

Recessions, Why do they occur?

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Abstract

The effectiveness of the economy and financial institutions depends on the ability of the Federal Reserve (Fed) to use monetary and credit policies in pursuit of maximum employment, stable prices, and moderate long-term interest rates. It also depends on the Fed effectively 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.

Keywords: Recessions, Federal Reserve, Economics, Income, Output, Crude Oil, Prices

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, where some unaccounted external factor changes the existing economic equilibrium state, harming consumers' real income. Therefore, recessions, like accidents, are preventable. In terms of preventing a recession, policymakers must understand the factors that 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 were \$2, \$100 would purchase 50 (= \$100/\$2) gallons. However, doubling the price to \$4 would require \$200 to buy 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 before the price rise. Before the 2008 recession, 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 (U.S.) money stock consisting of currency held by the public, traveler's 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 U.S. recessions. Note the period of flat monetary growth between 2003 and the fourth quarter of 2008; interested parties can download the data at <http://research.stlouisfed.org/fred2/series/M1>.

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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, policymakers 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, the practical 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 state 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 over time due to exogenous events, such as inappropriate fiscal and monetary policies, natural (earthquakes), and human-made (wars) events.

CBM requires a robust analysis of mechanical asset reliability and associated financial data (Crespo Márquez & Sánchez Herguedas, 2004). It also involves the use of specific 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 result 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, policymakers 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 complicated, gives it greater importance. However, mathematizing economics makes it incomprehensible to policymakers, business leaders, and the general public.

Early economists, such as Adam Smith and John Stuart Mill, were more verbal; they exhibited higher explanatory powers. They aimed 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 Marshall, 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) argued, "In its mathematical form, economic theory is open to 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.

The extreme mathematization of economics prevents economists from effectively communicating with the public. Therefore, the public, policymakers, 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 policy. According to its mission, its duties fall into four general areas:

- Conducting the nation's monetary policy by influencing the financial 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 significant role in operating the nation's payments system.

The Fed plays a similar role in the sustainability of the economy as engineers with the 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 imbalance 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 the 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 U.S. economy, it is empowered by Congress to regulate the quantity of money and the banking system. It is capable through the Federal Open Market Committee (FOMC) to stimulate or restrain the economy by controlling the quantity of deposits in the banking system and, therefore, the amount of money in circulation. Thus, when the economy fails, it means that the Fed was unable to perform its duties.

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