James Rebitzer, of the Weatherhead School of Management at Case Western University, compares economic, sociological, and psychological models of employee behavior.

- Hedge funds grabbed the spotlight last August when Long-Term Capital Management faced collapse. Leon Levy talks with Jeffrey Madrick about hedge funds' influence over financial markets and what went wrong with Long-Term Capital.

- Analyzing year-to-year changes in inequality in most developing nations is difficult because the common measures, such as the Gini coefficient, are rarely available for long periods of time. Pedro Conceição and James K. Galbraith show how this problem can be overcome by applying the Theil index to wage, earnings, and employment data.

- Dimitri B. Papadimitriou and L. Randall Wray argue that the Federal Reserve should lower interest rates more to avert a deep global recession.

- Sudhakar Rao explains why, despite the Asian financial crisis and India's integration into the global economy, India stands a good chance of avoiding an economic crisis.
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S Jay Levy, Chairman
Dimitri B. Papadimitriou, President

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The Levy Report Interview

Hedge Fund Mysteries: An Interview with Leon Levy by Jeffrey Madrick
While chairman of Oppenheimer & Company, in 1968 Leon Levy started the first mutual fund to adopt several of the practices used by hedge funds. Levy and his partner, Jack Nash, sold Oppenheimer in 1982 and founded the hedge fund Odyssey Partners, which, over its sixteen-year history, was one of the most successful of such funds. Levy is currently chairman of the board of trustees of Oppenheimer Funds Inc. and founder and vice chairman of The Jerome Levy Economics Institute of Bard College. He is also vice chairman of the board of trustees of the Institute for Advanced Study in Princeton.

Madrick: So many hedge funds have been able to produce above-average returns for investors that they became enormously popular as investment vehicles for the wealthy over the last ten or fifteen years. But these funds were originally designed to control the size of potential losses in several ways, especially by using sophisticated financial instruments to their advantage. Recently some of them seem to be taking inordinate risks, and they may have put the world financial system in jeopardy.

Levy: It is important to realize that as a limited partnership, a hedge fund has virtually no investment restrictions, except those that the people who create the hedge funds choose to impose on themselves. A hedge fund can buy stocks, bonds, commodities such as gold or oil, international currencies, and so on. It can also borrow to invest. It can invest in futures and options—which people now call derivatives—which allow a manager to put up a small fraction of a security's value in order to buy or sell it. And it can also sell short, that is, sell stocks and other investments that it doesn't own if the manager believes they will go down. (To sell short, you borrow a stock and sell it at today's price. Then later you buy it back at a lower price, return it to whomever you borrowed it from, and keep the profit.)

Such possibilities can reduce as well as increase risk. By selling short—or using other hedging techniques to accomplish the same thing—you can concentrate on picking individual stocks without having to worry as much about which way the overall market is going. No matter how good you are at picking stocks, a sudden downturn in the market can undo all your good analysis. How better to protect yourself in a falling market than to be able to sell short? For example, the hedge fund manager might think most stocks are going up. Or he might own a lot of individual stocks that he thinks are undervalued. But in case he is wrong, or if the entire market suddenly falls, he might also sell short certain kinds of stocks that seem to him particularly overvalued at the time, even in the same industry. For example, the manager may own some drug company stocks that he thinks are cheap and sell other drug stocks short that he thinks are overpriced. If he turns out to be wrong, and stocks in general go down, he will still make some money on the short sale to offset some of the losses on his portfolio. He is hedging. Of course, this is not foolproof. We have seen managers who have occasionally both owned the wrong stocks and shorted the wrong stocks. And they lost money on both sides of the
transaction. So hedge funds have many more ways to make money than mutual funds, and perhaps the most important thing about hedge funds is that they take the responsibility away from the investor for choosing what market to put money in and place it entirely in the hands of the money manager. He or she can be in any market at any time.

**Madrick:** But if the stock you sold short keeps going up in price and does not go down as you expected, the risk can be enormous. You never know how high it can go.

**Levy:** That's right. If you don't cover your short—that is, buy the stock back—and the price keeps rising, losses can be quite grand. So it depends on how you use these investments. The same with borrowing. Most hedge funds do not borrow very much, do not use much leverage at all. But if you borrow wisely, it can improve your profits. You can hedge with derivatives also. In fact, fund managers now largely hedge in derivative markets. For example, by using futures, you can sell the entire S&P 500 index or the Dow Jones average short while putting up very little money.

**Madrick:** Such derivatives are seemingly mysterious vehicles because we don't know who has invested in them and to what extent at any given time. But don't they also incur great risk?

**Levy:** Yes, they are risky because you are putting up much less money for the securities than if you had to buy or sell the same portfolio of stocks. But they are also effective methods for protecting against down markets. You can buy a "put" option, a contract that gives you the right to sell a stock at a certain price within a specified amount of time. For $5, for example, you may pay for a contract by which another investor will buy a stock from you for $50 at any time over the next three months, even if it goes down to $30. He keeps the $5, but you may be able to buy the stock for $30 and sell it to him for $50. So you've made $15 on your $5 investment. You've tripled your money. A "call" is the opposite. You can buy a security for a fraction of the price.

But that may not be the main reason you would do it. The chances are that some stocks you own outright, "own long" as we say, are going down at the same time. Stocks do have the habit of moving together. So, because you've hedged, at least you'll have profits on the stocks you don't like.

Of course, if stocks go up, you'll make money on those you own, but only lose the $5 that your put option cost. These days you can buy or sell a put or call on most active stocks and many futures contracts. There are now futures indexes in all kinds of stock, bond, and even commodities indexes, from the Dow industrials and the Russell 2000 index of stocks to a municipal bond index and a commodities index for precious metals or grains. And there are also contracts for most of the major foreign currencies.

**Madrick:** These derivative markets have taken on a life of their own. Just to take an example, people make a good living simply trading on the difference between the put option to expire
tomorrow compared to the one to expire in a month if they think the price is even slightly out of line with expectations.

**Levy:** Yes. But hedge fund managers don't usually do this. It's more likely that traders at commercial and investment banks will do so.

**Madrick:** Some would argue that's not a very productive use of capital.

**Levy:** I've had some doubts about the value of these markets in the past, but I've probably lost the argument. If you think the stock market is a valuable mechanism, then the derivative market is also valuable. But maybe for a different reason. And this is an important point that is often lost. These instruments can make the markets more liquid because there are today dramatically more investors buying and selling securities and they are doing so with a lot more capital. So in these days of large agglomerations of capital, this greater availability of choice and a larger pool of investment allow such large investors to buy or sell enormous quantities of stocks or other securities without disturbing prices. They have less fear that, if they buy, they will drive the price way up, and if they sell, they will drive it way down.

**Madrick:** But in times of crisis, this liquidity can suddenly evaporate.

**Levy:** In all markets, there are times when it is hard to find buyers. On the way up and vice versa. There is always a door which might close—or close enough so that everyone cannot fit through at the same time. Remember, in 1987, there was a purportedly marvelous system where large Wall Street firms would insure a portfolio by taking a short position in derivatives. If you had a portfolio of $100,000, you could buy so-called insurance for a very small price against a major downturn in its value. People felt they could buy more stocks as a result because the experts told them their portfolios could only lose a limited amount of money even if stocks in general fell. But when the market crashed that year, the system was strained, for people kept trying to sell and that led to the debacle. The insurance based on derivatives didn't work. Today, the strategies to protect investment are more sophisticated and the system can handle more capacity. I myself use derivatives. But if you are looking for one simple answer about whether derivative markets are good or bad, there is none. They are often very useful and sometimes they can be dangerous.

**Madrick:** Another complaint that is made about the riskiness of hedge funds is that the managers usually get 20 percent of profits and are still paid a salary even when there are losses. So it encourages risk-taking.

**Levy:** I like that structure. The people who run hedge funds can make an awful lot of money, and so I think there's some tendency for the most able money managers to manage hedge funds. But I usually insist that the hedge fund managers have a lot of their own money in the fund as well. That way they will have an incentive to avoid losses as well as to make profits. Those are
good incentives for doing the best job. I feel safer on an airplane because the pilot is riding with me. The same with hedge funds.

Madrick: When did you gravitate to this kind of investing?

Levy: You know, when we started Oppenheimer Mutual Fund in 1968, I was fearful that the world might revert to a depression like the 1930s, and so we devised a mutual fund that could sell short, buy whole companies or enough of one to control it, and purchase commodities. These were merely protective measures that I thought might be useful if everything went bad at some future time.

Madrick: Was this the first such mutual fund?

Levy: Yes, I think so. Certainly, the Securities and Exchange Commission never gave its approval to such a mutual fund before. But I know that you should never think you're the first of anything—there is almost always someone ahead of you. My lawyer and I had to go down to Washington and argue with the SEC for a year to get it approved. They thought selling short was a highly speculative device. We had to convince them it could be conservative, that it was the only effective way to protect your money if the market is going down. But the public also thought the fund was speculative. And it was hard to find a money manager in those days who was good at buying stocks as well as selling short. Now, there are a number of mutual funds that can sell a certain percentage of their portfolio short.

I do think that hedge funds represent a legitimate theory of investing. The only thing about investing that's certain is that you don't know for sure what the future is going to hold. Therefore, you want in your arsenal every possible kind of weapon to make money, which should include the ability to hedge against being wrong.

Madrick: Some experts insist that investors should just invest in stocks and almost nothing else for the long run. They will invariably go up if the time horizon is sufficiently long.

Levy: That's true if you are young enough and healthy enough. But look, the broad averages of stocks will usually outperform most money managers over time because the averages don't have transactions costs and don't have to worry about the marketability of their investments and so forth. But the real problem with the traditional point of view you are describing is that it overlooks the only real rule of investing, which is to measure risk against reward. This is what hedge fund managers do. They make controlled bets, or at least they think they are controlled. There will be moments when some kinds of securities or commodities or currencies seem to be way out of line—priced too high or too low. George Soros wrote that markets inevitably overshoot, which means that the trends go too far in one direction or the other. And he's right. Prices overshoot, both on the upside and the downside. Bank stocks were way too low in the early 1990s, for example. I think interest rates have generally been too high for a long time.
Making a controlled bet that interest rates would fall has been very profitable. I think stocks have overshot on the upside recently.

**Madrick:** I think it would give us a clearer picture if you provide a few examples of the kind of hedge funds you invest in.

**Levy:** I own several risk arbitrage funds, which invest in mergers. They essentially buy the stocks of the company that's going to be taken over, after assessing the risks, and sell the stock of the acquiring company. If the merger is consummated, which is what the funds try to determine, there's usually going to be a fair profit. Other funds I own specialize in bankruptcies. These are usually very complex, and there are relatively few people who can analyze the bankrupt situation. They involve difficult legal issues. But the prices of these securities are very low, and if a company comes out of bankruptcy successfully, it can be profitable. I also own some hedge funds that specialize in bank stocks. After 1990-1991, when real estate fell and the banks got in trouble, there were a lot of bank stocks that appeared very cheap. I also believed there was an unstated desire on the part of the government to see savings and loan associations and banks merge. The U.S. has more banks and more S&L's than virtually any other country. I believe regulators thought we'd be better off with fewer of them. The values of the companies taken over would go up.

**Madrick:** How are they doing at the moment, however?

**Levy:** Well, over five years, the bank stocks did very well. But since the collapse of Russia and the troubles with Long-Term Capital Management, it's been a rougher ride. I should also say that I own drug stocks and a couple of funds that specialize in health care. I think there is going to be a great deal of growth in these areas.

**Madrick:** What about the kind of investing that seems to attract the most publicity these days: investing in international currencies and bonds?

**Levy:** Ulysses, which is the successor to the Odyssey hedge fund, does some of that, particularly investing in banks (under Josh Nash). It has had a very good year. The managers thought interest rates would go down, and that has worked out. Ulysses bought calls on short-term fixed-income securities because the managers thought rates on these maturities would fall faster than those on long-term Treasury bonds. When rates fell, the price of these securities went up, and the value of the calls went up much faster.

**Madrick:** That brings us to the current situation. Over the past twenty years or so, some prominent hedge funds returned, according to various reports, as much as 25 or 30 percent a year to investors, well above the returns on stocks.

**Levy:** I think that's about right.
**Madrick:** Now, this didn't merely reflect the ability of these managers, did it? Didn't other factors contribute to this performance, such as aggressive borrowing?

**Levy:** Well, I would like to believe that it had something to do with the ability of the managers and it also had to do with the flexibility they had that allowed them to go into anything. We were going through a period in the last twenty years, in a very broad sense, when inflationary expectations were coming down and that made common stocks more attractive, and it made some fixed-income securities attractive also. Hedge fund managers by nature are pretty competitive, and so they want the most bang for the buck. At the same time, they are trying to be conservative and if that sounds like a conflict, well, I guess it is.

**Madrick:** So how does that work? Do they borrow so they can buy much more of a conservative investment?

**Levy:** That's one possibility.

**Madrick:** Or do they borrow to make an investment where they think the odds are very favorable?

**Levy:** First of all, they want the odds to be favorable. That's first. They have to believe that. That's part of what makes the investment strategy conservative. But, second, once they believe the odds are in their favor, there's a tendency for many to want the most volatile investment vehicle out of a particular group. That's the one likely to make the biggest move. And if you have enough conviction, you might borrow to make the investment.

**Madrick:** An example?

**Levy:** Let's say that we think the copper industry is going to make much more profit next year. There are some companies in the copper industry whose profit margins are relatively high. But there are some companies whose profit margins are very low. If there is an improvement in margins for one company of two or three percentage points from 2 percent of sales to 4 or 5 percent of sales, that company is going to make proportionately a heck of a lot more money than it did in the past compared to the company that begins with high profit margins of maybe 4 percent and moves to 5 percent. The profits might go up by 100 percent, compared to only 20 percent at the other company. So the stock price should rise more rapidly as well. Or take the oil industry. If you buy Standard Oil of New Jersey and it makes a strike, it's not going to be spectacular for the stock because the company is so big. If you find a little oil company in a small exotic country and it makes a strike, that stock will attract an enormous amount of speculative interest.

**Madrick:** Is this how hedge funds essentially outperformed the market?
Levy: In some cases. In rising markets, many hedge funds will simply get, as I said, more potential gain for every dollar of investment. I hate to generalize too much. But if you strongly believe in something like the price of oil going up, then you would certainly want the oil company whose stock price is likely to move most on the good news. In a rising stock market, many of these situations worked out well. And then many of these hedge funds borrowed a lot against their capital, as we’ve been saying. So a typical investor with $100 might earn 20 percent on capital in a good year. If a hedge fund borrows another $100, it would earn 40 percent a year on its $100 capital before interest, expenses, and dividends. Of course, if you're wrong, you would lose more than the investor who did not borrow.

Madrick: What are other examples of the sorts of investments hedge funds made that the traditional mutual funds did not.

Levy: There were good investments other than traditional stocks in the 1990s that hedge funds were able to exploit. Some bought emerging-market debt—the debt of developing nations. Buying Mexican securities when everyone was scared of them looked very good for a while. Investing in Russian securities when they were first available for purchase was attractive for some investors. You did not know whether they would work out, but they were so cheap initially that the odds were highly in your favor. Some hedge fund managers obviously stayed in too long and recently lost money. Falling interest rates provided opportunities in mutual funds that invest in bonds. But hedge funds can again make leveraged bets, and they can usually invest all over the world. They can also hedge some kinds of fixed-income securities against others.

But if you want another example of an investment in stocks that hedge fund managers like because it has greater potential to move up if interest rates are falling, you could buy the stocks of finance companies because the rates they receive on their loans don't fall as fast as the rates on what they borrow. The rates on credit cards, for example, haven't fallen as fast. The stocks of finance companies will probably do better when interest rates fall in general than investments in traditional banks. This is how hedge fund managers usually think.

Madrick: As the market did well in recent years, did some hedge funds borrow more boldly?

Levy: I think some did. There is often a tendency to follow the pack. And there is another risk that is not talked about very much. As some of these funds get very large, they can only invest in enormous liquid markets, such as those for currencies or fixed-income securities. These markets are so large that the funds can invest a lot of money without driving the price up, and they can sell out without causing prices to fall too much. The size of the funds, then, limits their choices to big markets, and such restrictions were exactly what hedge funds were designed to avoid. Some of these large funds could not easily invest in small-company stocks in America, for example, which have been undervalued, because a purchase of a couple of hundred million dollars or more would run up the price of these stocks quickly and they'd have to pay too much. The same is true for the sale. It would drive down the price and eat away their profits. Perhaps
this situation enticed some to take too many risks by investing in markets that were not sufficiently liquid.

**Madrick:** You believe, in general, that a lot of borrowing can be a serious danger.

**Levy:** Very much so. I think the consequences of leverage are not well understood sometimes even by the brightest people.

**Madrick:** Is this what got Long-Term Capital in trouble?

**Levy:** To a large degree. The key problem is that when you borrow too much, you can put the rest of your portfolio at risk. After all, you've promised a bank to pay it back even if your investment goes bad. So everything else you own becomes collateral for that loan. If you are not leveraged, each and every investment would not be at risk if another investment does poorly.

**Madrick:** What seems clear is that if you borrow a lot, even if you are right about your investments most of the time, one or two mistakes can result in a great deal of damage. Even if you're right 99 out of 100 times— I'm only taking the most extreme example—when you borrow aggressively, the one time out of 99 you are not right can do you in.

**Levy:** There are some fellows at Long-Term Capital who found that to be true. Look at it this way. If you're running a fund with many different investments, and you haven't borrowed, each stands on its own bottom. When unexpected disaster takes place, you've lost one investment that's, let's say, 3 percent of your capital, but that's all. If, however, you're heavily borrowing to invest a lot more in the transaction, the loss would require you to sell off other investments to pay the lenders when the unexpected event occurs.

**Madrick:** Is that what happened at Long-Term?

**Levy:** That's certainly one of the things. They were borrowing at 20-to-1 leverage on some holdings, and sometimes probably more, that is, they invested $20 for every dollar of their own capital. In my opinion, that's ridiculous. They had bets all over the place. And remember they were also going by the statistical experience of the past. Many of them are essentially mathematicians. They search for statistical relationships from the past, build models, and trade based on those models. They'd say, "In the last fifteen or twenty years, nothing bad happened if we took such and such a position." That position might be buying corporate bonds and selling Treasury bonds short. Then, they'd say, "Furthermore, going back as far as our figures go back, odds are enormously in our favor, so we can borrow $20 for each of our own dollars that we put up."

What's wrong with that is that in a mathematical world conditions are always the same and the relationships might work. In markets, something is different every time. After all, we're dealing with people. Then these historical relationships can be thrown off.
Madrick: What's an example of such a statistical relationship that Long-Term Capital exploited?

Levy: Let's take a general case, that of low-grade bonds, so-called junk bonds. I am told that they invested in these. These are riskier bonds so they may pay three or four percentage points more in interest, than, say, Treasury bonds do. Now, over time, if you hold a portfolio of these bonds, they will usually do better than Treasury bonds even if some of the companies in the portfolio do poorly. Or so history tells us.

Madrick: Because usually investors think these companies on average are riskier than they turn out to be? And therefore the discount to Treasuries they are selling at is too great?

Levy: Yes. So the portfolio of junk bonds goes up in price, at least compared to Treasury securities, and you're locking in a higher rate. The problem for the investor in junk bonds is that if interest rates rise in general, the value of all bonds will go down, so he won't make any money even if the companies issuing junk bonds prosper. In other words, an investor won't pay as much for a bond paying 6 percent if he sees that all rates are moving up and that he can suddenly buy an equivalent bond with a coupon of 6.5 percent. The price of the 6 percent bond must go down or no one will buy it. So the hedge fund manager who owns junk bonds tries to hedge against that possibility of shifting interest rates by selling Treasury securities short. That way, if rates go up and bond prices down, you've made some money on your short position to offset the losses on your portfolio of junk bonds. You've taken the movement of interest rates in general out of the equation—more or less.

Madrick: But, as we know, these historical relationships shifted.

Levy: Yes. Long-Term did not anticipate that. Alas, the time came when everybody felt that because we may be going into a recession and the financial crisis could become even more severe, they didn't want to own junk bonds and they wanted to own only Treasuries. So prices of Treasuries went up and their yields came down. Meantime, prices went way down on junk bonds, exactly the opposite of what Long-Term expected. Long-Term had a lot of these bets on relationships between different fixed-income securities, in the U.S. and around the world. The rush to Treasury securities threw off all these historical relationships to a degree.

Madrick: And the amount of leverage made it all worse?

Levy: Yes. I think leverage is what made the position uncontrollable because the potential loss was so large that every investment then became collateral for the others. But when everyone else is trying to sell, you have an additional problem. As we said before, there's never perfect marketability, even in a giant market like government securities. There is no assurance that on any particular day you're going to be able to sell as many of anything as you would like to within a certain range of prices. You just may not be able to sell all those junk bonds unless you are willing to take a price a couple of points or more less than you think they are worth. Long-
Term Capital had positions that were so large that it couldn't sell them without bringing prices way down. And what frightened the Federal Reserve was that as Long-Term Capital drove down prices for securities, other hedge funds and more traditional investors, including banks, had to sell their own bonds and other investments to raise cash to cover the losses on those securities that they owned. That's how a financial contagion occurs. And it has helped to bring on a credit crunch today. Businesses are having trouble borrowing while banks, with all the losses, are hesitant to lend as freely as they had.

**Madrick:** As has been widely noted, these were bright people at Long-Term Capital. Why didn't they realize that such relationships could someday break down?

**Levy:** I think some people have a problem with time. Some concentrate very well on the near term, like a month or two or out to six months. Other people are better at longer sweeps of time, a couple of years; others, say, American historians, a few hundred years of time. And archeologists think in far longer periods of time. I think it is very hard for one person to have a highly developed sense of time beyond his own particular fields of interest, and these reflect his own personality. This is partly why nobody consistently makes money in the market, including, myself.

**Madrick:** There is also the case of the banks, of course. Long-Term Capital invested unusually aggressively. The banks were willing to lend them the money.

**Levy:** In defense of the banks—but not a very great defense I admit—they usually did not know who else Long-Term Capital was borrowing from, as I understand it.

**Madrick:** Shouldn't they have asked?

**Levy:** Yes.

**Madrick:** It seems to me that the relationship between the bankers and some of the hedge fund managers may have been quite comfortable—a form of crony capitalism that we criticize when it takes place in countries like Thailand or Korea.

**Levy:** Perhaps. Clearly, they should have gotten more information. But banks can fail, too.

**Madrick:** I think there should be more government requirements on these activities. What's your view?

**Levy:** I'd be very careful about that. You don't want to inhibit people from making profitable investments. But I think it is important that we know how much the hedge funds are borrowing. I certainly think that bankers who deal with them should know that.

**Madrick:** So you would favor more of what is now termed "transparency."
Levy: I think there should be more requirements that hedge funds file information with the SEC, specifically about the extent of their borrowing. You know, whenever a disaster takes place, people always think there should be tighter scrutiny. The question is at what point more reporting becomes a nuisance and serious hindrance to business. On the other hand, the history of American securities industries, which I'm most familiar with, has been increased reporting requirements. In the 1920s, nobody reported short positions, I believe. Now short positions must be reported to the SEC, which seems very desirable, because investors and lenders need that kind of information to make the best business decisions.

Madrick: The banks also do not fully report their positions, including their own trading in derivatives. Their losses have been enormous recently. According to some reports in the press, Bankers Trust Co. looks as if it might have to find someone to take it over. There is talk of other mergers.

Levy: Again, I think we should look more closely at reporting requirements for banks as well. But I know less about that than I do about securities firms. Probably there should be more disclosure.

Madrick: It still strikes people as odd that a few successful men could have jeopardized the world's financial system.

Levy: I don't think they could have brought the system down. But they damaged it a lot.

Madrick: And that affects the real economy, our jobs, our incomes, the security of our lives.

Levy: It certainly can. In my view a declining market affects the real economy because I strongly believe falling stock prices make people who own stock spend less money. I think losses at the banks make them reduce the amount they are willing to lend. This also impedes the economy. When investors are afraid to buy corporate bonds, it makes it harder for businesses to borrow. When investors don't want to make risky investments, that's bad for business. And in the end all this can be bad for jobs. This is how all of us can be affected. Less consumer spending and investment means lower profits. As a consequence business may stop raising wages and may start letting workers go. There is still less consumption and investment. These factors can bring on a recession.

Madrick: Doesn't this suggest that regulation to require more reporting is a pressing necessity?

Levy: I favor more disclosure, as I said, because investors have to have the facts. So do lenders.

Madrick: What I think frightens investors most is that there may be another Long-Term Capital Management out there. Do you think there is?
Unfortunately, as things stand, we won't know until we read it on the front page of *The New York Times*.

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## New Working Papers

### Modern Money

L. Randall Wray  
Working Paper No. 252

It is commonly believed by economists that money came into existence as a means to simplify the transactions of a barter economy and that money continues today to function primarily as a medium of exchange. However, not all economists accept this view. Those who support the Chartalist, or state, approach to money view money as a creation of the state. Senior Scholar L. Randall Wray examines the origins of money and traces the development of the Chartalist view through Adam Smith, Georg Friedrich Knapp, John Maynard Keynes, Hyman P. Minsky, and Abba Lerner. He argues that the Chartalist view has important implications for government policy.

Traditional economic analysis views fiscal policy as the primary determinant of the money supply. The Chartalists argue that the state defines money as that which it accepts as payment for taxes. It is government spending that is the important determinant of the money supply and government deficits are the most important source of net money holdings. Because government deficits increase bank reserves, monetary policy is used to drain excess reserves in order to hit the desired interest rate target, thereby creating an interest-earning alternative to excess reserves. Thus, bond sales are not a part of fiscal policy nor are they needed to finance government deficits. This analysis leads to several policy conclusions, one of which is that governments can run deficits to finance full-employment programs without fear of inflation.

### Finance and the Macroeconomic Process in a Classical Growth and Cycles Model

Jamee K. Moudud  
Working Paper No. 253
In this working paper, Resident Scholar Jamee K. Moudud derives an endogenous growth and cycles model that integrates sectoral incomes, expenditures, and finance requirements into an ex ante social accounting matrix (SAM). Moudud argues that the classical growth and cycles model (CGC) allows for a dynamic and turbulent picture of the economy, unlike the static equilibrium models of neoclassical economics, which are too rigid because of their full employment assumption. At the other end of the spectrum are the Keynes-Kalecki models, which Moudud faults for being demand-constrained with persistent excess capacity and unemployment. The classical growth and cycles model falls somewhere between these two extremes in that it allows for persistent unemployment but at normal capacity.

The SAM includes households, businesses, a banking sector with non-zero net worth, and the government. Investment in circulating capital, endogenous bank credit to finance accumulation, and the negative feedback effect of debt on investment are at the core of the short-run cyclical dynamics. The business cycle dynamics are described by the dual disequilibria relationship that relates monetary and goods market disequilibria to each other. Market disequilibria result from the discrepancy between ex ante plans and expectations and ex post outcomes. The short-run cycle in the model is the 3-to-5-year inventory cycle in which aggregate demand and supply chase each other ceaselessly in order to reach equilibrium. Firms respond to excess demand by lowering inventory stocks and increasing investment in circulating capital, which expands output via the Leontief input-output relationship. Over the medium run they respond to imbalances between actual and normal capacity by increasing fixed capital investment. Over the medium to long run the path of accumulation is internally financed and regulated by the rate of profit. The macrodynamic model is a synthesis of the Physiocrats' "circular flow" approach to modeling the economy and the endogenous growth perspective of some classical economists. Finally, the endogenous cyclical dynamics are very much in the spirit of Kalecki and Minsky.

Mathew Forstater
Working Paper No. 254

Visiting Scholar Mathew Forstater argues that a new approach to macroeconomics is needed—one that is political, historical, institutional, and structural. This new approach needs to be political in that it considers macro-policy goals at the ground level of theoretical practice. It needs to be historical in that it recognizes that the system is dynamic and transformational. It must pay attention to institutional arrangements. It must be structural in that it considers sectoral as well as aggregate relations, technological change as well as monetary production. It must avoid the mechanism of aggregate models that bypass the complex problems of human agency through unacceptable motivational and behavioral assumptions.
Forstater believes that the ideas of Abba Lerner and Adolph Lowe are a good starting point for developing this new approach to macroeconomics. He combines Lerner's ideas of functional finance and money as a creature of the state with Lowe's structural analysis to form a new approach to macroeconomics—a new instrumental macroeconomics. Functional finance is an approach to public finance that views the federal budget and management of the national debt as means to economic prosperity. Structural analysis addresses structural and technological changes, such as changes in the supply of labor and natural resources, capital- and labor-saving innovations, and changes in the composition of final demand. Forstater argues that a merging of these two key ideas creates a framework for incorporating both monetary production and structural and technological change and for analyzing both Keynesian and technological unemployment. This can lead to a new approach to macroeconomics that focuses on full employment, price stability, and a decent standard of living for all.

Economic Time
John F. Henry and L. Randall Wray
Working Paper No. 255

There is no universal notion of time. Each academic discipline—physics, geology, psychology—requires a particular view or understanding of time that is different from the common view held in everyday life. John F. Henry, of the Department of Economics at California State University in Sacramento, and Senior Scholar L. Randall Wray argue that economics also requires a particular concept of time to develop theory with greater explanatory power in describing and analyzing the sort of economy in which the field is primarily interested—the monetary economy usually termed capitalism. Economists of various persuasions have recognized the importance of a concept of time, but the authors argue that a very specific concept is required.

Henry and Wray propose a concept of time that is consistent with the perception and experience of time in a monetary or capitalist economy. Such an economy is a "debt economy" and therefore the debt cycle—the period of time required to allow the extinguishing of short-term debt—is the appropriate time unit. This time unit is historical and sequential in nature (months, years), but it is not simply clock time. The length of economic time is fluid and is regulated by the interest rate: the higher the rate, the faster time moves. Until economists learn to think seriously about time, economic theory will be incapable of understanding and addressing the nature of and the problems posed by a capitalist economy.

The Minimum Wage in Historical Perspective:
Progressive Reformers and the Constitutional Jurisprudence of "Liberty of Contract"
Oren M. Levin-Waldman
Working Paper No. 256

The debate on the minimum wage is often between those who argue that higher minimum wages produce disemployment effects among youths and those who argue that higher minimum wages would help lift many out of poverty. Resident Scholar Oren M. Levin-Waldman points out that these have not always been the central arguments of the debate. During the Progressive period of American history (1912 to 1923) the debate was between those who clung to traditional economic theory as a reason for not having a minimum wage and those who believed that adopting one would bring efficiency-wage benefits. The efficiency-wage argument is essentially that workers who are paid more are able to work harder and are more loyal to their employers, resulting in increased productivity.

This argument was used successfully to sway many state legislatures to adopt minimum wages. Its ultimate use, however, was as a means to circumvent the Supreme Court's particular understanding of "liberty of contract." The court held that the doctrine of "liberty of contract" means that states cannot pass legislation interfering with the contractual relationship between employer and employee unless a compelling case can be made that such legislation would serve the larger public interest. On the grounds that minimum wage mandates do interfere with "liberty of contract," the court struck down much of states' minimum wage legislation. Most early minimum wage legislation applied only to women and the court had allowed this to stand because it was seen as protective legislation rather than legislation that interfered in the contractual relationship. Efficiency-wage benefits were used as a strategic argument to make the "compelling case" that a minimum wage would serve the public interest.

Is Keynesianism Institutionalist? An Irreverent Overview of the History of Money from the Beginning of the Beginning to the Present
L. Randall Wray
Working Paper No. 257

Senior Scholar L. Randall Wray posits that the one commonality between institutionalist thought and Keynesianism (as presented in General Theory) is money. Money is the key institution of the capitalist economy. This fact has never set well with either neoclassicists or most institutionalists. Neoclassicists seek to banish money from theory, while institutionalists seek to reduce its influence in the real world.
Wray traces the origins and uses of money, dispelling the misconception that money was developed as a medium of exchange. He replaces this notion with the concept of money as a creature of the state that is used as evidence of debt, specifically government debt. His exploration of the history of money eventually leads him to the conclusion that deficits are of no consequence to governments and, further, that governments can run a deficit in order to finance full employment programs.

(Full) Employment Policy: Theory and Practice
Dimitri B. Papadimitriou
Working Paper No. 258

Although the U.S. unemployment rate in 1998 was at its lowest level since the late 1960s, the nation's employment problem is still far from solved. The rate as conventionally measured does not tell the entire unemployment story. Large numbers of people considered "employed" are involuntarily working part-time, and many others have simply dropped out of the labor force and are not reflected in the unemployment numbers. Many economists assume that unemployment tends toward a natural rate below which it cannot go without creating inflation, but President Dimitri B. Papadimitriou asks whether the current employment levels are the best that can be achieved in times of prosperity and whether current employment policies will be able to deal with the challenges of the next downturn.

Papadimitriou evaluates three proposed strategies to improve the employment situation—a reduced workweek, employment subsidies, and a public service job opportunity program—to see if they can put more people to work, thus upholding an individual's basic right to a job, and yet are not inflationary. He finds that a shorter workweek and wage subsidies both fail to meet one or both of these criteria, but that a public service job opportunity program, based on a concept of employer of last resort, would move us toward full employment and not lead to inflation.

Constructing Long and Dense Time-Series of Inequality Using the Theil Index
Pedro Conceição and James K. Galbraith
Working Paper No. 259

Most empirical work on inequality uses measures that are based on household surveys. These aim to provide a comprehensive overview of income inequalities, covering all social strata and comparable through time and between countries. Gini coefficients are the measures most
commonly computed from these sources, though various quintile ratios are also frequently deployed. But the problem with these measures is that they are rarely available for long periods except in a few developed countries. As a result, few analyses of year-to-year changes in inequality exist. Pedro Conceição and Levy Institute Senior Scholar James K. Galbraith, both of the Lyndon B. Johnson School of Public Affairs at the University of Texas at Austin, seek to remedy this problem by using wage and earnings data by industrial sectors, which are readily available for many countries over long time frames.

Conceição and Galbraith apply the between-group component of the Theil index to data on wages, earnings, and employment by industrial classification in order to measure the changes in wage and earning inequality through time. They provide formal criteria under which such a between-group Theil statistic can reasonably be assumed to give results that also track the (unobserved) change in inequality within industries. While the movement of inequality in manufacturing earnings cannot be taken as per se indicating the larger movements of inequality in household incomes, including those outside the manufacturing sector, the authors argue on theoretical grounds that the two will rarely move in opposite directions. Conceição and Galbraith apply their method to Brazil, a developing country for which economy-wide Gini coefficients are scarce. They find it is possible to compute monthly Theil indexes as far back as 1976 in order to study the dynamics of inequality.

**Government Spending and Growth Cycles: Fiscal Policy in a Dynamic Context**

Jamee K. Moudud  
Working Paper No. 260

In an earlier work Resident Scholar Jamee K. Moudud derived an endogenous growth and cycles (CGC) model that can be used to analyze the economic impacts of fiscal and monetary policy (see summary of Working Paper No. 253). In this working paper, Moudud presents findings from his analysis using the CGC model that show the different situations in which government expenditure can lead to both crowding-in and crowding-out of output and employment.

An increase in the share of government spending leads to an expansion of output, which is given a greater stimulus with a higher degree of monetization. Expansionary monetary policies accompanying the fiscal expansion tend to make the upswing longer and the downswing shallower, that is, the cycle becomes more asymmetric. The medium-run dynamics of the model along its warranted growth path essentially rest on the relative movements of business retained earnings and the government spending share. With the private savings rate fixed, a rise in the government spending share leads to medium-run crowding out. On the other hand, if policies such as investment tax credits, lower rates of corporate taxation, and accelerated deductions for
capital depreciation stimulate the growth of business retained earnings, then an increase in the
government spending share may either not have any effect on the warranted path or may even
raise it, that is, there might be crowding in. Moreover, abstracting from any changes in retained
earnings, an increase in the level of government spending produces an expansionary cyclical
effect with no medium-run crowding out. Finally, the model exploits the empirical finding that
infrastructure investment by the government lowers business costs. This relationship is used to
demonstrate that the warranted growth path can be increased via a shift from government
consumption expenditures to infrastructure investment.

Based on these findings, Moudud concludes that deficit cutting and tight monetary policy are
not beneficial. In the event of a growth cycle downturn, these policies will do more harm in the
short run without fixing the long-run structural causes of the downturn. They would deepen a
recession by slashing demand. Cuts in public investment may reduce future private investment,
which would lower long-run growth. Also, deficit cutting can be destructive when a system is in
a long decline: poverty and inequality might be exacerbated in both the short and long run.

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New Policy Notes

The Fed Should Lower Interest Rates More
Dimitri B. Papadimitriou and L. Randall Wray
1998/5

While the Federal Reserve has focused almost exclusively on the dangers of inflation for most of
the past two decades, most studies find those dangers are quite low and there is reason to believe
that the costs of deflation would be quite high. President Dimitri B. Papadimitriou and Senior
Scholar L. Randall Wray argue that the Fed ought to reduce interest rates even more than it
already has in order to relieve the deflationary pressures that are building around the world and
in the United States.

Deflation would have several negative impacts on the U.S. economy. It would increase real
interest rates and debt burdens. It would discourage investment, research and development, and
technological advance because firms would not be reasonably sure that their expenditures would
be recovered in an environment in which prices are falling. It would discourage home
ownership by increasing the burden of mortgage payments.
Lower U.S. interest rates and depreciation of the dollar would be good for the world economy and would help improve the U.S. trade balance. Lower rates would increase disposable family incomes for indebted American families that would be able to renegotiate lower mortgage and consumer lending rates. Lower rates would also reduce pressures on Wall Street and reduce government costs on outstanding debt. If the United States goes into a recession and reduces its level of imports, world output also would fall. Cutting interest rates and even allowing budget deficits to occur or widen may be necessary to avert a deep global recession.

**What to Do with the Surplus: Fiscal Policy and the Coming Recession**

Dimitri B. Papadimitriou and L. Randall Wray
1998/5

In 1998, for the first time in a generation, the federal government not only balanced its budget, but even ran a surplus. In the debate about what to do with the surplus, some legislators have argued for tax cuts, others prefer debt reduction, and the president has advocated the rescue of Social Security. President Dimitri B. Papadimitriou and Senior Scholar L. Randall Wray argue that neither Congress nor the president is on the right track. Rather than protecting the surplus, we should be increasing spending and cutting taxes to contain a looming world recession.

Government spending generates private income and contributes to productivity, and public sector deficits create private sector wealth. Surpluses, on the other hand, nearly always lead to recessions, which then end up generating renewed deficits. The current surplus is likely to disappear in the near future as the United States economy slides toward recession. The best policy is for U.S. policymakers to invest in things that will lead to future economic growth—education, child care, public infrastructure, research and development, and technological innovation. Increased government spending is needed to stabilize the U.S. economy.

**Goldilocks and the Three Bears**

L. Randall Wray
1998/7

Since the early 1990s the United States has enjoyed reasonably robust economic growth and low unemployment with low and stable inflation. The economy has been commonly described as a Goldilocks economy—one that runs neither too hot to induce inflation nor too cold to allow unemployment to rise. But Senior Scholar L. Randall Wray warns that Goldilocks is in danger of being eaten by three bears: a cascading, global financial crisis; global deflation and excess
capacity (or insufficient demand); and a domestic fiscal surplus in conjunction with record
private deficits.

The first bear is the Asian financial crisis, which, despite denials by policymakers and pundits,
will slow U.S. economic growth as its effects spread. The second bear has gone unnoticed by
policymakers and central bankers. Convinced that the world economy was strong, they failed to
recognize signs of weakness. They focused intently on controlling nonexistent inflation, while
aiding the true danger, deflation. The last of the three bears is the U.S. budget surplus and the
private sector debt, which will finish off the last of the Goldilocks economy. Attempts to
maintain a budget surplus in the face of a looming world crisis will only make that crisis worse.

Wray concludes that the United States, together with the world's other industrial powers, must
put together a plan that would lower interest rates, increase government spending, and target tax
cuts to low-income consumers. Such a plan would help to counter the threat of worldwide
deflation and could put the world's economy back on track for renewed growth.

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Institute News

Lectures

*Wynne Godley: Strategic Prospects for the U.S. and World Economies*

In a lecture held on November 24 at the Levy Institute, Distinguished Scholar Wynne Godley
presented his findings on the U.S. and world economies based on models he has developed—
one tracking the economy of the United States and a world model in which the world is divided
into 11 trading blocs (one of which is the United States) and each bloc's imports are described in
terms of exports from the other 10. Using the world model, Godley can project changes in each
bloc's imports and exports based on changes in other blocs. Godley feeds data from the U.S.
model into the world model.

Using trade data from the period of 1970 to 1997, Godley finds that the Asian crisis will result
in reduced economic output in Japan, Australia, and New Zealand because of their heavy trade
with Asia. Meanwhile, a drop in imports and an increase in exports in Asia will affect the trade
balance in other blocs, especially the United States. A weakening of the U.S. economy will
greatly affect other trade blocs. Godley said a slowdown in U.S. growth is likely because its
growth throughout the 1990s has been driven by private sector spending in excess of income
and an accelerating rate of borrowing, which is intrinsically unsustainable. Recent Federal
Reserve actions to reduce the cost of borrowing may sustain this spending temporarily, but this policy will only hold off the inevitable stagnation. Because national economies are so intertwined, the only real solution is development of global fiscal policy, something that Godley said is unlikely to happen.

**Sudhakar Rao: The Asian Financial Turmoil: Can India Remain Unaffected?**

India has managed to escape the negative impacts of the Asian financial crisis despite the country's growing links to the global economy. Whether the nation can remain unaffected was the topic of a December 1 lecture by Sudhakar Rao, senior economic policy official of the government of India and economic minister at the Embassy of India in Washington, D.C. The integration of India into the world economy is relatively recent. From independence in 1947 through the 1970s economic policy was based on central planning as the country focused on self-sufficiency in food production, building its infrastructure, and industrializing its economy. India was successful at achieving these goals but the government regulation of the economy became too obtrusive and discouraged private sector initiative and foreign investment. In the 1980s the government began the process of liberalizing the economy, but the real push for reform came during the Indian economic crisis of 1991. Since then the government has worked to remove economic constraints and open the economy to competition—to both domestic and foreign investors.

As a result of these reforms, the Indian economy has performed quite well in the 1990s. Since the East Asian crisis in 1997, the Indian economy has slowed, exports have fallen, and agriculture has declined, but, overall, the economy has remained healthy. India has felt less impact from the Asian crisis than other nations in the region because despite economic liberalization, its banking and financial sectors have continued to be highly regulated, with debt control and prohibitions against speculation in real estate and stocks; its current account deficit remains small; and its short-term lending remains low (only 6.3 percent of its debt). In India corporate exposure to debt has been kept within reasonable limits.

**James Rebitzer: Do Employees Behave the Way Economists Think They Do?**

According to James Rebitzer, of the Weatherhead School of Management at Case Western University, many economists use a "rational cheater" model to explain employee behavior: Employees will shirk on the job when they believe that the benefit of doing so outweighs the cost of getting caught. Sociologists, on the other hand, apply a "conscience" model: Employees gain utility from behaving appropriately. This model implies that managers need only shape employee views of what is appropriate and reward that behavior. A third model often used to explain employee behavior is the "impulse control" model, which comes from experimental psychology: Employees act on impulse and tend to pursue short-term gains. This model implies that employers must make the short-term costs of inappropriate behavior high for employees, for example, immediate dismissal for an inappropriate act. At a lecture at the Levy Institute on December 7, Rebitzer presented findings from a study of employees at a telephone solicitation company that indicate the economic model might be right.
The study examined the effect of changes in monitoring rates on employee behavior. Employees in the study were responsible for reporting their rate of successful calls for donations. Because a high rate resulted in additional financial gains, employees had an incentive to falsify their success rate. The company monitored employee calls by making call backs. Employees at different company sites were monitored at different rates of call backs, and the rate varied weekly at each site. The aim of the study was to learn if employees are more likely to shirk when they realize that the rate of monitoring is low and there is little likelihood that they will be caught falsifying their success rate. The study found that the economic model does explain the behavior of many, but not all, employees. Many employees were more likely to shirk when monitoring decreased.

National Medal of Science Awarded to William Julius Wilson

The White House recently announced that William Julius Wilson, a member of the Levy Institute Board of Advisors, was a recipient of the 1998 National Medal of Science. Wilson was honored for his "pioneering methods of interdisciplinary social science research that has advanced understanding of the interaction between the macroeconomic, social structural, cultural and behavioral forces that cause and reproduce inner city poverty." The National Medal of Science, established by Congress in 1959, is bestowed annually by the president on individuals who have made outstanding contributions to knowledge in the physical, biological, mathematical, engineering, or social and behavioral sciences. Including the nine 1998 winners, 362 people have been awarded the medal. An independent, 12-member, president-appointed committee of outstanding scientists and engineers reviews the nominations for the medal and sends its recommendations to the president for final selection.

New Directions for the Levy Institute

Bard president Leon Botstein was elected chairman of the executive committee of the Levy Institute's Board of Governors. His role will be to help build the institution as it moves into new areas of research: the psychology of economic behavior; the distribution of opportunity, income, and wealth; and economic history. Dimitri B. Papadimitriou, formerly executive director, becomes president of the Institute. Leon Levy, who was president, becomes vice chairman. A search is underway to fill the newly created position of research director and plans have begun for opening an office in New York City. Another change is moving the activities of the Institute's Washington, D.C., office to Blithewood. Assistant Director/Washington Liaison Sanjay Mongia will remain in Washington to pursue other interests. We extend our best wishes to Sanjay in his new endeavors.
New Member of the Board of Advisors

Max Palevsky has joined the Levy Institute's Board of Advisors. He is a self-employed industrialist whose career has been in the high-technology arena. After working for the Bendix Corporation and Packard-Bell Electronics, he founded Scientific Data Systems, which later was acquired by the Xerox Corporation. He currently serves on the board of directors of Komag, Incorporated. After a 29-year term on the board of directors of Intel Corporation, in 1997 he became an emeritus member of the board. He also has been chairman of the executive committee of the board of Xerox Corporation and a trustee of the Center for Advanced Study. Palevsky received B.S. and Ph.B. degrees from the University of Chicago and did postgraduate work at the University of California at Berkeley and the University of California at Los Angeles.

Participants in Debates-Debates

Vice Chairman Leon Levy and Vice Chairman and Director of Forecasting David A. Levy participated in a recent segment of the national television program Debates-Debates. To the question "Is There a Stock Market Crash Coming in 1999?" both argued yes, along with Jeffrey Madrick, editor of Challenge magazine. Arguing no were Adam Smith, chairman of Adam Smith Global Television; Lawrence Kudlow, chief economist, American Skandia Life Assurance, Inc.; and Geoff Lewis, senior editor, Business Week.

Upcoming Conferences on Financial Markets and Monetary Policy

A conference on the work of Hyman P. Minsky will be held on April 21 and 22, 1999. It will be followed by the Ninth Annual Hyman P. Minsky Conference on Financial Structure on April 22 and 23. See the Levy Institute web site (www.levy.org) for program and registration information.

Clarifications
In *Report*, November 1998, the summary of Resident Scholar Oren M. Levin-Waldman's remarks in session 2 of the symposium, "Employment Policies to Reduce Poverty," read, "The businesses surveyed also expressed a willingness to hire welfare recipients and provide them with on-the-job training, especially if the government provided wage and training subsidies." The actual survey findings were:

- 76.3 percent of firms stated they were willing to hire former welfare recipients if they were given wage subsidies
- 85.4 percent of firms stated that they were willing to provide on-the-job training to new employees
- 55.4 percent of firms stated that if they were given subsidies for on-the-job training, they would be willing to hire former welfare recipients

The summary of remarks by Senior Scholar L. Randall Wray read, "... there are about 15 million people between the ages of 25 and 64 who have never attended college but are potentially available for work." The sentence should have read, "... there are 15 million people between the ages of 25 and 64 who are potentially available for work."

### Presentations and Publications by Levy Institute Scholars

**Distinguished Scholar Wynne Godley**

**President Dimitri B. Papadimitriou**

**Senior Scholar Joel Perlmann**

**Senior Scholar L. Randall Wray**
*Publications:* "Modern Money," in *What Is Money?* edited by John Smithin (forthcoming); with


Visiting Scholar Mathew Forstater


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