

The Austrian Theory of Money, Inflation and the Business Cycle

By Richard M. Ebeling

The Origin of Money

In his *Principles of Economics* (1871) and in a monograph entitled "Money" (1892), Menger, the founder of the Austrian School of Economics, explained the origin of a medium of exchange. Often there are insurmountable difficulties preventing people from trading one good for another. One of the potential trading partners may not want the good the other possesses. Perhaps one of the goods offered in exchange cannot readily be divided into portions reflecting possible terms of trade. Therefore, the transaction cannot be consummated.

As a result, individuals try to find ways to achieve their desired goals through indirect methods. An individual may first trade away the good in his possession for some other commodity for which he has no particular use. But he may believe that it would be more readily accepted by a person who has a good he actually wants to acquire. He uses the commodity for which he has no direct use as a medium of exchange. He trades commodity A for commodity B and then turns around and exchanges commodity B for commodity C. In this sequence of transactions, commodity B has served as a medium of exchange for him.

Menger went on to explain that, over time, transactors discover that certain commodities have qualities or marketable attributes that make them especially serviceable as media of exchange. Some commodities are in greater general demand among a wide circle of potential transactors. Some commodities are more readily transportable and more easily divisible into convenient amounts to reflect agreed-upon terms of exchange. Some are relatively more durable and scarce and difficult to reproduce. The commodities that possess the right combinations of these attributes and characteristics tend to become, over a long period of time, the most widely used and readily accepted media of exchange in an expanding arena of trade and commerce.

Therefore, those commodities historically became the money-goods of the market because the very definition of a money is that commodity that is most widely used and generally accepted as a medium of exchange in a market.

Money begins as one of the ordinary commodities of the market. But because of its particular marketable qualities, it slowly comes to be demanded for its usefulness as a medium of exchange, as well. And, indeed, over time, its use as a medium of exchange may supersede its other uses as an ordinary commodity. Historically, gold and silver came to serve as the most widely accepted media of exchange — the money-goods of the market.

For Menger and later members of the Austrian school, this was a strong demonstration, both theoretically and historically, that money is not a creation or a creature of the state. In its origin, money naturally emerges out of the processes of the market, as individuals search for better and easier ways to satisfy their wants through trade and exchange.

A second question that the Austrians asked was: Once a money is in use, how does one define its purchasing power or value in the market? First Menger and then Ludwig von Mises, in his book *The Theory of Money and Credit* (1912; 2nd ed., 1924), devoted careful attention to this question.

In a state of barter, when every commodity directly trades for all the others, each good on the market has as many prices as goods against which it exchanges. But in a money-using economy, goods no longer trade directly one for the other. Instead, each good is first sold for money, and then with the money earned from selling commodities, individuals turn around and purchase other goods they wish to buy. Each good comes to have only one price on the market — its money price.

But money remains the one exception to this. Money is the one commodity that continues to trade directly for all the other goods offered on the market. As a result, money has no single price. Rather, money has as many prices as goods with which it trades on the market. The purchasing power of money, therefore, is the array or set of exchange ratios between money and each of the other goods against which it trades. And the actual value of money at any moment in time is that set of specific exchange ratios that have emerged on the market through the trading of money for each of those other goods in the economy.

By definition, the purchasing power or value of money is always subject to change. Anything that changes people's willingness and ability to sell goods for money or to sell money for goods will modify the exchange ratios between money and goods. If people have a change in their preferences such that they now want to consume more chicken and less hamburger, the demand for chicken on the market would rise and the demand for hamburger would fall. This would change the relative price between chicken and hamburger, as the price of chicken tended to go up relative to the price of hamburger. But at the same time, it would also change the purchasing power or value of money, since now the money price of chicken would have increased and the money price of hamburger would have decreased. The array or set of exchange ratios between money and other goods on the market would, therefore, also now be different from what they were before.

Suppose, instead, that people had a change in their preferences and wanted to demand fewer goods and wanted to hold a larger amount of the money they earned from selling goods as an available cash balance for some future exchange purposes. The demand for goods would decrease and the demand for holding money as a cash balance would increase. The money prices of goods would tend to decline, raising the purchasing power or value of each unit of money, since at lower money prices, each unit of money would command a greater buying power over goods offered on the market.

Unless people decreased their demand for goods proportionally, at the same time that the value of money was rising, the relative prices among goods would change, as well. Why? Because if the demand for, say, chicken decreased more than the demand for hamburger, then even at the overall lower scale of money prices, the money price of chicken will have tended to decrease more than the money price of hamburger. The structure of relative prices would have changed as part of the same process that had changed the scale or level of money prices in general.

But the purchasing power or value of is composed of a set of exchange ratios between money and other goods, reflecting the existing and changing valuations of the participants in the market about the desirability and their demand for various commodities relative to the attractiveness of spending money or holding it as a cash balance of a certain amount.

In *The Theory of Money and Credit* and his later monograph, "Monetary Stabilization and Cyclical Policy" (1928), Ludwig von Mises also challenged measuring changes in the purchasing power of money through the use of index numbers. A consumer price index, for example, is constructed by selecting a group of commodities chosen as "representative" of the normal and usual types of goods bought by an average family within a particular community. The items in this representative basket of consumer purchases are then "weighted" in terms of the relative amounts of each good in the basket that this representative family is assumed to purchase during any normal period. The prices for these goods times the relative quantities bought of each one is then defined as the cost of purchasing this representative basket of consumer items

The prices of these goods, multiplied by the fixed relative amounts assumed to be bought, are tracked over time to determine whether the cost of living for this representative consumer-family has increased or decreased. Whether or not the sum of money originally required to buy the basket at the beginning of the series is able to buy a larger, smaller, or the same basket at a later period is then taken to be a measure of the extent to which the purchasing power or value of money has increased, decreased, or stayed the same.

Mises argued that the construction of index numbers, rather than being a supposedly precise method for measuring changes in the purchasing power of money, was in fact a statistical fiction built on arbitrary assumptions. The first of these arbitrary assumptions concerned the selection of goods to include in the basket and the relative weights to assign to them. Preferences for goods vary considerably among individuals, including among individuals in similar income and social groups or geographic locations. Which group of goods to include, therefore, can claim no scientific precision, nor can the judgment concerning the relative quantities labeled as "representative" in the basket.

The second arbitrary assumption also concerns the "weights" assigned to the goods in the basket. It is assumed that over the periods compared, the same relative amounts purchased in the beginning period are purchased in future periods. But in the real world of actual market transactions, the relative amounts of various goods purchased are always changing. People's preferences and desires for goods are constantly open to change. Even

when people's basic preferences for goods have not changed, in the real world the relative prices of various goods are changing. People tend to buy less of goods that are rising in price and more of goods decreasing in price or more of those not rising in price as much as others.

The third arbitrary assumption is that new goods are not being offered on the market and that older goods are being taken off the market. But both occurrences are common and modify the types and quantities of goods in a consumer's basket.

The fourth arbitrary assumption concerns changes in the qualities of the goods offered for sale on the market. A good that improves in quality but continues to be sold at the same price is now a cheaper good, i.e., the consumer now gets more for his money. But the index records no increase in the value of the consumer's dollar. A good may rise in price and, at the same time, be improved in its quality. But there is no exact way to determine how much of the higher price may be due to the product's being better and how much may just be due to other changes in its supply and demand conditions that have occurred at the same time.

Ludwig von Mises's conclusion, therefore, was that there is no scientific way of knowing with any precision whether and by how much the purchasing power or value of money may have changed over a given period of time. Thus, the statistical method considered by Irving Fisher to be the key for guiding monetary policy for purposes of stabilizing the price level was fundamentally and irreparably flawed.

The Inflation and the Non-Neutrality of Money

In the late 1850s, the British economist John E. Cairnes published a series of articles analyzing the sequence of events that followed the gold discoveries in Australia. He explained that the increase in gold had its first impact on prices in the coastal towns and cities of Australia, where the miners first spent their new supplies of gold as money. The increased money demand for goods and services stimulated additional imports into Australia. The Australian merchants paid for these increased stocks of goods with the new gold paid to them by the miners. As the gold entered and then was spent in the European markets, prices for goods and services began to rise there, as well. Manufacturers in Europe, in turn, increased their demand for resources and raw materials from Asia and Africa, paying for them with portions of the new gold that had passed into their hands. Prices then began to rise in those other parts of the world.

The increase in gold supplies had brought about a general rise in prices in various parts of the world. But the rise in prices had followed the particular pattern of where the additional gold supplies had first been introduced into the market; then it followed the sequence of expenditures and receipts that reflected the increases in the demand for commodities and resources in the actual order of who received the new gold-money first,

second, third and so on, and for what market purposes the gold was spent by those groups of people through time.

Changes in the quantity of money have long been understood as a primary long-run influence on the rise or decline of prices in general. But the particular method of analysis used by different economists has not only affected the explanation of money's effects on an economy, it has influenced various policy conclusions drawn from this analysis as well.

In *The Purchasing Power of Money* (1911) and many of his other works, the Yale University economist, Irving Fisher, presented a rather "aggregated" analysis. Fisher argued that an increase in the supply of money tended to bring about a rise in selling prices in general, relative to the costs of production. The temporary increase in profit margins between selling prices and costs (due to input prices' being fixed for a period of time by contract) acted as the stimulus for attempts to increase output. But when contracts came up for renewal and were revised upwards, profit margins would return to "normal" and the "boom" phase of the business cycle would end. It would be followed by a period of correction, in the wake of businessmen's discovering that their over-expansive plans were unsustainable; this was the downturn or depression phase of the business cycle.

Fisher concluded that the cause and sequence of the business cycle were the result of unanticipated increases in the money supply that made selling prices rise relative to cost prices. His policy prescription was to keep the price level stable. If that were done, he argued, price-cost relationships would be kept in proper order, at least to the extent they were influenced by monetary forces. And that, in turn, would mitigate, if not eliminate, the primary cause behind the business cycle.

An alternative method of analysis for explaining money's influence on prices and production was in the tradition represented by John E. Cairnes. In this alternative approach, the analysis is "disaggregated" into a study of money's impact on the economy through tracing the particular path by which changes in the money supply are introduced into the economy and the sequence of events through time by which the change in the money supply passes from one individual to another and from one sector of the economy to another.

This alternative tradition of monetary analysis is the one followed by the Austrian economists, the leading expositor of whom was Ludwig von Mises. He developed this approach in *The Theory of Money and Credit* in "Monetary Stabilization and Cyclical Policy" and in his comprehensive treatise on economics, *Human Action* (1949).

If increases or decreases in the quantity of money brought about simultaneous and proportional increases and decreases in all prices, changes in the supply of money would be neutral in their effects on the economy. That is, neither the structure of relative prices nor the patterns of relative income shares earned by individuals and groups in the society

would be affected by changes in the quantity of money. Money's effect on the economy would be nominal and not real.

Mises and the Austrians argued that money's impact on the market was always non-neutral in its effects. Economists such as Irving Fisher reasoned that the non-neutrality of money was due only to the fact that changes in the money supply were less than fully anticipated, and as a result, resource and labor contracts did not completely incorporate the actual average rate of price changes into resource prices and wage negotiations. Hence, cost prices would temporarily lag behind selling prices, creating temporary profit differentials.

The Austrians, on the other hand, insisted that money would be non-neutral in its effects even if resource prices and wages were as flexible as selling prices and even if market participants were to fully anticipate the average rate of change in the general price level as measured by a price index.

The reason for that was the Austrians' method of analysis. Mises pointed out that any change in market conditions must ultimately have its beginning in the circumstances of one or more individuals. Nothing happens in the market that does not start with the decisions and choices of acting individuals.

If there is an increase in the supply of money, it must necessarily take the form of an increase in the cash holdings of particular people, who are the starting point of the resulting social consequences of a change in the quantity of money. Finding themselves with a greater amount of cash than they normally find it advantageous to hold, they will proceed to spend that "surplus" cash on the specific goods and services they find it attractive and profitable to buy.

The demand for goods and services in the market now begins to rise because of the increase in the money supply. But it is not all demands that initially increase, but only the particular demands for the particular goods that the individuals with the additional cash balances wish to purchase in greater quantities. Prices start to rise, but in this "first round" of the process, it is only the prices of the particular goods for which there has been an increased demand.

As the money is spent on those particular goods, the resulting sales become additional money receipts for the sellers of those goods. Those sellers now find their cash positions improved, enabling them to increase their demands for various goods and services offered on the market. There is now a "second round" increase in prices, but again the prices affected in this second round are those of the goods for which this second group of recipients of the new money wish to increase their demand.

The money spent in the second round becomes additional money receipts for another group of sellers. These sellers, likewise, find their cash position improved, enabling them, in turn, to increase their demands for various goods and services on the market. That now

results in a "third round" increase in prices, but once again for the particular goods for which they have increased their demand.

The process will continue until the demand for all goods and services in the economy, in principle, will have been affected, with all prices to one extent or another having been changed by the monetary expansion. Prices in general will now be higher, but they will each have been impacted by the monetary increase in a particular sequence, to a different degree, and at different times in the process.

The fact that the monetary change works its way through the economy in a particular temporal sequence means that relative price relationships in the market will have been modified. The sequential price-increase differentials modify the relative profitabilities of producing various goods, which in turn influence the demand for and the allocation of resources and labor among the various sectors of the economy. As long as the inflationary process is working its way through the market, the patterns of demand for goods and services and the distribution of the factors of production are different from what they were before the inflationary process began and are different from what they will be when the inflationary process has reached its end.

At the same time, the very fact that the prices for those goods and resources (including labor) are changing in a non-neutral manner means that income and wealth are redistributed among individuals and groups as an integral part of the monetary process. Those who receive the increases in the money supply earlier in the inflationary process are able to purchase more goods and services before the full price effect on the economy has materialized. On the other hand, those whose demands and incomes are only impacted by the monetary expansion much later in the sequential process find themselves having to pay higher prices for many of the goods they buy, while their own prices and wages have either not increased at all or not to an extent equal to the general rise in prices. That inevitably creates groups of net gainers and net losers during the sequential-temporal process following changes in the money supply.

Any anticipation by the participants in the market of the increase in the average level of prices remains just that — a statistically calculated average of the individual price changes. Both during an inflationary (or deflationary) process and at its end, some prices will have increased (or decreased) more than the average and some less than the average. For money to be neutral during an inflationary (or deflationary) process, it would be necessary for each participant in the market to correctly anticipate when and to what extent the demand and the price for his particular resource (including labor services) would be affected by the monetary expansion (or contraction) in the particular temporal sequence of that historically distinct time frame. This clearly involves a greater degree of knowledge than can ever be possessed by agents in the market.

Nor is the non-neutrality of money dependent upon the fact that the prices for many types of resources and labor services are fixed by contract for various periods of time. Even if they were not, in the temporal-sequential stages of an inflationary (or deflationary) process, the prices for different goods are affected at different times, necessarily

modifying the relative profitabilities of producing those different goods. It is those price-differential effects that influence producers to change their production decisions during an inflation (or deflation) and not merely the fact that some prices and wages are fixed by contract.

Likewise, it is not the unanticipated changes in the money supply per se that cause money to be non-neutral, and, therefore, to have real output and employment effects on the economy. Rather it is the fact that monetary changes work their way through the economy in a manner that necessarily cannot be fully anticipated and that actually modifies the relative prices of goods and the relative incomes positions among individuals and groups as an inherent part of any inflationary or deflationary process.

The Austrian Theory of Capital and Interest

Time is an element inseparable from the human condition. Everything we do involves time. Just reading this article requires the use of a period of time. And the period taken up with reading it is not available to do other things that instead could be done with this slice of life.

The importance of time in the processes of production and in the evaluation of choices has been especially emphasized by many of the members of the Austrian school of economic thought, beginning with Carl Menger, the founder of the school.

But among the early members of the Austrian school, it was Eugen von Böhm-Bawerk who developed the first detailed analysis of the role of time in the processes of production and the process of human choice. The first two volumes of his master work on this theme, *Capital and Interest*, were published in the 1880s. The third volume, mostly replies to his critics, appeared in its final edition in 1914, shortly before his death.

The other major contributor to the Austrian theory of time in the early years of the 20th century was the American economist Frank A. Fetter. His analysis of the process of "time-valuation" was presented in two treatises: *The Principles of Economics* (1904) and *Economic Principles* (1915).

During the 1930s and 1940s, additional contributions were made by the following Austrian economists: Friedrich A. Hayek in *Prices and Production* (1931) and *The Pure Theory of Capital* (1941); Richard von Strigl in *Capital and Production* (1934); and Ludwig von Mises in *Nationalökonomie* (1940) and *Human Action* (1949).

Every one of our actions requires us to think about time and to act through time. Whether it is boiling an egg or constructing a spaceship to the stars, we are confronted with the necessity of waiting for the desired result to be forthcoming. We apply various means at our disposal that seem most appropriate to the tasks at hand and we try to bring about the desired ends we have in mind.

But the cause (the application of the means) always precedes the effect (the resulting end or goal); and between the initiating of that cause and its resulting effect, there is always a period of time, whether that time period is merely a few minutes or many years. Each of our plans, therefore, contains within it a period of production.

Rarely, however, can our production plans be completed in one step. Usually the resources at our disposal must go through various transformations in a number of stages of production before the consumer goods that we want are ready for use in their desired, finished form. A tree must be chopped down in the forest. The wood must be transported to and cut in the lumber mill. The cut wood must be taken to the pulp factory and manufactured into paper. The paper must be boxed and shipped to the printing shop. The paper must be cut to size and the print must be applied to the separate pages to produce the *The Freeman* that is in your hands after it has been sent to you through the mail. What is expressed in this simple example has its analog in every line of production for the manufacturing of every conceivable good.

To undertake these processes of production, however, requires a certain amount of savings. Resources and raw materials that might otherwise have been used to satisfy some of our wants in the more immediate present must be freed for more time-consuming production activities. First, some of these resources must be available for transformation into capital goods — tools, machinery, and equipment — with which workers who are not employed in the more direct manufacture of consumer goods can combine their efforts in more time-consuming or "round-about" production processes. Second, resources and consumer goods must be available for use by those employed in the production processes.

The more savings there is, the more numerous the processes of production that can be undertaken in society—and the longer they can be. And as a result, the greater will be the quantities and the qualities of the goods that will be available for our consumption uses in the future. Why? Because other things being equal, the more time-consuming or "round-about" the production process, the more productive (usually) are the resulting methods of production.

However, the longer the periods of production we utilize, the longer we have to wait for the desired goods we wish to use or consume. People, therefore, have to evaluate the sacrifice, in terms of waiting, they are willing to make to get a potentially greater and more desired effect that can only be attained by producing for a time further into the future.

The sacrifices of time people are willing to make often differ among individuals. And these differing evaluations of time open up opportunities for potential gains from trade. Those who are willing to defer consumption and the uses of resources in the present may find individuals who desire access to a larger quantity of resources and goods than their own income and wealth provides them with in the present. And this second group of people may be willing to pay a price in the future for the use of those resources in the more immediate present.

An intertemporal price emerges in the market as transactors evaluate and "haggle" over the value of time and the use of resources. The rate of interest is that inter-temporal price. The rate of interest reflects the time preferences of the market actors concerning the value of resources and commodities in the present in comparison with their value in the future.

As the price of time, the rate of interest brings into balance the willingness to save by some with the desire to borrow by others. But the rate of interest not only coordinates the plans of savers and investors. It also acts as a "brake" or "regulator" on the lengths of the periods of production undertaken with the available savings in the society.

For example, suppose we were to ask, what are the respective present values of a \$100 return on investment either one year, two years, or three years from now, with a market rate of interest of, say, 10%? They would be, respectively, \$90.91, \$82.64, and \$75.13. Now, suppose that people in the society had a change in their time preferences such that they now chose to save more, with the resulting greater supply of savings available for lending purposes decreasing the rate of interest to 7%. What, again, would be the present values of that \$100 return on investment one, two, and three years from now? The present values would be, respectively, \$93.46, \$87.34, and \$81.63.

The present value will have increased for all three of these potential investments, with their different time horizons. But the percentage increases in the present values of these three possible investment horizons would not be the same. On the one-year investment project, its present value will have increased by 2.8%. On the two-year investment project, its present value will have increased by 5.7%. And on the three-year investment, its present value will have increased by 8.6%. Clearly, the tendency from a fall in the rate of interest would be an increase in investments with longer periods of production.

If, instead, time preferences were to move in the opposite direction, with people choosing to save less, with a resulting increase in the rate of interest, longer-term investments would become relatively less attractive. If the rate of interest were to rise from 7% to 10%, the present values on a \$100 return either one, two, and three years from now would decrease, respectively, by 2.7%, 5.4%, and 8%. This would make investments with shorter periods of production appear relatively more attractive.

In an economy experiencing increases in real income, decisions by income-earners to save a larger proportion of their income need not require an absolute decrease in consumption. Suppose income-earners' time preferences were such that they normally saved 25% of their income. Out of an income of, say, \$1,000, they would be saving \$250. If their preference for saving were to rise to, say, 30%, with a given income of \$1,000, their consumption would have to decrease from \$750 to \$700 to increase their savings from \$250 to \$300. However, if income-earners were to have an increase in their real income to, suppose, \$1,100 and their savings preference were to increase to that 30%, then they would now save \$330 out of their higher income. But consumption would also rise to \$770. This is the reason why savings can increase for new capital formation and investments in even longer periods of production without any absolute sacrifice of consumption in a growing economy. Consumption increases with the higher real income,

albeit less than it could have if income-earners had not chosen to save a greater percent of their income.

But if there were a decline in the demand for consumer goods and an increase in savings, what would be the incentive for producers to invest in more capital and productive capacity? This was a criticism leveled against Böhm-Bawerk at the turn of the century by an economist named L.G. Bostedo. He argued that since it is market demand that is the stimulus for manufacturers to produce and bring goods to the market, a decision by income-earners to save more and consume less destroys the very incentive for undertaking new capital projects that greater savings is supposed to facilitate. Bostedo concluded that greater savings, rather than being an engine for increased investment, served to retard investment and capital formation.

In 1901, in an article entitled "The Function of Savings," Böhm-Bawerk replied to this criticism. "There is lacking from one of his premises a single but very important word," Böhm-Bawerk pointed out. "Mr. Bostedo assumes . . . that savings signifies necessarily a curtailment in the demand for consumption goods." But, Böhm-Bawerk continued,

"Here he has omitted the little word 'present.' The man who saves curtails his demand for present goods but by no means his desire for pleasure-affording goods generally. . . . For the principle motive of those who save is precisely to provide for their own futures or for the futures of their heirs. This means nothing else than that they wish to secure and make certain their command over the means to the satisfaction of their future needs, that is over consumption goods in a future time. In other words, those who save curtail their demand for consumption goods in the present merely to increase proportionally their demand for consumption goods in the future."

But even if there is a potential future demand for consumer goods, how shall entrepreneurs know what type of capital investments to undertake and what types of greater quantities of goods to plan to offer on the market in preparation for that higher future consumer demand?

Böhm-Bawerk's reply was to point out that production is always forward-looking — a process of applying productive means today with a plan to have finished consumer goods for sale tomorrow. The very purpose of entrepreneurial competitiveness is to constantly test the market, so as to better anticipate and correct for existing and changing patterns of consumer demand. Competition is the market method through which supplies are brought into balance with consumer demands. And if errors are made, the resulting losses or smaller-than-anticipated profits act as the stimuli for appropriate adjustments in production and reallocations of labor and resources among alternative lines of production.

When left free, Böhm-Bawerk argued, the market successfully assures that demands are tending to equal supply and that the time horizons of investments match the available savings needed to maintain the society's existing and expanding structure of capital in the long run.

The Austrian Theory of the Business Cycle

The Austrian theory of the business cycle was first developed by Ludwig von Mises. He built the theory on the earlier contributions of his Austrian teacher, Eugen von Böhm-Bawerk, and the writings of the Swedish economist Knut Wicksell.

We saw that the Austrian economists, especially beginning with Böhm-Bawerk, had emphasized that all production takes time and that every production process necessarily involves a period of production from the time a production process is undertaken to the time when a finished good is ready for sale and ultimate use by the consumer. The Austrians also explained that for time-consuming processes of production to be undertaken, savings was needed. Savings was needed to free up resources from more direct consumption uses so that they would be available for investment in the formation and maintenance of capital and for supplying goods and resources to sustain those employed in "roundabout" production processes.

Savings arose out of the time preferences of market participants who were willing to forgo present uses and consumption of goods and resources and transfer them to those who wished to utilize those goods and resources in the processes of production. The market interactions of suppliers of and demanders for those resources generated market rates of interest that balanced savings with investment. At the same time, the available savings resulting from the inter-temporal market exchanges set the limits on the periods of production that could successfully be undertaken and maintained, given the fund of savings available to sustain them in the long run.

In 1898, Wicksell published *Interest and Prices*. He adapted Böhm-Bawerk's theory of capital and time-consuming processes of production and took it a step further. Wicksell explained that in actual markets, goods do not trade directly one for the other. Rather, money serves as the intermediary in all transactions, including the transfer of savings to potential borrowers and investors. Individuals save in the form of money income not spent on consumption. They then leave their money savings on deposit with banks, which serve as the financial intermediaries in the market's intertemporal transactions.

Banks pool the money savings of numerous people and lend those savings to credit-worthy borrowers at the rates of interest that come to prevail in the market and that balance the supply of the savings with the investment demand for it. The borrowers then use the money savings to enter the market and demand the use of resources, capital, and labor by offering money prices for their purchase and hire. Thus, the decrease in the money demand and the lower prices for consumer goods due to savings — and the increased demand and the higher money prices for producer goods due to investment borrowing — act as the market's method to shift and reallocate resources and labor from consumption purposes to capital-using production purposes.

But Wicksell pointed out that precisely because money served as the intermediary link in connecting savings decisions with investment decisions, there could result a peculiar and perverse imbalance in the savings-investment process. Suppose that the savings in the society was just sufficient to sustain the undertaking and completion of periods of production of one year in length. Now suppose that the government monetary authority in that society were to increase the amount of money available to the banks for lending purposes. To attract borrowers to take the additional lendable funds out of the market, the banks would lower the rates of interest at which they offered to lend to borrowers.

The lower market rates of interest due to the monetary expansion would raise the present value of investment projects with longer time-horizons until their completion. Now suppose that borrowers were consequently to undertake investment projects that involved a period of production of two years in length. Because of their increased money demands for resources and labor for two-year investment projects, some of the factors of production would be drawn away from one-year investment projects. As a result, at the end of the first year, fewer consumer goods would be available for sale to consumers. With fewer consumer goods on the market at the end of the first year, the prices of consumer goods would rise and consumers would have to cut back their purchases of consumer goods in the face of the higher prices. Consumers, Wicksell said, would be forced to save, i.e., they would have to consume less in the present and wait until the second year had passed and the two-year investment projects had been completed to have any greater supply of goods to buy and consume.

At the same time, the greater supply of money offered for resources and goods on the market would be tending to increase their prices and, as a consequence, the society would experience a general price inflation during this process. If the government monetary authority were to repeat its increase of the money supply time — period after time — period, there would be set in motion what Wicksell called an unending "cumulative process" of rising prices.

In his book *The Theory of Money and Credit*, Ludwig von Mises accepted the general outline of Wicksell's analysis of the effect of a monetary expansion on production and prices. But he took Wicksell's idea further and demonstrated the process by which a monetary expansion of this type eventually created an "economic crisis" and generated the sequence of events known as the "business cycle."

Mises distinguished between two types of credit offered on the market: "commodity credit" and "circulation credit." Mises's student and early follower in applying the Austrian theory of the business cycle, Fritz Machlup, called these two types of credit "transfer credit" and "created credit." And it is this latter terminology that we will use because it more clearly designates the distinction that Mises was trying to make.

If there were no increase in the money supply, then any money savings out of income would represent a real transfer of market control over resources and labor from income-earners to potential investors. Savers will have lent a quantity of real resources represented by the monetary value of those real resources in investment activities instead

of using them more directly and immediately in the manufacture of consumer goods. This "transfer credit" of real resources for investment purposes would be returned to savers when the money loans were paid off with the agreed-upon interest. The returned sum of money would then have the capacity to purchase a greater quantity of real goods and services for consumption purposes. And the investment projects undertaken with the transfer credit would have time horizons consistent with the available savings and the period over which the loans were made.

However, the government monetary authority has the capacity to disrupt this fairly tight fit between savings and investment that is kept in balance by the market-determined rates of interest. Through its ability to expand the money supply, the monetary authority has the power to create credit for lending purposes. The "created credit" is indistinguishable from transfer credit for purposes of market transactions. It represents additional units of the medium of exchange that are interchangeable with all other units of money offered on the market in trade for various goods and services. And thus those units are just as readily accepted in market transactions as the units of the money supply in existence before the monetary expansion.

Yet, Mises argued, there is this important difference: there is no compensating decrease in consumer demand for goods, services, and resources that normally follows from a decision to save more than previously, to counterbalance the increased demand for the use of resources and labor by investment borrowers who have taken the created credit offered to them on the loan market.

At this point, Mises applied his theory of the non-neutrality of money to explain the sequence of events that were likely to logically now follow. With the newly created credit, the investment borrowers would bid resources and labor away from the production of consumer goods and investment projects with shorter time-horizons to begin the undertaking of investment projects with lengthier periods of production. To attract resources and labor into the more time-consuming investment activities, investment borrowers would have to bid up the prices of the required factors of production so as to draw them away from their alternative uses in the economy. The newly created credit now passes to those factors of production as higher money incomes. They become the "second-round" recipients of the newly created money. Unless those factors of production were to undergo a change in their time preferences, and therefore in their willingness to save, their real demand for consumer goods would be the same as it was before the increase in the money supply. They would, therefore, increase their money demand for finished goods and services in the same proportion out of income as before.

As a result, the prices for consumer goods would start to rise as well. But because of the reallocation of resources away from consumer goods production, the quantities of such goods available on the market are smaller than before, which intensifies the rise in the prices of consumer goods. As the factors of production expend their higher money incomes on desired consumer goods, the sellers and producers of those goods become the "third round" recipients of the newly created money. Producers of consumer goods now increase their demand for the same scarce factors of production to draw them back into

the consumer goods sectors of the economy and into investment projects with shorter time-horizons to more quickly try to satisfy the greater money demand for consumer goods. The factors of production drawn back into activities closer to the final consumer stage of production become the "fourth-round" recipients of the newly created money.

Those who initially had taken the created credit off the loan market now find it increasingly difficult to continue with and complete some of their longer-term investment products in the face of the rising costs of continuing to employ the required quantities of factors of production that are moving back to the consumer goods sectors of the economy. A "crisis" begins to emerge as growing numbers of these longer-term investment projects cannot be financially continued. The demand for more additional lendable funds from banks to continue projects that were begun, pushes market rates of interest up, creating an even greater crisis in the investment sectors of the economy. The expansionary or "boom" phase of the business cycle now turns into the contractionary or "depression" phase of the cycle, as a growing number of the lengthier investment projects collapse, are left incomplete, and result in a malinvestment of capital in economically unsustainable lengthier processes of production.

The only way some of those investment activities could be temporarily saved would be for the government monetary authority once again to increase the money supply in the form of more created credit. But that would merely set the same process in motion again with the same inevitable result further down the road. And if the monetary authority were to try to prevent this inevitable result through greater and greater increases in the money supply, the end result would be a higher and higher rate of price inflation that would threaten the destruction and collapse of the society's monetary system.

Mises's conclusion from his analysis was that the causes of the business cycle in modern society are not to be found in some fundamental flaw in the market economy. Rather its basic cause is to be found in government manipulation and mismanagement of money and credit.