

# The Economy's *Mysterious* Web of Contracts

BY AXEL LEIJONHUFVUD

*The origin of  
financial market  
instability.*

**T**he market economy is a system of voluntary cooperation. To work properly, it depends on an intricate web of promises and understandings. Except for ordinary consumer choices, most day-to-day activities in the economy are governed by this web. The promises embedded in it are constantly fulfilled and renewed following the formal rules of commercial law or informal conventions. The frequencies of completion and renegotiation vary depending on the type of market.

Even in normal times, the regeneration of this web of contracts produces numerous “errors”—cases where promises are broken. For the system to work well, it must maintain a high probability of isolating these cases and dealing with them quickly. But it is not always possible to isolate one promise, one contract, from the rest. In certain circumstances, as we know, one default will trigger another. In a reasonably robust system, the chains of such reactions will be short.

In a less robust system, one default can trigger an avalanche of broken promises. Such avalanches differ in size, taking down bigger or smaller portions of the web. In this respect, they are (loosely) analogous to the power-grid blackouts or to physicist Per Bak’s famous sandpile model.

In a Minsky-fragile economy, it is possible for an avalanche to destroy virtually the entire web of formal and informal contracts which

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the market system requires for its functioning. It is perhaps conceivable that this could occur due to fraud or forgery on a grand scale. But although frauds usually come to light when credit collapses, this is a problem for the legal profession. Macroeconomists will want to focus on three things, namely, levels of leverage, maturity mismatches, and the topology of the web—its connectivity and the presence of critical nodes that are “too big to fail.”

### INSTABILITY AND INJUSTICE

The two extremes of monetary instability are hyperinflation and debt-deflation. For simplicity, consider for a moment where an economy would end up if these unstable processes were to be left to run unhindered to their respective logical endpoints.

For hyperinflation, this endpoint is a state in which all debts are insignificant and all claims worthless. For debt-deflation, the corresponding extreme would be a state where the real value of all contracts that remain outstanding is so high that all debts are unpayable and all the corresponding claims uncollectable.

The economic consequences of a collapse of the web are more severe and intractable than those of an ordinary recession. But it is a mistake to focus only on output, unemployment, and inflation as macroeconomists are wont to do. It is necessary to consider the wider social and political consequences—and they are the more serious. Pull at a loose thread in the unstable web and the fabric of society begins to unravel and the life patterns of families and individuals are torn.

When countless promises are broken in depression or made worthless in inflation, reliance on the basic institu-

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## Bank Lovers

Monetary policies since the crash have violated the Bagehot Rule, which was at one time regarded as a key tenet of responsible central banking doctrine. Bagehot would allow the central bank to come to the aid of banks in trouble by rediscounting “sound loans” at a penalty rate of interest. Nothing could be less descriptive of monetary policies in the United States and Europe since the crisis began. Central banks have taken large quantities of questionable assets onto their balance sheets and are favoring the banks with all-but-unlimited liquidity at rock-bottom repo rates—and by paying them interest on their reserves!

—A. Leijonhufvud



**Walter Bagehot:**

*His insistence on a penalty rate shows that the dangers of moral hazard were well understood 150 years ago.*

tions of society is destroyed. When people can no longer depend on the rules that used to govern cooperation in the system, their trust in contractual counterparties is undermined, their faith in fellow citizens evaporates—and their suspicion of foreigners and outsiders turns into paranoia. Monetary instability breeds both social anomie and political extremism. The weakening of the reasonable center makes it extremely difficult to find a democratic basis for effective political action.

Social cohesion and political tranquility are not easily restored in the wake of depression or high inflation. In Germany, that lesson is well remembered ninety years after the post-World War I inflation.

### ASYMMETRIES

Inflations and deflations are not mirror images of each other. Three asymmetries are worth noting.

First, the general price level rises more readily than it falls. Downward price flexibility is normally quite limited. The frequencies with which prices for different goods are revised tend to follow a hierarchical ordering. While wages are not “rigid” in either direction, they are changed only at fairly long intervals and this is true also in informal markets. The relative stability of wages gives both consumers and businesses a rational basis for short-term decisions. So, as we all know, increases in aggregate demand tend to produce inflation while decreases produce unemployment.

The point, however, is that if this asymmetry did not exist, the dynamics of the economy would be such that a system of nominal contracting could not be sustained. Imagine for a moment that wages would fall with great speed whenever the combination of investment expecta-

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tions and interest rates failed to produce full employment output—or rise rapidly in the opposite case. Extreme volatility of wages and prices would utterly destroy the web of contracts in much the same way as happens in high inflations. We may conjecture, therefore, that without this asymmetry, our system of nominal contracting could not have evolved.

Second, in the late stages of hyperinflation, the owners of the economy's real capital resources end up debt-free. If the situation can be stabilized, and faith in a new currency established, conditions for growth will be favorable. A great deflation, on the other hand, ends up with a massive and complex transfer of capital resources in “fire sales” and bankruptcy proceedings. Particular resources are moved away from the control of people experienced in their management and often do not end up in equally capable hands. The process tends to break up the complementary combinations of real resources and human skills that prevailed before the crisis.

In normal times most resources in the economy are not only in their most highly valued uses but also in the hands of those who value them most highly. They are worth more to their present owners than they would fetch on the open market. Homeowners who keep paying on their mortgages although the property is “under water” have become the familiar example in recent years. Owners in this situation will do their utmost to run a positive cash flow on current account in order to keep up payments on their debts and maintain control of their property. The deflationary pressure on the economy in a credit crisis stems largely from this source. When the number (and size) of agents in this situation passes a certain threshold, the result is deflation—and deflation will in turn increase the number of economic units in trouble. The process tends to be cumulative.

Third, the cumulative process of a general credit crisis bifurcates the economy. At the extreme, it ends up with two disjoint sets of agents—on the one hand, creditors who are safe, solvent, and liquid, but uncertain about the realizable value of their claims and under the circumstances unwilling to lend; on the other, debtors who are illiquid, in peril of bankruptcy, and trying very hard to run positive cash flows to service their debts even as they have problems financing current operations.

If the bifurcation has proceeded very far, conventional monetary policy will be ineffective. The central bank transacts with the solvent and liquid private sector agents but can do little by such means to stimulate activity in the parts of the private sector that are in trouble.

Even though it is fairly ineffective, the authorities tend nonetheless to rely heavily on monetary policy because its incidence is not well understood by the general public. Who benefits and who pays for fiscal stabilization measures is by comparison obvious and consequently meets with strong objections from those who find they are paying for other people's mistakes.

#### STABILIZATION

Imagine having a strobe-light snapshot of the unstable credit web in the process of unraveling. Some defaults have occurred. Some creditors on those contracts are insolvent as a consequence and more are threatened by insolvency. Fears that counterparties may be insolvent are spreading. Agents with short-term debts try hard to run positive cash flows. Solvent creditors are not offsetting the deflationary pressure by lending.

If left to commercial law to enforce all contracts, the process will snowball. Matters will be worse tomorrow and much worse the day after tomorrow. This is, to re-coin a phrase, an “inherent contradiction” of financial capitalism: Following the rules by which the system is supposed to operate will cause the system to collapse. Stopping the collapse in process means preventing contract law from running its course. Policy intervention is required and it must of necessity alter the distribution of income and wealth that would otherwise occur. To be effective, the policy must address politically unpalatable questions: Who will not have to pay? Who must pay? Who will not be paid? Who must be paid? Who will be made to pay somebody else's debt? The answers that the chosen policy gives to these questions cannot always accord with ordinary people's ideas of what would be fair.

For politicians, therefore, it is preferable that the answers not be clear and explicit. Their most desirable option is to postpone the issue as far as possible in the hope that the question will either go away or have to be answered by somebody else. Postponement may be gained

by pumping liquidity into the economy. It will relieve the problems of some agents caught in maturity mismatches. Moreover, the line between maturity mismatch and fundamental insolvency is seldom clear. Nor is it fixed—higher growth or higher inflation will save many debtors.

Even without higher growth or inflation, postponement will enable some debtors to earn their way back into the black. So part of the problem does go away. Several big American banks were insolvent in the wake of the Latin American debt crisis of the early 1980s, but “regulatory forbearance” gave them the time needed to get out of trouble. It cannot always work. The reckoning in Japan was long postponed but insolvencies in the banking system eventually had to be dealt with.

#### ROCK-BOTTOM INTEREST RATES

The bubble that burst was caused by a lengthy period of too-low interest rates. We are now trying to cure the problem by maintaining still-lower interest rates for a lengthy period.

But the policy of a near-zero repo rate plus quantitative easing is happening in a bifurcated credit environment, and its effectiveness is limited. If it were to raise growth, this would improve the ability of debtors to pay and of creditors to collect. If it brought a bit of inflation, it would reduce the real value of what debtors have to pay and what creditors could collect. So far, policy has managed to stop the unraveling of credit and the decline in real activity. But it has produced neither a return to full employment nor inflation.

As the central banks have redoubled (and tripled) their efforts, we have arrived at a curious kind of price level equilibrium. Ordinarily we think of such an equilibrium as a state in which nothing is tending to change prices. The present state is less comfortable. It is one where still-strong deflationary pressures emanating from the private sector are offset by equally strong inflationary policies by the central banks.

From one aspect, the policy is a “shell game” designed—whether by intent or not—as a way to hide redistributive fiscal measures under monetary policies ill-understood by the general public. The TARP program bailed out big banks with taxpayer money—and the taxpayers did not like it. The Fed has since lent the banks money at a repo rate so close to zero as makes little difference. The banks have bought Treasuries initially at close to 4 percent, more lately at about 2 percent, with the money. The earnings from this operation have enabled them to repay the TARP money. The government can then claim that the TARP rescue did not cost the taxpayer anything. But the banks are now holding taxpayer liabilities which are just as much a public subsidy as were the TARP funds.

Monetary policies since the crash have violated the Bagehot Rule, which was at one time regarded as a key tenet of responsible central banking doctrine. Bagehot would allow the central bank to come to the aid of banks in trouble by rediscounting “sound loans” at a penalty rate of interest. Nothing could be less descriptive of monetary policies in the United States and Europe since the crisis began. Central banks have taken large quantities of ques-

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tionable assets onto their balance sheets and are favoring the banks with all-but-unlimited liquidity at rock-bottom repo rates—and by paying them interest on their reserves!

In the last couple of months, warnings of perverse effects from this monetary policy *à outrance* have begun to appear. Clearly, the policy has distributive effects that are quite odd from a social policy standpoint. The zero rate policy that created the profits which enabled the banks to “repay” the TARP money also allowed bank executives once again to claim the bonuses to which they have become accustomed. Households in good financial condition have been given the opportunity to refinance their mortgages at rock-bottom rates. They are in effect being subsidized. Households with less favorable finances do not get to share in the bonanza.

But the policy also creates distortions that spell trouble for the future. Pension funds and life insurance companies, for example, find their balance sheets deteriorating. At recent interest rates—which will prevail for another two years—they will not be able to satisfy future commitments that were undertaken in a once-normal environment. Similarly, banks that lend on long-term mortgages at current rates will suffer serious losses if and when interest rates return to historically normal levels.

What is the nature of our predicament? The web of contracts has developed serious inconsistencies. All the promises cannot possibly be fulfilled. Insisting that they should be fulfilled will cause a collapse of very large por-

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tions of the web. This would lead to serious economic and incalculable social and political consequences. Democratic political support cannot be mobilized in the legislature for any comprehensive decision on “how to repair the web,” that is, on who should pay and who should be excused from paying, and so forth. So monetary policy is used to—in current parlance—“kick the can down the road.” But it is not solving the underlying problems. It is changing some of the problems we face, and not necessarily for the better.

#### **REFORM: REGULATIONS OR INCENTIVES?**

The usual approach to regulation is to prohibit people from doing what they would otherwise want to do and to mandate that they do certain things they do not want to do.

The Glass-Steagall Act did an effective job of this in just thirty-odd pages. It served us well for about sixty years. Financial evolution since that time has created a far more complex system with global reach. The Dodd-Frank bill runs to more than eight hundred pages, but does not contain the actual regulations that should make its statutes effective. Regulations from the various bodies charged with policing the various activities or parts of the overall system have begun to appear. They add hundreds and hundreds of pages to the original bill. The industry is lobbying hard against some provisions and is already finding ways to dodge others. The eventual shape of the new regulatory framework is far from clear.

Policing and enforcing the eventual welter of regulations will not be an easy matter. Staffing the regulatory agencies with good people is an obvious problem. Pay is higher on Wall Street, and we no longer live in a society

where public service attracts superior talent through respect and esteem accorded, rather than money. Moreover, enforcing current rules is not enough. Regulators need to keep one step ahead of innovations designed to circumvent the regulations. But, again, the ability to be one step ahead in this game is far more highly remunerated among the regulated than among the regulators.

The alternative approach to regulation is to change what people will want to do and what they want to avoid doing, that is, to change their incentives. Clearly, the incentives in the “too big to fail” institutions are badly skewed. They are able to play “I win or you lose” with the general public. Their executives profit handsomely when the going is good, but suffer no comparable losses when their policies turn out to impose enormous losses on society in general.

What can be done about it? The incentive structure can be modified in a desirable direction by suitable liability provisions. For example, if the law were to hew closer to *caveat vendor* than to *caveat emptor* in the markets for securitized loans, the institutions bundling such loans would presumably exercise more due diligence. Ongoing litigation may in fact be changing the legal situation in this direction.

While it may not be possible to make bankers liable for all the social externalities they cause, they can at least be made (partly) liable for the failure of their own institutions. The way to do so is to require that executives be remunerated in part with equity that carries double liability (or some other suitable multiple) in case the institution becomes insolvent. Such a requirement would have three desirable consequences: First, it would tend to make bank executives more conservative and less daring in gambling with other people’s money; second, it would put this liability of financial decision makers ahead of any taxpayer “bailout” in case of insolvency; and third, it would create a potentially powerful diseconomy of scale within big conglomerate banks. Executives in one department of a bank would have a lively personal interest in the risks taken in other departments.

This is not a radical proposal. When fractional reserve banking was in its infancy, banks had unlimited liability. Double liability for bank shareholders was the general rule in the United States until the Great Depression. California at one time had triple liability. These liability provisions were eliminated in the 1930s. In their stead, banks were made subject to reserve requirements.

Only a few decades ago, bankers were dull, cautious, conservative types. Today’s Wall Street banker is a jet-setting high roller by comparison. This is not an inexplicable sociological development. Incentives have changed.

The investment banks of twenty years ago were conservative institutions. Since becoming limited liability companies, they have proven a danger to society. They were at the very epicenter of the crash.

### REFORMING MONETARY GOVERNANCE

The monetary policy doctrine that ruled until the crash has failed us. Maintaining the repo rate at a very low level as long as CPI inflation remained dormant greatly contributed to housing market inflation. How did monetary policy go so wrong? A quick look back helps clarify the problem.

In the beginning, during the long-ago era of metallic monetary standards, maintenance of the gold or silver parity served to control the price level. Bank rate was used to regulate domestic credit (and short-term capital flows) so as not to endanger convertibility into the standard commodity.

Later, in the era of “inconvertible paper” as it used to be called, we experienced a still-remembered era of monetarist dominance. The policy doctrine then was that control of the stock of money (variously defined) would regulate the price level and—more or less implicitly—that “free markets” would take care of the price and volume of credit.

Monetarist doctrine was then superseded by interest targeting. In the key currency country, the quantity of “money” was now left to be endogenously determined by demand, while the price level was to be controlled by interest policy. The price and volume of credit was left to market forces as before.

This did not work. Interest policy keying on CPI inflation allowed the credit bubble to grow out of control. This begs the question: Does the central bank’s policy rate control the price level of the real price of credit? The answer is that we do not know, or rather, at any given time we do not know—we cannot know—how much of each. The basic problem should be obvious: one instrument for two goal variables.

This is a point that should have been elementary at least since the work of Jan Tinbergen, winner of the first Nobel Prize in economics. How could it have been missed? The elementary point was lost in the intricacies of a model too sophisticated for our own good. In a dynamic stochastic general equilibrium structure, interest targeting

does take care of the nominal scale of the system and “free markets” do take care of credit. The transversality condition ensures the overall consistency of all intertemporal plans. But the transversality condition is a figment of the economist’s imagination. It has no counterpart whatsoever in the economic system of our experience.

About fifty years ago, economist Don Patinkin argued (on the basis of a far more primitive model) that a central bank required two instruments—one nominal quantity and one interest rate—to control a fiat monetary system. Patinkin’s requirements could be met, for example, by controlling the monetary base and the discount rate (or today the repo rate). My own preference would be in addition to tie all deposits in the system to the base with old-fashioned reserve requirements, the reserves to be actually deposited with the central bank. The reserve requirements would apply not just to commercial banks and savings institutions, but to money market funds and any other issuer of demand (or overnight) liabilities. This should, I think, include reserve requirements against repo contracts, at least for repo financing from the central bank. Alternatively, the central bank could impose a “haircut” on repos in addition to the repo rate charged.

This would not solve all our problems. The end of monetarism was caused by the increased variability of the “velocity of money” (variously measured). Regaining control of the quantity of money would not do much to solve that problem. But having a nominal anchor is better than being entirely without one even if the anchor cable is pretty elastic. As the credit bubble was developing it would have put increasing strain on that cable and the cost of funds would have risen.

This proposal would create a system with some family resemblance to what we were used to just a couple of decades ago. But an orderly retreat from our brave new world will not be easy to organize. We are saddled with the legacies of strenuous attempts to overcome the recession almost altogether by monetary policy in a situation where monetary policy is hampered by a bifurcated credit system. Central bank balance sheets have doubled and tripled in size. In the United States, the monetary base is larger than M1, and interest is paid on bank reserves to make the banks hold them. (What would Bagehot have thought?) Bank reserves are anything but scarce. To reintroduce a nominal anchor, they have to be made once again a scarce resource.

In the wake of the Great Depression, the instability of finance was successfully contained in the major European and North American countries. More recently, “progress” in economics and finance let it escape again. This instability is capable of doing great social and political as well as economic damage to western capitalism. We had better learn how to suppress it. ◆

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