

Recessions, Why do they occur?

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Abstract

The effectiveness of the economy and financial institutions depend on the ability of the Federal Reserve to use monetary and credit policies in pursuit of maximum employment, stable prices, and moderate long-term interest rates, as well as supervising and regulating banking institutions to ensure the safety and soundness of the nation's banking and financial system and to protect the credit rights of consumers.

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Introduction

A recession is a fall in real output (income), a general slowdown in economic activity in a country for two consecutive quarters. It is a business cycle contraction, often due to exogenous influences. Recessions are akin to accidents; some unaccounted external factor changes the existing economic equilibrium state, causing an adverse effect on consumers' real income. Therefore, recessions, like accidents, are preventable. In terms of preventing a recession, policy makers must understand the factors that would cause real income to fall. Real income is nominal income divided by the price level.

For example, if the price of one gallon of gasoline was \$2, \$100 would purchase 50 (= \$100/\$2) gallons. However, doubling of the price to \$4 would require \$200 to purchase the same 50 (= \$200/\$4) gallons. Therefore, in the face of rising energy and food prices consumers need more real income to afford the same amount of products that they could have purchased prior to the price rise. Consumers' would have been able to compensate for the loss of purchasing power had the Federal Reserve (Fed) increased the money supply (M1).

M1 is a measure of the United States (US) money stock consisting of currency held by the public, travelers checks, demand deposits and other checkable deposits including NOW (negotiable order of withdrawal) and ATS (automatic transfer service) account balances and share draft account balances at credit unions.

Figure 1, below, from the St. Louis Federal Reserve, depicts the growth of M1 from 1975 through the 2008 recession. The shaded areas indicate US recessions. Note the period of flat growth between 2003 and the fourth quarter of 2008; the data can be downloaded at: <http://research.stlouisfed.org/fred2/series/M1>.

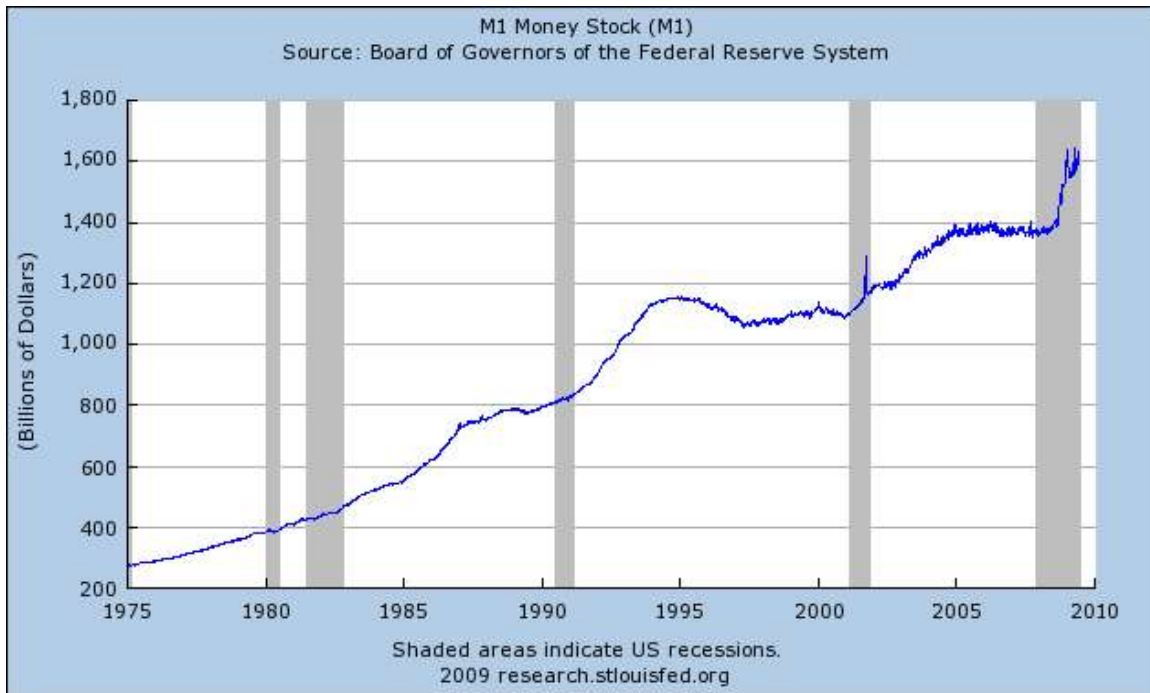


Figure 1 – Growth M1 Money (Stock St. Louis Fed)

Hansen (1947) argued that capitalist economies left by themselves seldom produce sufficient demand. Nonetheless, by understanding the factors that influence aggregate demand, policy makers or automatic stabilizers could intervene to ensure sustainable economic growth. Many conservatives, however, find economic intervention unpopular. However, during a period of rising crude oil prices, it is irresponsible for the Fed to maintain a policy of flat monetary growth, since such a policy leads to a decline in the real M1 money stock and, thus less real income.

Economic Sustainability

In engineering, effective sustainability of assets requires monitoring for degradation and intervention for restoration. One technique used for monitoring mechanical assets is condition-based maintenance (CBM). CBM is a management philosophy that posits repair or replacement decisions on the current or future condition of assets (Raheja, Llinas, Nagi & Romanowski, 2006); it recognizes that change in the condition and/or performance of assets is the main reason for executing intervention (Horner, El-Haram & Munns, 1997). Thus, for mechanical systems, reliable real-time monitoring provides adequate notice of pending failures. For example, typical condition based maintenance is the engine warning lights in automobiles, which allows for planned interventions (repair) based on asset degradation, as opposed to costly emergency interventions after failure.

Similar to mechanical systems, economic systems also degrade overtime due to exogenous events, such as inappropriate fiscal and monetary policies, natural (earthquakes) and man made (wars) events.

CBM requires robust analysis of mechanical asset reliability and associated financial data (Crespo Márquez & Sánchez Herguedas, 2004). It also requires the use of certain analytical tools, such as failure mode, effect, and criticality analysis (FMECA) and reliability centered maintenance (RCM) to determine the likelihood of failure and how failure would occur. Furthermore, it requires an unambiguous understanding of failure modes and rates, asset criticality, and potential payoffs associated with different intervention strategies.

FMECA is a systematic process for identifying all possible ways in which failure of an asset, subsystem, part or element can occur and RCM is an approach for identifying the most applicable and cost effective intervention regime (El-Haram & Horner, 2002). Thus, El-Haram and Horner noted that the RCM process evaluates each potential failure to determine its consequences, if any, as well as each consequence to determine applicable and cost effective intervention tasks.

It is possible to apply these techniques or variants of these techniques to the economic system to eliminate or mitigate business cycles or recessions.

Mathematization of Economics

Unfortunately, more often than not, policy makers do not understand economic theory. Thus, they are unable to disentangle the many abstractions and complexities noted by Teigen (1978). Furthermore, many economists believe that mathematizing economics, making it more complex, gives it greater importance. However, mathematizing economics makes it incomprehensible to policy makers, businesses leaders and the general public.

Early economists, such as Adam Smith and John Stuart Mill, were more verbal; they exhibited greater explanatory powers. Their aim was to describe the inner workings of the economy and reveal the governing laws (Morgan, 2003). Morgan notes that in the twentieth century economics transformed itself into a science in the mold of engineering. However, unlike engineering, economists' inability to access and control its subject matter meant that economic theories often involved human judgments. It is this human judgment that often creates conflicting approaches to solving economic problems and challenges.

The Austrian School was opposed to the use of mathematics in economics as well as the English economist Alfred Marshal, who believed that economics was a "moral" science. Today, in economics, mathematics is used to express theories and develop arguments (Morgan, 2003). Morgan also notes that with the retreat from realism, mathematics took precedent over economic content. Although, Debreu (1991) argues, "In its mathematical form, economic theory is open to an efficient scrutiny for logical errors." However, Solo (1991) believes that the mathematization of economics is a crippling aberration that (1) failed its purpose, (2) excludes many dimensions from the analysis, and (3) perverts the process of

judgment.

Extreme mathematization of economics prevents economists from effectively communicating with the public. Therefore, the public, policy makers, and even some economists do not understand the root causes of recessions or how they can be prevented. However, if economists approached sustainability of the economy as engineers approach sustainability of mechanical systems, it is conceivable to mitigate or even eradicate business cycles.

The Role of the Federal Reserve

The role of the Fed in the nation's economic system is to provide a safer, more flexible, and more stable monetary and financial system. According to its mission, its duties fall into four general areas:

- Conducting the nation's monetary policy by influencing the monetary and credit conditions in the economy in pursuit of maximum employment, stable prices, and moderate long-term interest rates.
- Supervising and regulating banking institutions to ensure the safety and soundness of the nation's banking and financial system and to protect the credit rights of consumers.
- Maintaining the stability of the financial system and containing systemic risk that may arise in financial markets.
- Providing financial services to depository institutions, the U.S. government, and foreign official institutions, including playing a major role in operating the nation's payments system.

Thus, the Fed plays a similar role with sustainability of the economy as engineers with sustainability of mechanical systems. Therefore, it should be able to identify critical economic variables that could cause economic disequilibrium and make proper adjustments before the disequilibrium occurs to prevent recessions. For instance, if the stock of real money balances were decreasing due to higher energy prices, then, a responsible Fed would increase the nominal money supply to maintain equilibrium between the demand for real balances and the stock of real money balances.

Otherwise, if the stock of real money balances is insufficient to meet the demand for real money balances, the supply of financial assets, which includes residential housing, will exceed the demand for financial assets.

In the absence of an increase in the nominal money supply, the real money supply decreases, since the price level has increased due to higher crude oil prices. The decrease in the real money supply initially causes interest rate to increase and the demand for real money balances to decrease; subsequent adjustments, however, causes real income and the demand for goods and services to decrease. It is this decrease in real income and demand that causes recessions.

Conclusion

The Fed is, in essence, the controller of the economy, it is empowered by Congress to regulate the quantity of money and the banking system. It is capable through Federal Open Market Committee (FOMC) to stimulate or restrain the economy by controlling the quantity of deposits in the banking system and therefore the quantity of money in circulation.

Thus, when the economy fails, it means that the Fed failed to perform its duties.

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