

**THE LIQUIDITY APPROACH AND THE PRICE THEORY OF MONEY:
Disentangling the Mysteries of Financial Crises**

Guillermo Calvo¹
Columbia University

"...the use of money is enough in itself to make a free market system potentially unstable; and that the higher the degree of development, or sophistication, that it exhibits the greater does the danger of instability become...It is a 'psychological' instability, not a mechanical, which is in question: so it cannot be remedied by the application of a formula, as so many, both then and in later days, have been tempted to suppose." Hicks (1982, p. 9)

The following notes present a brief overview of the main factors highlighted in deep-crisis theories. A central foundational concern, associated with the names of J.M. Keynes and I. Fisher, is that deep crises are associated with a sharp increase in the demand for money. This phenomenon was seen as the workings of *Animal Spirits* by Keynes, and over-indebtedness errors by Fisher. In both cases, the increase in the demand for money was linked to a drop in aggregate demand, especially investment. Recent analyses, however, associate the increase in the demand for money with liquidity crunch in non-money liquid assets. The shift in portfolio composition towards money is claimed to be more crucial to financial crises and to represent a more powerful and coordinated shock on the economy than a sudden social attack of lack of self-esteem or anorexia, which appears to be especially central in Keynes *Animal Spirits* explanation – or over-investment errors that are central to Fisher's narrative. Theories that rely on a shift in the composition of liquid assets, I refer to as the *Liquidity Approach*. This type of shift brings about liquidity crunch in a subset of liquid assets and a fall in collateral values, leading to credit crunch and a fall in aggregate demand. Thus, *Animal Spirits* do not act directly upon aggregate demand, but indirectly through a credit sudden stop. But this way of interpreting crisis events is not free of puzzles. Why, for instance, individuals see the US dollar as safe haven in the midst of an episode in which sizable stocks of liquid assets (e.g., Asset-Backed Securities, ABS) lose much of their liquidity characteristics and, to thicken the plot, money is composed of worthless paper or promises from an overindebted public sector? A partial answer, discussed below, lies in the *Price Theory of Money*, first advanced by Keynes (1936) but not given a critical role in his *General Theory*.

I have expressed these ideas in full-fledged essays (see Calvo (2012 and 2013 b)), but I believe that a more synthetic, less *academic*, presentation may help to better see the wood in a field that no doubt is full of trees! This may also help to better appreciate the appeal of the Liquidity Approach and open new vistas on future research.

¹ I am thankful to Sara Calvo and Pablo Ottonello for very useful comments.

Forerunners

1. The contributions of John Maynard Keynes (1936) and Irving Fisher (1933) are at the foundations of 20th century macroeconomics.
2. Keynes and Fisher highlighted two central frictions or rigidities. Keynes stressed wage rigidities, while Fisher stressed financial rigidities, more specifically, nominal non-state-contingent debt contracts.
3. Keynes and Fisher focused their attention on the impact of lower velocity of circulation of *money*, and abstracted from the possible moneyness or liquidity of other non-bank financial assets.
4. A lower velocity of circulation depresses the price level. In Keynes's framework, the latter raises the real wage and increases the rate of unemployment. In Fisher's framework, the drop in the price level results in larger *real* debt and higher probability of default. If outstanding debt is high enough, the latter may catapult the economy into a full-fledged financial crisis, a situation that Fisher defined as *Debt Deflation*.
5. James Tobin and collaborators (see, e.g., (Tobin and Golub (1998)) extended Keynes's model (more concretely, the IS/LM model discussed in Hicks (1937)) to account for moneyness or liquidity in assets other than *money*, which helped to account for repercussions of macro shocks on relative prices of bonds and capital. However, as far as I know, Tobin did not analyze situations in which a crisis *stems* from the financial system. In fact, he discounted Hyman Minsky's concern of a replay of a Great Depression episode (see Tobin (1989)).
6. It is worth mentioning that although Friedman and Schwartz (1963) – a landmark of 20th century macroeconomics – made important strides in understanding the historical role of money, their focus was narrower than Tobin's, placing enormous weight on conventional monetary aggregates (like M1 and M2), to the detriment of wider liquidity considerations.

Great Depression Triggers: Keynes/Fisher's Perspectives

7. Keynes appealed to the existence of highly mysterious *Animal Spirits*, which supposedly hover over the economy and can strike at any time. His message was that policymakers must always be prepared to cushion the blow by designing appropriate fiscal and monetary policies. Keynes's approach has shaped cyclical macroeconomic policymaking until now.
8. Fisher speaks about *over-indebtedness*, which combined with financial rigidity can generate Debt Deflation episodes. He traces over-indebtedness to factors like technical innovation that give rise to what might be called *over-optimism*. Thus, even though he does not appeal to Animal Spirits, deep down his explanation is not much different from Keynes's. Debt Deflation requires a sharp change of expectations about the rate of return of capital, which is unlikely to arise unless it is triggered by some playful Animal Spirits.
9. Unfortunately, the profession has failed to develop a *Great Depression* theory that goes far beyond Animal Spirits, which reveals the primitive state of the discussion. Granted, there have been critics like Hyman Minsky (1986) but their insights have not been taken seriously by mainstream macroeconomics until the subprime crisis occurred, and even then it is not clear

that these insights will be incorporated into conventional macroeconomics once the crisis lapses into history.

The Liquidity Approach and the Price Theory of Money

10. The liquidity approach borrows from Keynes, Fisher and Tobin, but emphasizes the fragility of the financial system when liquidity is at stake.
11. To illustrate how it works in the simplest possible terms, which should be familiar to most professional economists, I will start by focusing on a closed economy with money and commercial banks. Commercial banks are funded by nominal non-state-contingent deposits, purchase illiquid assets (loans), and hold money for precautionary reasons. As shown in Diamond and Dybvig (1983), for example, in this setup, if there is no *Lender of Last Resort* (LOLR), there is room for at least two equilibrium configurations. One in which a bank run takes place (the *bad* equilibrium), and another in which there is no bank run (the *good* equilibrium). I will highlight the case of no-LOLR because bank deposits are intended to illustrate assets which liquidity is not protected by the central bank or the treasury, at least until the crisis takes major proportions.
12. In this setup a bank run can stem from self-fulfilling expectations: if depositors sense that other depositors will try to withdraw their deposits, they will do the same, generating a successful run. But the point that is worth emphasizing is that depositors that succeed in withdrawing their deposits leave with cash in their pockets. If, in contrast, they expected to be repaid with non-monetary assets in the bank balance sheet (e.g., long-term mortgages), their incentives to run against deposits and even to allocate their assets to bank deposits might be sharply diminished. This, incidentally, may look like another instance in which Animal Spirits are at work. But, as further discussed in bullet #22, this is not necessarily so and, even if it is, it may just take a slight gesture of these playful creatures to wreak havoc – when liquidity fragility is at stake.
13. What is the advantage of money over other financial assets? To sharpen the discussion, let me assume that money is paper or *fiat* money with no intrinsic value. As Frank Hahn (1965) shows, unless one makes extreme assumptions, a general equilibrium model with money may display a non-monetary equilibrium in which the price of money in terms of output is nil (for further discussion, see Calvo (2012)). This "bad" equilibrium could be triggered in deep crisis. However, this does not seem to be a relevant issue. On the contrary, in developed economies the opposite holds true: money is seen as a safe haven – possibly giving rise to a phenomenon called *Liquidity Trap*.
14. There are several explanations for the positive output value of money, e.g., legal tender, obligation to settle tax liabilities with money, etc. However, as argued in Calvo (2012), these explanations are not persuasive, especially in a multi-currency world. An explanation that I find more relevant, although admittedly still incomplete, has been put forward in Keynes's *General Theory* and runs as follows: "the fact that contracts are fixed, and wages are usually somewhat stable in terms of money, unquestionably plays a large part in attracting to money so high a liquidity-premium" Keynes (1961, Chapter 17, p. 236). Liquidity premium is the difference between the output value of money and its intrinsic value (assumed equal to zero here). I

discuss this conjecture in Calvo (2012) and label it *The Price Theory of Money* (PTM). Intuitively, PTM asserts that money's output value is not nil because economic agents set several key nominal prices/wages *in advance* and thereby offer a ground-up guarantee that gives incentives to quote bounded (i.e., $< \infty$) nominal sticky prices.

15. With constant money supply, the increase in the demand for money puts downward pressure on the price level and gives further incentives to hold money, giving an independent rationalization for Liquidity Trap. This phenomenon is well understood in the literature, but what is usually missing is a discussion of why, in the first place, money is an attractive abode of wealth even though, at the same time, other liquid assets are blowing up. The PTM offers a solid ground, especially when price and wage setting is decentralized and timing is not coordinated across price/wage setters (e.g., staggered prices).
16. It is worth noting, however, that not all *monies* are safe havens. As a general rule, EM monies are not and, thus, as a general rule, financial crises have been associated with large currency devaluation. Actually, monies that are not seen as safe may benefit from pegging to a safe money. This helps to explain the fact that most EM currencies are pegged to safe monies like the US dollar and the euro, a phenomenon called *Fear of Floating* in Calvo and Reinhart (2002).
17. The PTM leads to the conjecture that safe-haven money, or *safe money*, could be associated with the size of the market in which prices are set directly or indirectly (e.g., by exchange-rate pegging) in terms of the money in question. The US dollar is paradigmatic in this regard. However, more research is needed to determine the key factors behind the emergence and sustainability of safe money.
18. This discussion leads to the conjecture that if there were no safe money, the liquidity destruction of non-money liquid assets could be less pronounced. Or to put it differently, the existence of safe money may be responsible for liquidity crunch in non-safe-money liquid assets.
19. One is tempted to go one step forward and conjecture that liquidity bubbles in non-safe-money liquid assets may also be *caused* by the existence of safe money, especially when the latter yields a negative *real* interest rate. Many of these assets take the form of fixed-income obligations in terms of some safe money (e.g., US dollar denominated bonds). Thus, the existence of low-yield safe assets incentivizes the generation of alternative liquid assets; part of the incentive has to do with the fact that settlement is specified in terms of safe money!
20. It is worth noting that the above episodes are sometime characterized as "search for yield" episodes, and they are seen with some trepidation by policymakers because they fear that the associated flows are highly sensitive to higher interest rates in debt obligations protected by a Lender of Last Resort with full access to safe money (e.g. the Fed). The value added of the Liquidity Approach pursued here is that it gives a clear rationale for that to be so (see bullet #22).
21. This discussion, incidentally, gives a totally new and relevant significance to the concept of the *Optimal Quantity of Money* (OQM) explored in Friedman (1969). Friedman (1969) shows that social welfare is maximized by making the rate of return on money comparable with the rate of return on capital. In the present context, this OQM may, in addition, deter the financial sector from creating asset-backed liquid assets, which are liable to liquidity crunch. In other words, the

OQM may put a break to the creation of private sector liquidity that is subject to runs and, as argued in the next section, may cause serious disruption in the real economy.

22. This brings us back to the Keynes/Fisher view that a flight to (safe) money is a key link in the chain leading to financial crisis. The value added of the Liquidity Approach as presented here is to argue that the abruptness of crises like the subprime and those in many emerging market economies is closely linked to the existence of low-yield safe money. The key lies in a sudden change in portfolio composition of liquid assets in favor of safe money. This shift is not necessarily linked to a sizable change in expectations about the marginal productivity of capital or, more generally, business prospects, for example, but to the fact that liquid assets are by their very nature subject to multiple equilibria – or, in other words, liquidity is not a standard *fundamental*, it can evaporate in the blink of an eye. Hence, crisis need not follow large changes in perceptions about the future. Just a subtle change in expectations can give rise to major upheaval, because liquidity is mostly in the eye of the beholder (for an elegant theoretical example, see Morris and Shin (1998)). Moreover, high liability may be enhanced by wrong-headed or naïve financial regulation (see, e.g., Rajan (2005)).

From Liquidity Crunch to Credit Sudden Stop

23. Given imperfect contract enforceability and asymmetric information, credit is facilitated by collateral.
24. Collateral assets are endowed with enough liquidity to ensure that if credit obligations are not fully honored, in most cases lenders come out whole. Thus, collateral constraints are akin to cash-in-advance constraint in macro models.
25. A liquidity crunch destroys collateral value and raises a barrier to credit flows, possibly giving rise to large discontinuation of those flows. When this takes place as a result of a highly unexpected liquidity crunch, we have all the ingredients to generate a Credit Sudden Stop (which I define as a largely unexpected cut in credit flow exceeding 2 standard deviations, measured in terms of the historical record; see Calvo, Izquierdo and Mejia (2008)).
26. Credit Sudden Stop (SS) brings about a change in relative prices, unless lenders and borrowers have the same marginal propensity to consume and invest (including consumption and investment goods' composition), which is highly unlikely.
27. This is breeding ground for some form of Fisher's Debt Deflation. A simple illustration is the case in which prior to SS households are heavy borrowers and incur in high debt. The SS paralyzes household expenditure of durable goods including housing, lowering their relative price. This may lead households and contractors to default on their mortgages and bank loans. Banks may be forced to recapitalize, giving rise to a second wave of credit cut, etc.
28. The above financial disarray may occur even if the price level does not fall and even rises. For example, there are many instances of SS in EM which were associated with maxi-devaluation and real currency depreciation. However, Debt Deflation arose because countries were heavily indebted in terms of foreign exchange.

The Liquidity Approach and Key Recent Empirical Puzzles

29. As pointed out above, safe money could be the cauldron of liquidity bubbles. But liquidity, being in the eye of the beholder, may have a dynamics of its own. For instance, liquidity may breed liquidity.
30. This simple observation helps to rationalize some key puzzles that have become evident in financial crises (for a more extensive discussion, see Calvo (2013 b)). For instance, the *Acceleration* phenomenon, namely, the fact that capital inflows increase in the run-up of Sudden Stop. This phenomenon is very disconcerting and may even suggest deep-seated irrationality on the part of market participants. However, if liquidity breeds liquidity, there is nothing else to explain: individuals are attracted to those liquid assets because they see that others are employing those assets as collateral, for example. I have labeled this phenomenon "inverse bank run" (see Calvo (2013 a)).
31. Of course, Acceleration may increase the probability of a liquidity crunch, which may put a brake on the impact of liquidity enhancement discussed in the previous bullet. But the Acceleration puzzle refers to events that end up in Sudden Stop, it does not cover episodes in which Acceleration is swamped by high risk perception. In the latter case, a crunch and corresponding Sudden Stop may be prevented. Acceleration is not inconsistent with those benign episodes.

The Liquidity Approach: Policy Dilemmas

32. The Liquidity Approach sheds a strong light on issues that have played a central role in recent crises. However, mainstream macroeconomists have swept liquidity issues under the rug and have contented themselves with mechanical monetary models. Therefore, we have a poor understanding of the factors that are at play. For instance, recent turmoil associated with the tapering off of Quantitative Easing (QE) in the US, is easily attributed to liquidity issues, but turmoil of that sort is hard to predict and also hard to design policy that might help to prevent and cushion its effects. To illustrate the greater complexity and ambiguity that the Liquidity Approach instills into policymaking, I will briefly discuss some current policy issues.

Interest Rate Policy and QE After Credit Sudden Stop

33. Recent experience has shown that policy interest rates may fail, not just to reactivate the credit channel to some critical sectors (e.g., small firms, households), but even to prevent the economy from tailspinning into deeper recession. Thus, central banks have resorted to QE after virtually hitting the zero lower bound (ZLB) on their policy interest rate.
34. Under normal conditions, hitting the ZLB would likely give rise to a strong push on aggregate demand, completely eliminating recessionary trends. Thus, the fact that it did not is a clear indication that SS conditions prevailed in some critical sectors of the economy or regions of the world.
35. Therefore, the question that arises is if under those circumstances it is advisable for central banks to hit the ZLB before resorting to QE, or to do the latter when the policy interest rate is possibly low but far from hitting the ZLB.

36. To illustrate why the issue could be highly relevant for the world economy, consider the case of the US. US public sector debt instruments (Treasury bills and bonds) are highly liquid and play a key role as credit collateral. This is enhanced by the fact that the US dollar is – presently at least – safe money *par excellence*. Under these circumstances, lowering the US policy interest rate, accompanied by Operation Twist, for instance, by which QE is aimed at flattening the yield curve on US public debt (more specifically, lowering long rates), results in lowering the rate of return on the whole spectrum of US public sector debt obligations. As argued in bullets #19 and #20, this may give incentives for the financial sector to generate new liquid assets displaying a higher rate of return. The evidence suggests that this policy mix may have triggered large capital flows into EM after the Lehman crisis.
37. These flows may be beneficial for EM but, as argued above, it may subject EM to costly liquidity shock triggered by US monetary tightening, even if the latter is only reflected on the long segment of the yield curve, as is already happening. The rise in US long-term interest rates appears to have a major impact on variables that are highly sensitive to liquidity shocks (e.g., exchange rates) after May 2013 – as illustrated by the cases of Brazil, India and Indonesia, for example. Fortunately, the shock has not given rise to SS but one cannot be complacent, because the threat of QE tapering that was partly associated with this liquidity shock has subsided.
38. To prevent future costly liquidity boom/bust cycles, safe money central banks may be well advised to implement policies akin to the Friedman Optimal Quantity of Money (recall bullet #21) that may help to discourage the creation of fragile liquid assets alternative to safe money.

Monetary Policy in EM Capital-Inflow Episodes

39. A knee-jerk reaction of central banks in EM faced with large capital inflows is to try to prevent major currency appreciation. The methods utilized are typically (a) purchase of foreign exchange by means of domestic public debt instruments (e.g., Treasury bills) and/or (b) increase the policy interest rate (e.g., interest rate on central bank's short-term debt). A possible problem with these policies is that they can attract more, not less, capital inflows.
40. Option (a) is equivalent to floating new EM debt collateralized by international reserves. Typically, those EM debt instruments yield a higher rate of return than international reserves, presumably because the country is free to employ international reserves for other ends (e.g., extend credit to the export sector during a Sudden Stop episode), undermining the collateral. But this risk may be partly offset by the higher liquidity perceived by external investors if they sense the existence of an "inverse bank run" episode. Therefore, in the short run this sterilization policy may look successful. However, success would depend on a subtle liquidity effect that may disappear if, for instance, US interest rates are expected to rise. This is likely to increase the spread between local bonds and international reserves, provoking a quasi-fiscal deficit that experience shows can quickly escalate to levels over 1 percent of GDP, leading to abandoning foreign exchange sterilization, or provoking SS if the central bank starts unraveling foreign exchange sterilization and running down international reserves.

41. On the other hand, option (b), i.e., raising policy interest rates, may exacerbate quasi-fiscal costs if the central bank accompanies this policy with foreign exchange intervention. Moreover, even barring the latter, higher domestic interest rates may give further incentives to the private sector to take external foreign-exchange denominated loans, which exposes the economy to Liability Dollarization and pecuniary externalities, phenomena amply studied in the SS literature (see Korinek and Mendoza (2013)). But, in addition, the very expansion of the stock of debt stemming from a given economy may, momentarily at least, enhance the liquidity of those liabilities, increasing the extent of an eventual SS crisis, like in option (a).

Conclusions

42. The Liquidity Approach shows that a slight change of expectations may give rise to a major Liquidity Crunch episode and Credit Sudden Stop.
43. Economies endowed with Safe Money may be breeding ground for Liquidity Trap. EM are free from Liquidity Trap but are likely to experience sharp currency depreciation during liquidity crunch.
44. Safe Money with low rate of returns could trigger liquidity bubbles that end up in costly Sudden Stop.
45. The Liquidity Approach adds new, substantive, and substantial challenges to policymaking. My sense is that models that ignore liquidity trouble are still dominating the policy discussion, an instance of Keynes's dictum that "practical men, who believe themselves to be quite exempt from any intellectual influence, are usually the slaves of some defunct economist."
46. This may be reflected in seesaw-type policymaking. For example, (a) expansive fiscal policy one day, followed by serious concern about government over-indebtedness the next; (b) aggressive monetary stimulus one day, followed by hand-wringing about QE tapering the next; (c) blindly praising the virtues of floating exchange rates, at the same time that the Fed engages in massive foreign exchange intervention under the guise of *currency swaps* (see Fleming and Klagge (2012)). These policy swings are not helpful and may lead the general public to rely more strongly on simple-minded, uneducated and misleading visions and constructs.
47. These visions and constructs are likely to play some role in financial crises – more likely as magnifiers than triggers, in my opinion – but their role may be enhanced when liquidity trouble abounds, because, as the above bullets attempt to illustrate, liquidity is a *non-fundamental* that unless buttressed by institutions like Lenders of Last Resort may give rise to swings in economic activity set off by minor changes in expectations, which are highly disconcerting to economists and the general public alike. This characteristic may be breeding ground for psychological factors discussed in Akerlof and Shiller (2009), for example.
48. In closing, and to prevent possible misunderstandings, it bears stressing that the approach discussed here follows in the footsteps of Keynes and Fisher, and many others that see *liquidity* as an important source of instability in capitalist economies. I do not claim that these factors are the only or even the most important source of deep financial crises. This is left for future research. What these notes show, however, is that *liquidity* – a concept that is hard to define but also hard to ignore – and the *Price Theory of Money* offer a solid platform for rationalizing at least the mechanics of deep financial crises.

References

- Akerlof, George A., and Robert J. Shiller, 2009, *Animal Spirits: How Human Psychology Drives the Economy, and Why it Matters for Global Capitalism*; Princeton, NJ: Princeton University Press.
- Calvo, Guillermo, 2012, "The Price Theory of Money, Prospero's Liquidity Trap and Sudden Stop: Back to Basics and Back," NBER Working Paper 18285, August.
- Calvo, Guillermo, 2013 a, "Sudden Stop and Sudden Flood of Foreign Direct Investment: Inverse Bank Run, Output and Welfare Distribution," forthcoming in *Scandinavian Journal of Economics*.
- Calvo, Guillermo, 2013 b, "Puzzling Over the Anatomy of Crises: Liquidity and the Veil of Finance," working paper available in www.columbia.edu/~gc2286. Forthcoming in *Monetary and Economic Studies*, Bank of Japan.
- Calvo, Guillermo, Alejandro Izquierdo and Luis-Fernando Mejia, 2008, "Systemic Sudden Stop: The Relevance of Balance-Sheet Effects and Financial Integration," NBER Working Paper No. 14026.
- Calvo, Guillermo, and Carmen M. Reinhart, 2002, "Fear of Floating," *Quarterly Journal of Economics*, vol. 68, May, pp. 379-408.
- Diamond, Douglas W., and Philip H. Dybvig, 1983, "Bank Runs, Deposit Insurance and Liquidity," *Journal of Political Economy*, 91(3), pp 401-419.
- Fisher, Irving, 1933, "The Debt-Deflation Theory of Great Depressions," *Econometrica*, Vol. 1, No. 4, pp. 337-357.
- Fleming, Michael J., and Nicholas J. Klagge, 2010, "The Federal Reserve's Foreign Exchange Swap Lines," *Current Issues in Economics and Finance*, Federal Reserve Bank of New York, Vol. 16, Number 4, April. Online at http://www.newyorkfed.org/research/current_issues/ci16-4.pdf.
- Friedman, Milton, and Anna J. Schwartz, 1963, *A Monetary History of the United States, 1867-1960*; Princeton, NJ: Princeton University Press.
- Friedman, Milton, 1969, *The Optimal Quantity of Money*, New York, NY: Macmillan.
- Hahn, F.H, 1965, "On some Problems of Proving the Existence of an Equilibrium in a Monetary Economy," in F.H. Hahn and F.P.R. Brechling (editors) *The Theory of Interest Rates*, London, UK: Macmillan & Co. Ltd., Chapter 6.
- Hicks, John R., 1937, "Mr. Keynes and the 'Classics'; A Suggested Interpretation," *Econometrica*, Vol. 5 (2), pp. 147-159.
- Hicks, John R., 1982, *Money, Interest and Wages; Collected Essays on Economic Theory, Volume II*; Cambridge, MA: Harvard University Press.

- Keynes, John M., 1936, *The General Theory of Employment, Interest and Money*, London, UK: Macmillan and Co., Limited. Page references refer to the 1961 paperback reprint.
- Korinek, Anton, and Enrique G. Mendoza, 2013, "From Sudden Stops to Fisherian Deflation: Quantitative Theory and Policy Implications," NBER Working Paper 19362, August.
- Minsky, Hyman P., 1986, *Stabilizing an Unstable Economy*; New York, NY: McGraw Hill; reprinted in 2008.
- Morris, Stephen and Hyung Song Shin, 1998, "Unique Equilibrium in a Model of Currency Attacks," *American Economic Review*, 88, 3, pp. 587-597.
- Rajan, Raghuram G., 2005, "Has financial development made the world riskier?," *Proceedings, Federal Reserve Bank of Kansas City*, Aug, pages 313-369.
- Tobin, James, and Stephen S. Golub, 1998, *Money, Credit and Capital*; McGraw-Hill.
- Tobin, James, 1989, "Review of Minsky (1986)," *Journal of Economic Literature*, Vol. 27, No. 1, March, pp. 105-108.