

NATURAL RATES OF INTEREST AND SUSTAINABLE GROWTH

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The evolution of macroeconomic theory and monetary policy has brought us to a state that calls for critical reflection. It is undoubtedly true that no newcomer to the field can even begin to understand the current state of macroeconomics and policy formulation without understanding just how, dating from the pre-Keynesian era, the profession has arrived at this state. High theory today takes the form of stochastic dynamic general equilibrium analysis, while policy discussion, which concerns itself with economy-wide disequilibrium, centers on the effectiveness (or ineffectiveness) of old-style fiscal and monetary stimulants. The market is a process and so too is the theorizing about it. The history of macroeconomic thought reasserts its relevance at times of economic crises and almost inevitably leads us to the question “How far back do we have to go to start all over?”

A plausible answer is that we have to go back to 1912 and the publication of Ludwig von Mises’s *Theory of Money and Credit* (Mises [1912] 1953). The year itself has significance as the immediate predawn of the Federal Reserve System, while Mises’s title focuses attention on that critical relationship (between money and credit) through which a centrally controlled monetary system threatens the stability of an otherwise decentralized economy. Unfortunately, the Keynesian Revolution shifted attention away from the underlying causes of business cycles and toward their most salient symptoms. In the modern era of interest-rate targeting (dating from the early

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1980s), the Federal Reserve's concern about the misallocation of credit has been largely overshadowed by its near-exclusive attention to unemployment and inflation.

Lip service to the goal of a long-run sustainable growth rate has been just that. If interest rates are manipulated with an eye to their short- and medium-run impact on the unemployment rate and their long-run effect on the rate of inflation, they cannot at the same time steer the economy along a sustainable growth path. The sustainability that the Federal Reserve has actually achieved is strictly (and perversely) an intercrises sustainability. For all too long, the Fed has acted to extend its own policy-driven booms, forestalling market corrections and hence making the eventual (and ultimately unavoidable) crisis more pronounced than it would otherwise have been. Maintaining a sustainable growth rate in the more worthy sense of avoiding those periodic crises would require the fullest recognition of interest rates in their fundamental role of allocating credit and hence allocating resources in ways that are consistent with people's willingness to save. If long-run macroeconomic stability is our goal, then due attention to the time element that characterizes both saving propensities and investment decisions is a strict prerequisite to assessing alternative policies and recommending reforms.

In an earlier article (Garrison 2009), I argued that the Federal Reserve's implicit observance of the Taylor Rule, according to which policymakers split the difference in various proportions between reducing cyclical unemployment and constraining inflation to some target rate (customarily 2 percent), was an ill-fated exercise in learning-by-doing. The problem is that the "doing" occurred about every six weeks, when the Fed's policy committee met to set interest rates, but the genuine "learning" occurred only about once every decade, when the cumulative discord between set rates and market realities precipitated still another economic crisis.

During the last half of 2003 and the first half of 2004, the Fed deviated from the Taylor Rule in the downward direction, setting a 1 percent target for the Fed funds rate. This move can be seen, in large part, as an attempt to maintain sustainability in the short-run sense of forestalling an inevitable downturn. The perceived need for exceedingly low interest rates on the heels of the Federal Reserve's extended conformity with the Taylor Rule suggests that the rule itself

is not conducive to sustainability in the longer-run sense of avoiding those periodic crises.

Natural Rates of Unemployment and Interest

Hardwired into our macroeconomic thinking, particularly about policy issues, is the notion of a natural rate of unemployment. Though initially introduced as the wage rate or pattern of wage rates “that would be ground out by the Walrasian system of general equilibrium equations” (Friedman 1968: 7), the natural rate soon took on a more worldly meaning by its being associated broadly with real (as opposed to monetary) forces in the economy. In his 1976 Nobel Lecture, Friedman (1977) included among these real forces (in addition to the fundamentals of tastes, resource availabilities, and technology) legislative considerations affecting employment opportunities. Hence, minimum wage legislation, unemployment insurance, investment tax credits, and Social Security’s minimum retirement age all have their separate macroeconomic effects, but they do not give rise to cyclical variation in macroeconomic magnitudes. The point, of course, is to identify, given any particular constellation of real forces, an ongoing, stable (i.e., cycle-free) rate of unemployment, a rate that is then christened the “natural rate.” For some time now, macroeconomists have taken the natural rate to be in the neighborhood of 5–6 percent.

Though subject to change and not easily definable, the natural rate of unemployment is a benchmark for identifying rates above or below that rate—with deviation from the natural rate representing the unemployment rate’s cyclical component. By contrast, structural unemployment, whatever its source, is seen as a separate category. Except for economists of the Austrian school, the structural component of unemployment, which is rooted in mismatches between workers’ qualifications and employment opportunities, is not thought to be systematically related to the cyclical component.

The very term “natural rate of unemployment” was coined by Milton Friedman in explicit recognition of its being a close cousin to Swedish economist Knut Wicksell’s “natural rate of interest” (Friedman 1977). By melding these concepts from Chicago and from Stockholm, we see that a healthy economy is one in which the unemployment rate and the interest rate are both at their natural levels.

In this happy circumstance, the economy's labor markets would be fully adjusted to the labor-leisure tradeoffs that characterize the working-age population and credit markets would be allocating resources in accordance with saving propensities. With both rates at their natural levels, there would be no call, at least on these counts, for any proactive policy adjustments.

Thinking in terms of these complementary natural-rate concepts reveals a fundamental tradeoff in Federal Reserve policymaking, a seemingly obvious tradeoff in the light of the Fed's operating procedure of interest-rate targeting. Given this procedure and consistent with the Taylor Rule in circumstances of low inflation, an unemployment rate above the natural rate (e.g., 9 percent) calls for monetary ease (i.e., for lowering interest rates), whereas an unemployment rate below the natural rate (e.g., 4 percent) calls for monetary restraint (i.e., for raising interest rates.)

But what if market interest rates were initially at their natural levels? In that case, dealing with a labor-market problem by targeting a different Fed funds rate would create a credit market problem. More specifically, bringing the overall rate of unemployment down to its natural level by lowering interest rates would drive a wedge between propensities to save and decisions to invest. Equally significant if not more so, differential interest-rate sensitivities in the investment world would result in a systematic misallocation of credit—and hence in distortions of the patterns of wage rates and the prices of producer goods. Artificially cheap credit unduly favors durable capital (including housing), durable consumer goods, and time-consuming production processes. Attention to this “malinvestment” (reflecting differential interest-rate sensitivities), as distinct from the more conventionally conceived over- or under-investment, is unique to the Austrian theory as set out by Mises ([1912] 1953) and developed by Mises ([1940] 1966; 1978), F. A. Hayek ([1935] 1967, [1939] 1975), and others. The recognition of the effect of differential interest-rate sensitivities on the allocation of capital and its labor complement imply that, contrary to mainstream thinking, a key aspect of the structural component of unemployment is in play during the course of the business cycle.

Malinvestment in the Austrian theory is most straightforwardly associated with the expansion phase of the business cycle, during which unemployment is in the natural or below-natural range. A credit-driven boom entails excessive investment, particularly in the

interest-rate sensitive sectors of the economy. It is this malinvestment and the implied distortion of the temporal pattern of investment relative to saving propensities that eventually necessitates a correction (a bust in the more dramatic episodes) and a subsequent realignment in accordance with the underlying economic realities.

With appropriate modifications, the concept of malinvestment is also relevant in the analysis of credit expansion during the recovery phase of the cycle. In a slack economy, no less so than in an expanding one, the policy tradeoff implied by the two natural rates is still in play, while issues of liquidity and capital adequacy in the financial sector tend to dominate the thinking of the Federal Reserve. The intended effect of a monetary stimulus (i.e., a low-interest-rate policy) is to saturate the economy with liquidity and increase investment generally, and with it the level of employment. Recession-level interest rates are already low, owing to a weak demand for investment funds. The effect of lowering them still more would be to perpetuate and even intensify the malinvestment that characterized the boom and, hence, to forestall a genuine recovery. This perverse resource-allocation effect was of particular concern early on to Hayek ([1928] 1975) and other Austrian economists.

The Entrepreneurial Component of the Market Rate of Interest

At root, the natural rate of interest reflects intertemporal preferences on both sides of the market for loanable funds. Intertemporal preferences can vary with the attitudes (time perspectives) of individuals and, for the economy as a whole, with changes in demographics. Intertemporal preferences can also vary with changes in the perceived profitability of investment undertakings. Mises ([1940] 1966: 539–41) dealt with these changes in intertemporal preferences by highlighting “time preference” (on the supply side of the loanable funds market) and the “entrepreneurial component” (on the demand side).

Newly perceived profit opportunities stemming from technological advances allow for a sustainable increase in the rate of economic growth. Prospects for greater profits affect the demand side of the market for investment funds. Interest rates rise accordingly, calling forth additional saving to fund the investments. The higher interest rate, a new natural rate, reflects the change in underlying economic

realities. This demand-side effect in the form of newly perceived profit opportunities would be categorized by modern neoclassical economists as an increase in productivity. But whether linked directly to the technological advance or to the enhanced prospects for profits as perceived by entrepreneurs, the increase in the demand for investment funds requires no proactive response by the central bank. However, the Federal Reserve typically does respond in such circumstances with monetary ease. It increases the supply of loanable funds, keeping interest rates from rising or at least causing them to rise less than they otherwise would have. This monetary ease is not seen by the policymakers as monetary stimulation but rather as monetary accommodation. The Federal Reserve accommodates growth, or, in terms reminiscent of the legislation that created the central bank, it accommodates the “needs of trade.”

But at what rate of interest should the increased demand for credit be accommodated? Is it the rate that prevailed before the technological advances and the resulting perception of the new profit opportunities? Is it some other, higher or lower rate? And if so, what rate and how is it determined? The only readily defensible answer to these questions is that due accommodation is provided by the market itself. A higher rate of interest accompanies the increased demand for investment funds. Accordingly, technological advances are limited by the increment of saving brought forth by the increase in the interest rate. Thus, the new rate of interest, like the old one, is best left to market forces rather than to monetary policy. And both rates, before and after, are natural rates—although the very presence of a central bank make their natural-rate status difficult to verify. Probably the most that can be said is that if the Federal Reserve abstains from responding proactively to a technological advance, then the new interest rate will be as natural as the old rate.

In episodes of technological progress during which the rate of interest is held below the natural rate by accommodative monetary policy, actual market rates of interest may not seem particularly low—and may even be seen as high in comparison to the historical norm. This situation may be the case even assuming no increase in the actual or expected inflation rate. During such episodes, the rise in the natural rate of interest (due to the increase in the entrepreneurial component) is being wholly or partially offset by monetary accommodation. The dynamics of credit expansion are piggybacking

on the dynamics of technology-driven growth. In terms of the equation of exchange ($MV=PQ$), both total output (Q) and the money supply (M) are rising. And absent any significant change in money's velocity of circulation, the net effect on the price level may be nil.

The equation of exchange, of course, was the launching pad from which monetarism of the 1960s and 1970s countered Keynesianism of the 1950s and 1960s. But that equation is blind to the misallocation of credit during the Federal Reserve's accommodation of a technology-driven increase in the economy's growth rate. With interest rates held below the natural rate, credit demands in interest-sensitive sectors of the economy are unnaturally strong. Labor and other resources are misallocated in those directions. The Fed does worry during this phase about the accompanying "asset inflation," though ultimately it opts to leave the pricing of assets to be determined by market forces. But high asset prices follow directly from discounting future profits on the basis of low interest rates. So, shouldn't the Fed's concern that asset prices are too high really be a concern that interest rates, which the Fed does *not* leave for the market to determine, are too low relative to the natural rate?

The inattention to the effect of manipulating interest rates on the allocation of resources traces to the high level of aggregation that dominates the thinking of today's macroeconomists. Hayek's earliest work in monetary theory (Hayek [1928] 1975) is an extended demonstration that the whole process of a credit-driven boom and subsequent bust is concealed within the macroeconomic aggregates that populate the equation of exchange.

In principle an Austrian-style boom and bust can occur without there having been any change at all in the underlying nonmonetary forces. Purely political considerations may motivate the Federal Reserve to expand credit, trading future price-level stability (and long-run growth-rate stability) for current decreases in the unemployment rate. This dynamic, spelled out in terms of an exploitable short-run Phillips curve, characterizes the political business cycle theory associated with the Public Choice school and suggests a non-coincidental alignment of the business cycle with the election cycle. It is this theory that gives credence to the charge that Arthur Burns helped facilitate the reelection of Richard Nixon in 1972 and that Alan Greenspan played a similar role in the reelection of Bill Clinton in 1996.

Recent Boom-Bust Episodes: A Critical Comparison

In many instances of cyclical variation (and arguably in most), a full-bodied history of the economic conditions and policy objectives is essential to our understanding the particular nature of both boom and bust. Apart from the pure Public Choice scenario, increased central-bank credit is a response to some specific change in the underlying credit market conditions. Accordingly, important differences among historical episodes stem from differences in those underlying changes.

The Digital Revolution

The final decade of the 20th century provides us with a case study in credit misallocation during a period of technology-driven growth. In 1993, while still dealing with the fallout of the Savings and Loan crisis, the Federal Reserve kept the Fed funds rate low (around 3 percent). This rate was low both by historical standards and relative to most any plausible estimate of the natural rate. But during the rest of that decade, the ongoing maturation of the Internet and of other aspects of the digital revolution was a significant factor affecting credit markets and the economy's growth rate. Interest rates rose, registering the opposing effects of increased profit opportunities and Federal Reserve accommodation. The Fed funds target rate was kept in the neighborhood of 5 percent until the turn of the century, when worries about inflation led to step-wise increases to 6.5 percent, the target rate remaining at that level through the second half of 2000. Actual inflation had remained in check in this seemingly "new economy," as it was came to be called, while the unemployment rate descended toward the 4 percent mark just before the turn of the century and then dipped below 4 percent a few times during 2000 (this despite the higher Fed funds rate). The Fed funds target rate was dramatically lowered starting in early 2001, when worries about the weakening expansion dominated the Fed's thinking. The characteristics of the expansion and subsequent contraction were consistent with interest and unemployment rates below their natural rates.

The unemployment rate was readily recognized as less than the natural rate of 5–6 percent. Admittedly, the interest rates that prevailed during the mid-to-late 1990s cannot so easily be declared below the natural rate. There is a much less specific notion or convention as to what the natural rate of interest is, let alone how much

it rises or falls in response to changes in underlying real factors. Newly perceived profit opportunities, which undoubtedly raised the natural rate during that period, are inherently difficult to quantify. And the difficulties multiply when we realize that the perceived profit opportunities are due partly to real factors and partly to favorable credit conditions. Still, we can say that to the extent the increased demand for credit was accommodated by the central bank rather than by the market itself, interest rates were low relative to the natural rate and credit was misallocated in the direction of interest-sensitive undertakings.

This Austrian-style misallocation of credit misdirected resources into excessively future-oriented activities generally, but investments related to the digital revolution were the most dramatic aspect of the credit-augmented expansion.¹ The eight-month contraction that began in March of 2001, popularly called the “dot-com bust,” fits neatly into the Austrian story, with credit expansion having piggybacked on the digital revolution. The unemployment rate eventually rose above 6 percent as a significant portion of the formerly perceived profit opportunities vanished in the discoordinated economy.

The Housing Bubble

Recognizing the applicability of the Austrian theory to the dot-com boom and bust sets the stage for a revealing comparison of that episode with the more recent housing-led boom and bust. The similarity follows from the misallocation in both instances of credit and hence of resources. The differences derive from the contrast between the changes in the nonmonetary forces that underlay the two episodes. While there were some technological developments underlying the most recent expansion, the most dramatic development was rooted in the federal government’s policies affecting the market for mortgages.

Promoting home ownership beyond what the market itself would bring about has a long history. Initiated by Hoover’s “Own Your Own Home” campaign in the late 1920s, extra-market support for home ownership was institutionalized by Roosevelt’s National

¹Internet-based upstarts that incurred losses during their market-building phase but nonetheless enjoyed increasing market value of their equity shares were the 1990s’ counterpart of the excessive investment in durable capital that characterized earlier cyclical episodes.

Housing Act of 1934, which created the Federal Savings and Loan Insurance Corporation. The two large government-sponsored enterprises Fannie Mae (created in 1938) and Freddie Mac (1970), with their de facto loan guarantees, became the heavy lifters. During the Carter administration, mortgage lending was deliberately extended in the direction of low-income, high-risk borrowers by the Community Reinvestment Act of 1977, a critical piece of legislation that was strengthened in 1985 and again in 1999.

It was during the George W. Bush administration, however, that the mortgage-lending flood gates were opened wide. Federal guidelines on mortgage-lending practices were dramatically relaxed, allowing teaser loans and no down payments even in lending to those with the shakiest credit histories. Fannie and Freddie, meanwhile, absorbed the riskiness of mortgage loans, meaning that taxpayers eventually would have to absorb the eventual losses in one form or another. But during the early years of the 21st century, when the riskiness of mortgage loans was hidden away in those government-created mortgage institutions, the techniques of modern finance (involving mortgage-based securities and all manner of derivatives) allowed the proliferation of mortgage lending to infect the economy's entire financial sector. And true to the Austrian theory, the misallocated credit and hidden risks led inevitably to a crisis.

Contrasting Episodes

The movements of interest rates (including changes in the Fed funds target rate) during the housing boom were qualitatively different from the movements during the dot-com boom. On the eve of the dot-com boom, the Fed Funds target rate was low in wake of the Savings and Loan crisis and was then raised (from 3 to 5 percent) in a partial accommodation of increased demand for credit. On the eve of the housing boom, the Fed Funds target rate was low in wake of the dot-com crisis and then was lowered still more (from 1.75 to 1 percent) as the Fed followed the market rate down in recognition of the increased supply of credit. This increased supply of loanable funds in U.S. markets, typically attributed to an increase in global saving, was due in some part to an increased eagerness of financial institutions to supply credit to mortgage markets.

In sum, the dominant changes in the underlying real factors in the dot-com episode took the form of an increase in the *demand* for credit, putting *upward* pressure on interest rates; the dominant

changes in the underlying real factors in the housing episode took the form of an increase in the *supply* of credit, putting *downward* pressure on interest rates. In the earlier episode, the Federal Reserve moved to counter the upward pressure of interest rates, causing actual interest rates not to deviate greatly from the historical norm. In the later episode, the Federal Reserve moved to reinforce the downward pressure on interest rates, causing the actual interest rates to be exceedingly low relative to the historical norm. Although the judgment, made retrospectively by economists of virtually all stripes, that the Fed funds target rate was “too low for too long” between mid-2003 and mid-2004, it was almost surely too low for too long relative to the natural rate in both episodes.

The contrast between the dot-com boom and the housing boom reveals differences in the relative severity of the subsequent busts and relative difficulties of the recoveries. In the earlier episode, there was something real and growth-rate enhancing that underlay the monetary dynamics. Technological advancements that sparked and fueled the digital revolution were real and positive developments that could translate into a sustainable increase in the economy’s growth rate. The sustainability, however, was contingent on the increased growth being accommodated solely by increased saving at the new natural rate of interest. That is, abstracting here from the inflow of savings from abroad, the sustainability of the technology-led boom required that the reaction to the rightward shift in the demand curve for investment funds be a northeastward movement along the supply curve of loanable funds, with the consequent market-clearing rate of interest constituting the new natural rate.

Monetary accommodation during the dot-com boom shifted the supply of loanable funds rightward, countering the upward movement of market interest rates. To some extent the monetary injection substituted for genuine saving, but the net effect was to increase the supply of loans (i.e., of genuine saving plus newly created money). The Fed-bolstered increase in the growth rate, experienced generally throughout the economy and dramatically in the technology-enhanced sectors, was the unsustainable component of the growth rate. When boom turned to bust, however, the subsequent economic contraction was cushioned to some extent by the underlying sustainable component of the increased growth rate. And the recovery phase was correspondingly robust.

There was also something real that underlay the monetary dynamics of the housing-led boom (real in the sense of nonmonetary). But, unlike the technological developments that underlay the earlier episode, the government decreed mortgage-lending policies that gave rise to the housing boom were not a net positive for the economy. They were not growth-enhancing. Rather, they were market distorting. With Fannie and Freddie fully in play and with dramatically relaxed standards for credit worthiness in mortgage markets, housing, and related sectors of the economy were favored at the expense of other sectors. Savings flowed in the direction of housing markets to take advantage of the artificially low riskiness. Had the Federal Reserve not added to the supply of loanable funds, borrowing costs in other sectors of the economy would have risen. With Federal Reserve accommodation, however, interest rates generally were lower—and lower still as the housing market took on the character of a bubble—about which the Federal Reserve remained agnostic, at least publicly, almost to the end. As the bubble began to weaken, posing a threat to the financial sector and other overextended sectors, the Fed had to choose between (1) raising rates high enough to prick a bubble that would, in any case, eventually pop on its own and (2) keeping rates low enough to extend the period of intercrisis stability. True to its nature, the Fed chose to take credit for keeping the good times going a little longer rather than take the blame for bringing on the bad times.

When boom turned to bust in 2008 and the contraction began, there was no underlying, growth-enhancing component of the boom to serve as a cushion. At the same time the economy had to recover from a credit-induced misallocation of resources, it also had to recover from the mortgage-market distortions associated with the socialized risk taking and amplified by excessively lax standards for credit worthiness. This circumstance alone suggests that, in comparison with the technology-led boom and bust, the contraction would be more severe and the recovery more difficult.

Predictably, the reaction of the Federal Reserve (beyond the rescuing of failing financial institutions) was to push interest rates still lower, reducing the Fed funds rate virtually to zero in late 2008 and more recently pledging to keep it near zero through the first half of 2013. While this strategy, as reinforced by “quantitative easing,” has led to an enormous buildup of liquidity in the banking system, it has severely retarded the needed correction of the misallocations of

labor and other resources that occurred during the boom. The claim is often made in connection with both monetary policy and fiscal policy that the economy can't recover until the housing market recovers. But the Austrian perspective, with its attention to credit misallocation, suggests that the housing market will be the market that recovers last. Resources need to be moved out of housing and other interest-sensitive investments and absorbed into other parts of the economy, allowing the growth in population eventually to absorb the excessive housing stock. All attempts by policymakers, both monetary and fiscal, to entice construction workers back into their construction jobs (and entice workers generally into interest-sensitive investment activities) can only delay the recovery.

Conclusion

The Austrian theory is unique in recognizing that structural unemployment deriving from differential interest-rate sensitivities is an integral aspect of cyclical unemployment. This is not to deny that a post-bust self-reinforcing downward spiral of earning and spending can dominate in actual cyclical episodes. Hayek recognized this aspect early on as a "secondary contraction," but he saw the distortion of credit markets and consequent misallocation of resources during the boom as the underlying problem. And he recognized that the central bank's attempt to reverse the secondary contraction and hasten recovery by holding interest rates low can blunt the market forces that otherwise would reallocate resources in accordance with a newly emerging natural rate of interest.

Provoked perhaps by the Taylor Rule's track record, discussion has now focused on the Federal Reserve's interest-rate targeting and the prospects for identifying a more suitable target. The equation of exchange, $MV=PQ$, offers a virtual menu of possible targets but with no choices that are directly relevant to the issue of credit misallocation. Further, targeting the money supply (M), the target of choice for monetarists, was effectively taken off the menu by the passage of the Depository Institutions Deregulation and Monetary Control Act of 1980. Post DIDMCA, the various monetary magnitudes all blended at the margins and with no discernable magnitude identifying itself as *the* money supply.

An unsigned opinion piece in an August 2011 issue of *The Economist* suggested that the Fed should target nominal gross

domestic product, the dollar value of the economy's total output (rendered in the equation of exchange as PQ). The Fed "would set or be given a goal for how fast [PQ] should grow." The "generally preferred" inflation-rate target of 2 percent and "long-term potential growth of 2–3 percent" implies a PQ growth rate of 4–5 percent, a rate offered in the opinion piece as a "most likely" target rate. The very language in which this proposed re-targeting is set out is enough to kill all hope for this "Field of Dreams" operating procedure leading to long-run stability. The positive inflation rate (2 percent) has come to be "generally preferred" not because it promotes long-run sustainability but because it keeps the nominal rate high enough to allow for a significant rate reduction when the next downturn occurs. And the rough estimate of the economy's "potential growth rate" does not qualify as its "natural growth rate." In fact, there is no natural growth rate apart from the growth rate that corresponds to the natural rate of interest, which reflects the underlying real factors and hence is subject to change. In the face of changing real factors, striving for 4–5 percent PQ growth by injecting new money through credit markets would virtually guarantee further episodes of boom and bust. And in any case, there is no basis for supposing that a 4–5 percent growth rate of PQ would dutifully divide itself into a 2 percent inflation rate and a 2–3 percent real growth rate.

The more direct alternative proposal, according to which the Fed should simply adopt the natural rate of interest as its target, is, of course, all too facile. It misconceives the very nature of the natural rate. What would market rates of interest be in the absence of centrally controlled money and credit? It is only the market itself that can answer that question. And once the answer is so revealed, it would need no ratification by a central bank.

Finally, it is implausible that the Federal Reserve's policymakers, who could not tell whether we were in a bubble until it burst, could nonetheless determine the optimal policy for avoiding busts and then, once the busts come, for nursing the economy back to health. Given the policymakers' incentives, a central bank acts to extend an ongoing boom and then, when it eventually ends in a bust, to initiate another one. And if the market were allowed to nurse the economy back to macroeconomic health, a central bank even of the most beneficent sort could only hope to do no harm. The hope of achieving long-run sustainable growth can only rest on the prospects for decentralizing the business of banking.

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