all sell their surplus goods for $M$ and buy their wanted goods with $M$, the eleventh has an incentive to join in. In this way the orbit of $M$ naturally grows.

Consider the savings. If there are $n$ goods, and if we are looking to trade them without getting ripped off, we don’t need to remember the fair
exchange rates of all $\frac{n(n-1)}{2}$ pairs. The $n-1$ prices of every other good against $M$ will suffice.

The division also helps distinguish two concepts: the direct usefulness (also known as worth, utility, intrinsic value, or use-value) of a good and its opportunity cost (also known as fair price, economic value, or exchange-value). Usefulness breeds individual satisfaction. Opportunity cost measures the sacrifice entailed. Money enshrines the latter.

As trade expands and the underlying division of labor deepens, goods and services become commodities, produced more for sale than for direct use. Common exchange for $M$ tends to iron out divergences and to create a measure of social costs. $M$ can also be used to hoard claims on future goods or to repay old debts. This helps gauge trade-offs between investment and current consumption.

In the process, $M$ gains a new kind of usefulness, based on its ease of resale. Ease of resale means that new buyers are easily found and that the bid-ask spread—the gap between proposed buy and sell prices for immediate trade—is low. When money is easy to resell, market participants can convert economic value from one commodity form to another quickly, at low risk, and with minimal transaction cost. Trade works like a good engine, with minimal friction and wasted energy.

To the extent that we have any other aim than resale, money isn’t really money. It’s just a commodity, like gold bought to make jewelry. Conversely, insofar as a good serves as money, any other use is mostly wasted, like gold jewelry melted down into bullion. That’s why fiat money appeals, provided confidence can be maintained.

Ease of resale has a shorter name: liquidity. In economic terms liquidity reflects a positive network externality. Whoever enters a market makes it easier for someone else to exit. The more we trade with money, the more liquid it becomes.

Liquidity in turn buoys money. In the early nineteenth century, Britain switched from a silver monetary standard to gold, mostly to reduce the size of large-value coins. This should have cheapened silver. It didn’t. As Friedman (1992) explains, the proximate cause was French and U.S. bimetallism. The two countries tended to coin whichever metal was overvalued at a fixed rate of 15 or 16 to one. Moreover, the French demanded a lot of precious-metal coin, reflecting the lingering memory of hyperinflation during the Revolution. While silver lost ground in Britain, it gained ground in France and the United States.
In the 1870s, that dramatically changed. Defeated by Prussia in 1871, France was forced to pay large reparations convertible into gold. Silver plunged, and to avoid high inflation France demonetized silver in 1873–1874. Over the next few years most of continental Europe followed suit. So did the United States, in one line of an 1873 bill that attracted little attention at the time but later would be denounced as the crime of the century.

Official demonetization broke the long-standing parity. It took 16.4 ounces of silver in 1873 to buy an ounce of gold, and 18.4 in 1879. As silver’s confidence network weakened, gold appreciated even more, transmitting deflationary pressures throughout Europe and the United States. The exchange rate was 30 in 1896, when a populist backlash in the United States failed to roll back the gold standard.

Liquidity as Perpetual Put

To probe the value of liquidity, it is helpful to define it more crisply. Here is my best stab:

Money is a perpetual American put.

More precisely, money embeds a perpetual American put on itself, priced at its strike.

Let’s walk through this definition. A put is the right to sell a security at a given price, known as the exercise price or strike. An American put adds the right to sell at any time before expiry, as opposed to a European put that can be exercised only at expiry. A perpetual put never expires. Hence money gives you the right to sell it whenever you want, for the price of the money. Beck and Stockman (2005) take a similar approach, except that they express this as money’s call on other goods and services.

Like other options, the value of money’s put depends on the current price of the underlying asset, its volatility, and the opportunity costs of waiting. It just can’t depend on time to expiry, which is infinite. The optimal strategy is to wait for money to get dear enough and then sell. Equivalently, one can buy other goods when they become sufficient bargains.

In the base case, price is already enough of a bargain for something we want to consume. We resell our money as soon as we find it. Keynes (1936) called this the transactions demand for money.
Some money we hoard, in case a change of circumstances raises the effective returns from a particular good or service. A sudden thunderstorm or illness strikes, so we sell some money for an umbrella or medicine. We lose our job, so we sell money for food. Keynes called this the precautionary demand for money.

Sometimes we bet on the option value itself. If we expect others to be desperate for liquidity tomorrow, we might buy money today to resell to them. Perhaps the market will realize that money has been underpriced, allowing us to resell it against foreign exchange or gold. Keynes called this the speculative demand for money.

Thus, viewing money as a put embraces all of the demands famously categorized by Keynes. But does it embrace them enough? Keynes emphasized speculative demand because he was impressed and appalled by the strength of its fluctuations. Another renowned observer of financial crisis, Karl Marx (1887: chap. 3), commented even more passionately:

On the eve of the crisis, the bourgeois, with the self-sufficiency that springs from intoxicating prosperity, declares money to be a vain imagination. Commodities alone are money. But now the cry is everywhere: money alone is a commodity! As the hart pants after fresh water, so pants his soul after money, the only wealth.

Absent crisis, precautionary and transaction demands should be relatively stable for the economy as a whole, while speculative demand should be limited. Under these conditions, money velocity, as measured by the gross value of transactions divided by the money supply, should be relatively stable. When it is, the inflation rate should move one-to-one with the growth rate of money supply.

However, if risk surges, precautionary demand will surge with it. This raises the value of money relative to goods and excites a speculative demand betting on the trend. If baseline inflation is modest, the extra demand for money may induce outright deflation, a fall in the price level. As long as this is expected to persist, cash promises a positive real return.

Puts that Fail

To best appreciate the merits of money, study societies that tried to do without it. There aren’t many, outside those tied together by family or tribe.
During the civil war that followed the Soviet revolution, Soviet leaders tried to run the entire economy by commands only. The experiment was so disastrous that the Soviet leaders never banned money again, and indeed reintroduced a ruble tied to gold.

However, when the command economy regathered strength, it restricted cash rubles to retail trade. The core circuit involved wage payments from state enterprises spent on goods from other state enterprises. The state fixed prices, often at levels far from their opportunity costs, and taxed away all profits. This created huge inefficiencies. Nevertheless, for the next 50 years the Soviet leadership kept money in rough macroeconomic balance, by keeping wages low and letting high-priced alcohol and durable goods sales soak up excess savings.

Gorbachev’s reforms worsened the balance in two ways. First, to reduce drunkenness they curbed state alcohol sales. Second, to promote efficiency they allowed state enterprises to invest or disburse some of their cash ruble profits. Neither reform achieved its aims: moonshine production swelled, and state enterprises continued to produce goods worth less than the resources they consumed. But they did inflate nominal take-home pay while curbing redemptions in retail trade. Nominal savings soared, and the ruble tanked on the black market, while labor incentives soured further (Osband 1992).

Excess saving meant the puts embedded in the ruble were failing. To revive them, price controls had to be abandoned. When they were, the huge surge in nominal inflation, hitting people accustomed to fixed prices, further undermined confidence. In reaction, the various Soviet republics clamoring for independence issued their own currencies or proxies.

The collapse of the Soviet ruble caused tremendous hardship. There were people who had worked for years in the frigid Arctic, living in primitive camps, in return for exceptional wages that would one day buy them an apartment in Moscow and a car. Suddenly they lost everything.

Ironically, the tiniest republic, Estonia, was the first to reestablish monetary confidence. It tied its money to the deutsche mark in a currency board arrangement, backing cash 100% by mark reserves. Currency boards piggyback on the confidence in the reserve currency, asking only the marginal faith that the issuer will keep its pledge.

The rest of the republics were too proud or confused to try anything so mechanical. They stumbled in monetary wilderness for years before they re-stabilized. In the meantime their people transferred confidence to a former archrival. For much of the 1990s the demand in the former Soviet
Union for cash U.S. dollars rivaled the demand for cash in the United States itself.

Money in Crisis

As noted, money in crisis can easily become a superior investment. It offers a positive or only mildly negative real return when most investments are crashing and tends to be negatively correlated with crash intensity. Demand for money soars.

While the shift is rational for each investor, it is dysfunctional for the economy as a whole. When investors hoard money, goods pile up unsold and production sputters. Without sales, debtors cannot repay their debts, so risk premia rise on credit and strengthen money’s attraction as a countercyclical safe haven.

If strong enough, this yields the “debt deflation” cycle at the heart of Fisher’s (1933) theory of great depressions. Keynesians speak of a “liquidity trap.” It is monetary authorities’ second biggest concern after spiraling inflation. The chief economist at the International Monetary Fund (IMF) has recently suggested raising inflation targets to counter the cyclical risks (Blanchard, Dell’Arricia, and Mauro 2010).

Resisting the contraction has dangers as well. If money jumped immediately to a high crisis price, it would trigger a tremendous transfer of wealth, hugely painful to the losers. But it wouldn’t necessarily trigger expectations of deflation going forward. Indeed, expectations of deflation are tantamount to belief that the adjustment hasn’t gone far enough. This is the essence of the Austrian critique of intervention—e.g., von Mises (1940). Defenders of intervention, like Orphanides (2004), counter that it is simply necessary to infuse liquidity more consistently, until deflation expectations are extinguished.

Regardless of policy response, the problem itself amazes. Money gains value through the confidence game that it enables and the social division of labor it facilitates. When that division of labor falters, one might expect money to crumble. Instead it gains even more importance as a driver. Why?

The core reason is that a money-driven economy is organized more from below than from above. Individual agents take the context of relative prices and wealth as given and adjust to it. If that context is upset, they will
clinging even harder to options in the new context. Confidence has to be rebuilt to get the real economy back on track.

The U.S. dollar gave a vivid illustration in the second half of 2008. For most of the previous two years, the dollar had been sinking relative to other major currencies, gold, and oil. Investors were concerned at the growing cracks in the U.S. economy and the Federal Reserve’s apparent bias toward easing. Lehman Brothers’s crash in September confirmed that problems were even worse than imagined; the Fed responded with its most dramatic loosening ever.

Instead of tanking on the vindication, the dollar soared. It soared even against gold and silver, tradition’s favored stores of value in crisis. Gold plunged 20% in two weeks.

The core reason was disruption of the payments system. Through accident, apathy, and avarice, monies needed to settle short-term trading debts were mingled with longer-term investments. Demand depositors rushed to withdraw, triggering bank runs around the world and more disruption. But the payments still needed to be made, so that raised the premium on the world’s most widely accepted, easiest-to-use payments medium—the U.S. dollar.

![Figure 2.1](https://cupola.columbia.edu)
Granted, we cannot verify that linkage in the way a physicist would, for many factors determine market price and we cannot run a well-controlled experiment. Nevertheless, most economists now believe that the dollar’s resurgence in the second half of 2008 was driven by thirst for liquidity. That is largely because of what happened after. Once liquidity reappeared, the dollar resumed its downward trend. Figure 2.1 charts DXY, an index of the dollar’s value versus a basket of other currencies.

Mahserg’s Law

The sticking power of money is so great that money often seems a free lunch for the issuer. Still, over time, good money drives out bad. Good money means money that—

- Is easy to identify, certify as genuine, and measure.
- Is guaranteed acceptance as legal tender for payment.
- Is not threatened with much loss through expropriation, inflation, devaluation, physical decay, or sacrifice of direct use.
- Is easy to store and transfer through banks, preferably at interest rates that approach the risk-free rate.

Gresham’s Law claims the opposite: bad money drives out good. By that it means that under bimetallism, with two currencies having the same legal tender, the currency with less intrinsic value will circulate. As we have already observed, a low intrinsic value is a good quality for money, not a bad one. When we use gold for transactions that we could do with paper, we’re wasting precious metal and sacrificing portability to boot.

Hence, Gresham’s Law doesn’t actually prove what it purports. Note too that Gresham’s Law distinctly fails when the two currencies are legal tender in different countries. Otherwise Manhattan taxi drivers would carry around wads of Mexican pesos, and the euro would have built around the Greek drachma rather than the German mark.

I call the historical tendency for good money to drive out bad Mahserg’s Law. Mahserg spells Gresham in reverse. Gresham’s Law is just a special case of Mahserg’s Law.

The troubling part of Mahserg’s Law is how slow-acting it often is. That stems from the network externality involved in money. Once estab-
lished, the standard gains a lot of inertia. Indeed, as we have seen, it can appreciate in the crises that expose its weakness.

Inertia prompts abuse. At first the dominant issuers retain the discipline that made the currency top dog. But when they do falter, the market’s acquiescence tempts a repeat, until eventually the exception becomes the rule. This triggers the emergence of alternative global monies and standard-setters. These cycles are the most prominent international expression of Mahserg’s Law.

The last 150 years have witnessed three major cycles of monetary standardization. The first—and in many ways grandest—cycle is known as the classical gold standard. It might be better called a pound sterling standard, as most countries held their reserves in sterling, while the Bank of England managed the price of gold. In its colonies, Britain introduced currency boards tied to the pound. World capital markets were arguably freer in the early twentieth century than they have ever been since.

However, the gold standard cracked during World War I, when Britain and other European powers resorted to massive deficit financing. Afterward, Britain had trouble restoring old parities without triggering a major recession. The gold standard was abandoned during the Great Depression.

The Bretton Woods agreement of 1944 jump-started the second cycle of standardization. Chastened by the competitive devaluations and isolationism of the 1930s, Western policymakers resolved to establish a stable pro-market environment under U.S. hegemony. The dollar, whose exchange rate against gold was set at $35 per ounce, became the main reserve standard, with most other currencies tied directly or indirectly to it. Extraordinary recovery and new growth ensued.

The dollar standard began to unravel in the 1960s on the back of declining U.S. competitiveness and growing fiscal profligacy. The loss of competitiveness resulted less from what the United States was doing wrong than from what postwar Europe and Japan were doing right. The fiscal profligacy, however, was self-made. Borrowing for “guns and butter,” the United States financed both an expensive war in Vietnam and growing social entitlements. Gold prices had to be floated in 1971, and major currencies broke free of the dollar. The 1970s and early 1980s saw high inflation and slower growth with very volatile exchange rates.

The United States maintained world economic leadership, however, and gradually put its macro house in order. By the late 1980s, a third cycle of standardization took shape. The dollar reigned, but not on its own. An autonomous mark and yen provided both competition and support.
Standardization accelerated after the Soviet bloc collapsed. Western European currencies tied themselves more closely to the mark, while German monetary policy took on a more pan-European perspective. This led to the formation of a unified euro. The euro convincingly outperformed the dollar in value retention and stability and gradually built up capital market support. Most other countries tied their currencies to the dollar or euro or managed an exchange-rate band versus a mixture.

Now this cycle is drawing to an end. The main culprits, once again, are the declining competitiveness and growing fiscal profligacy of the old standard setters. The loss of competitiveness is a tribute mainly to China, the new manufacturing center of the world. The profligacy once again is self-made, consisting of expanded health and retirement benefits that must be financed either through crippling taxes or spiraling debt.

Money Watching

To better appreciate the scale of uncertain risk, consider foreign exchange reserves at central banks and monetary authorities. These holdings, consisting mostly of short-term, low-interest bills from U.S. or European governments, are kept mostly as precaution against crisis. They have mounted by over $5 trillion in the past decade and now constitute a significant share of a year’s global GDP. See Figure 2.2.

The holders naturally view their reserves as part of their national wealth, and could, if they wanted, sell them for goods and services from the United States or Europe. If they did, the inflationary impact on the United States and Europe would be severe; transfer would significantly affect consumption and perceived wealth. It would also likely accelerate the adoption of a Chinese yuan-based monetary standard, fulfilling Mahség’s Law.

However, Americans and Europeans rarely count foreign reserve claims as deductions from their wealth. They rarely think how they can work harder, export more, and consume less to satisfy the mostly poorer foreigners lending for their health care and retirement. Nor do they consider that a sounder monetary standard, with a greater foundation in Asia, would likely slash foreign holdings of U.S. and European IOUs. In that sense, one side’s confidence is the other side’s disbelief.

The confidence game supporting the world economy succeeds or stumbles in ways that no authority can completely control. Usually it is extraordinarily resilient. Occasionally it is shockingly fragile.
The importance breeds two types of monetary oversight. One type, typically calm and high-minded, is conducted at central banks and monetary authorities. It aims to bolster overall confidence by smoothing fluctuations in liquidity. The other type, typically frenetic and avaricious, is devoted to monetary market speculation. It aims to profit off fluctuations in confidence and differentials in liquidity.

To do their jobs, each side has to keep close watch over the other. Monetary authorities continually try to track market confidence and manage expectations. Speculators continually try to anticipate the news monetary authorities are looking for and how they are likely to respond. Tiny clues on sentiment or policy can be enormously telling.

Curiously, even when monetary authorities telegraph their intentions as publicly as possible and try to minimize the potential for surprise, arbitrage may aggravate systemic risks. For many years the Fed excluded asset price inflation from the price indices it tried to contain, with one notable
exception: it cut rates when asset markets tanked. Traders called this the
Greenspan put, after the Fed chairman who promoted it. Moreover, from
2003 to 2006 the Fed raised interest rates only gradually despite evidence
of overheating. The combination helped feed a housing bubble, although it
is far from the only contributor.

This book will keep returning to issues of boom and bust, exploring
them from different angles. None of these explorations yield a cure. How-
ever, the weight of the evidence suggests that occasional jolts might be
useful in building resistance to larger crashes.

Forest fire management provides a useful analogy. For decades it aimed
to prevent all fires. Modern foresters appreciate the usefulness of small fires
in clearing brush.

Financial risk analysis can stay agnostic on these issues. But it can’t
ignore them. The potential instability of money is one of the main risks
markets face.

“\textit{I don’t get it},” said Prometheus. “\textit{Is fiat money intrinsically worthless or}
not?”

“That’s an ill-posed question,” said Pandora. “\textit{But the basic answer is}
yes. It’s worthless because the sovereign has no intention of redeeming it
in full and likely can’t. It’s worthy because people can pay taxes with it and
trade it to others needing to pay taxes.”

“That would seem to make it more worthy than unworthy, as long as
the sovereign makes taxes onerous enough. People don’t have to like an
institution for it to be effective.”

“Osband suggests that fiat currency can stick even without high taxes.
People just need shreds of doubt about imminent collapse and a small
willingness to trust others.”

“He suggests a lot more than he proves. Where are those neat results
he promised? He needs to model beliefs directly.”

“He’s just getting started, Prometheus. Give him a chance. Besides, I
liked his discussion of Mahserg’s Law. Good moneys turning bad, some-
times overnight. Better moneys battling inertia, sometimes for decades.
And he’s right to view liquidity as a network externality.”

“He needs to set his sights higher. Trade of current goods and services
for money can’t explain more than a fraction of the mysteries. And while
precautionary and speculative demands point to the future, they don’t point far enough.”

“Humans are creatures of the present. They can’t help it. That’s why money hangs together. So much evidence of money working gushes forth that it quenches doubt. I think that’s what Osband is driving at.”

“You call that driving? Without more mathematical horsepower, all he can do is putter. Besides, most financial wealth consists of claims that won’t be realized for years. How do people gauge what they’re worth? He needs to address that.”