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Business Conditions

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Soviet agriculture

The Soviet Union has an agricultural land base substantially in excess of that in the United States. Moreover, for years, the Soviets have channeled about one-fourth of their total capital investments into the agricultural sector. Despite this land base and large investment growth in agriculture, production has fallen short of domestic requirements, especially in recent years. Adverse weather conditions that sharply lowered the harvests in 1972 and 1975, coupled with a strong commitment to expand livestock production, has shifted the Soviet Union from the ranks of a net grain exporter during most of the sixties to a net importer during the seventies.

The large and widely fluctuating Soviet grain purchases have been a major factor behind the increased instability in U.S. commodity markets. Soviet imports of U.S. grains rose from nothing in the early seventies to 13.7 million metric tons during the 1972/73 marketing year. Two years later such imports had fallen back to 2.3 million metric tons. This year the USSR is expected to purchase around 17 million metric tons and surpass Japan as the leading importer of U.S. grains.

The increased importance of the USSR in world grain markets has generated a renewed interest in the agricultural sector of the Soviet Union. This article briefly describes some of the geographical and structural characteristics of Soviet agriculture and traces some of the past trends in production and trade in the USSR. An assessment of future trends as suggested in the new five-year plan is also discussed.

Structure of USSR agriculture

The USSR's centrally planned economy contrasts markedly with the United States in the structure and control of agriculture. Employment in the highly mechanized agricultural sector of the United States accounts for about 5 percent of the total labor force, compared to 25 percent in the USSR. Control of agriculture in the United States is largely vested in some 2.8 million farm operators—most of which are individual family units—who farm an average of 389 acres each. In contrast, governmental control is inherent throughout Soviet agriculture, including the ownership of land, the determination and procurement of output, and the production and distribution of inputs. Three structural forms—collective farms, state farms, and the so-called "private holdings"—characterize Soviet agriculture. The approximately 500 million acres of cultivated land in the socialized sector are about equally divided between the 32,000 collective farms and the 16,000 state farms. Approximately 15 million acres are farmed under the system of private holdings.

A collective farm is a cooperative organization of individual farm families who communally work the rent-free land that has been granted to the collective. Traditionally, members shared in the highly regulated profits of the collective, but in recent years wages have been increasingly used for compensation. Members have some limited rights in running the affairs of the collective, but real control rests with the Communist Party through its selection of the head of the collective.

A state farm is a government enterprise operated by government employees. The government owns the land and other production inputs, while the Party controls the leadership. The state farm system of control has always been the epitome of Communist ideology. As such, state farms tend to be larger than collective farms, specialized to a greater degree, and typically operate with more advanced technology. Nevertheless, the output of state farms has often been disappointingly small, a situation that many observers attribute to a lack of sufficient economic incentives. Recent years have brought a significant restructuring of the financial inducements offered to state farms, including cost accounting, bonuses for production in excess of

goals, and a move toward uniform commodity prices between state farms and collective farms.

The bulk of the output from private holdings in the USSR comes from families on collective farms, although a broad spectrum of rural and urban residents are granted the right to farm a small plot of land. The size of the plots is strictly controlled and ranges up to a maximum of about 1-1/4 acres—including land under dwellings and outbuildings. Labor intensive crops and livestock—such as fruits, vegetables, milk, and eggs—constitute the bulk of the output from the plots, which can be used either by the person or family who farms the plot or sold through collective farm markets.[1] The high productivity of private plots and the high prices commanded by the output sold in collective markets have long been an embarrassment to the Soviet ideals of state enterprise. According to some accounts, 30 percent of the agricultural output of the USSR comes from private holdings.

The production, marketing, and distribution systems serving the agricultural sector of the USSR also differ markedly from those in the United States. In general, major inputs to Soviet agriculture—including investment capital—are supplied and serviced only through government-controlled agencies. The bulk of the output from the farm sector reaches consumers through state retail food stores, which are supplied by various state procurement agencies that purchase and process the output of collective and state farms. Numerous reports suggest the distribution system encompasses many bottlenecks that often preclude the timely delivery of inputs and the efficient handling of output.

Geography and climate

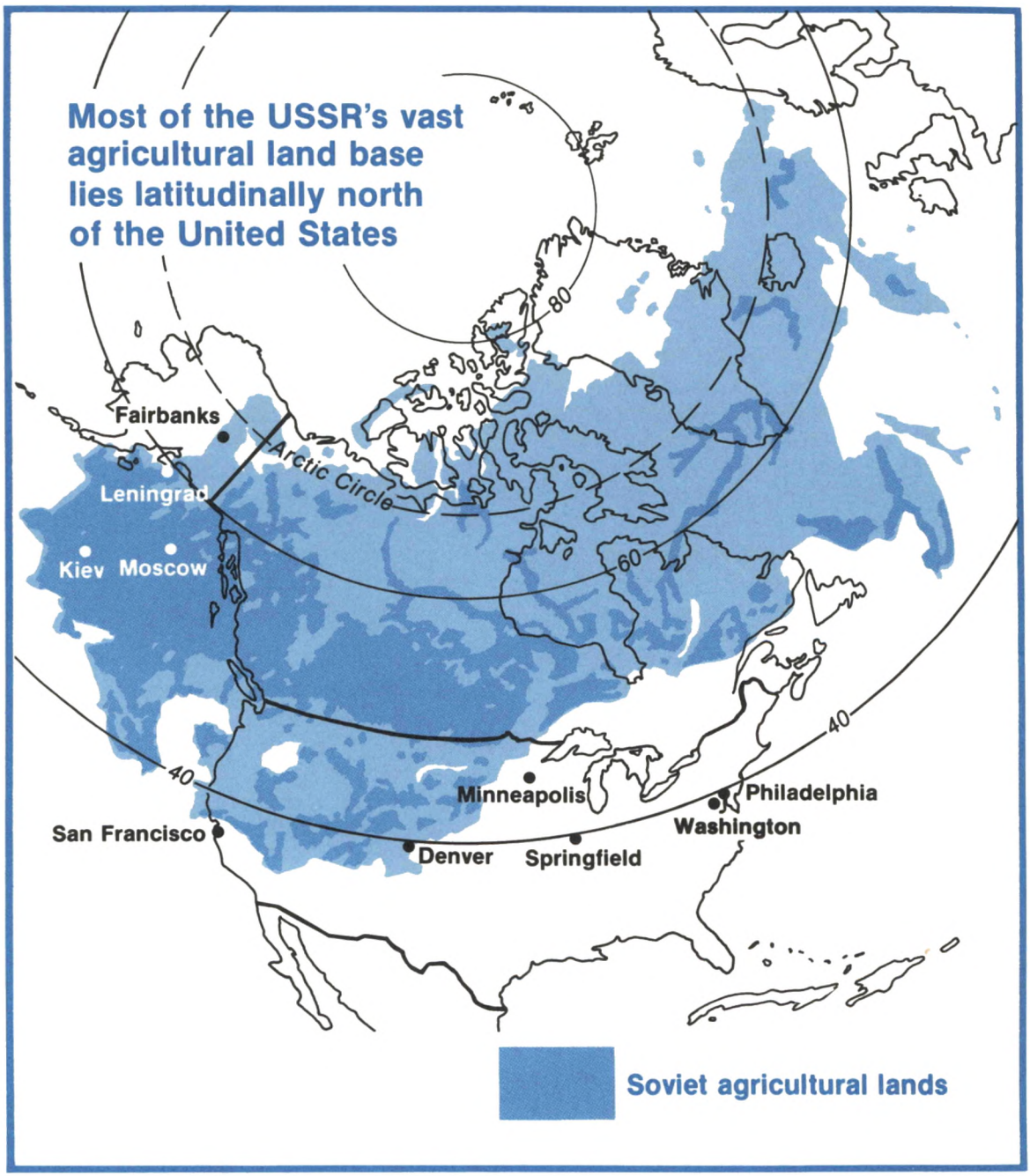
The vast majority of the Soviet Union lies between the 40th and 75th parallels of the Northern Hemisphere. The 75th parallel is well within the Arctic Circle, while the 40th parallel in the United States passes slightly north of Denver, Colorado; Springfield, Illinois; and Philadelphia, Pennsylvania. Much of the USSR land latitudinally comparable to the United States is covered by mountains and desert. Consequently, the southern border of the Soviet land area suitable for agricultural production is geographically equivalent to Minneapolis, Minnesota.

In addition to—and partly because of—geographical differences, climatic conditions adverse to agricultural production encompass a much larger proportion of the Soviet Union than the United States. About one-half of the land area in both the United States and the Soviet Union is considered to have sufficient moisture—as measured by the ratio of annual precipitation to potential evaporation—to grow crops. But, whereas in the United States three-quarters of such land is located in areas warm enough to sustain crop growth, less than one-half of this land in the USSR has an adequate growing season for major crops.

Historically, climatic conditions in the Soviet Union have been far more variable than in the United States. Weather patterns in the USSR tend to fluctuate to greater extremes and last for longer periods of time, reflecting the absence of oceans which moderate weather patterns in the United States. Such conditions can be ominous not only during summer growing seasons, but also during winter months when temperature and snow are important factors effecting winter crops. Winterkill—a general term applied to fall-planted grains that are destroyed as a result of intense cold, icing, thawing and refreezing, and drought—destroyed 12 to 32 percent of the fall planted acreage during the ten years ending in 1973, according to one estimate. While such acreage can be reseeded in the spring, much of the damage results from insufficient snow cover, implying reduced moisture reserves for spring-planted crops. Moreover, the crops reseeded in the spring typically have lower average yields.

Despite geographical and climatological limitations, the Soviet Union has a large agricultural land base. Total land area in the USSR is nearly 2.5 times that of the United

[1] Collective farm markets are consumer outlets for the surplus production of both state and collective farms and private holdings. Prices are relatively free to fluctuate in these markets, which are widely available throughout the USSR.



States. Although large areas are not adaptable for crop production, the total acreage of agricultural land in the Soviet Union exceeds that in the United States by about one-half. Tillable acreage—agricultural land not devoted to permanent meadows and pastures—in the USSR exceeds that in the United States by about one-fourth. Because of the large agricultural land base the Soviet Union is the world's largest producer of several crops—including wheat, rye, oats, barley, potatoes, and sugar beets—and a major food-producing country.

USSR agricultural production

The output of all sectors in the Soviet Union is geared to goals in five-year plans established by the Communist Party. Past five-year plans for the agricultural sector generally have proven overly optimistic as efforts to achieve the goals have been thwarted by weather, distribution inefficiencies, and other problems. These shortcomings have occurred even though capital investments in agriculture—largely for land development, fertilizer production,[2] equipment manufacturing and construction of livestock facilities—account for over one-fourth of the USSR's total investment expenditures. Plans that directed Soviet agriculture for the past decade have emphasized increased livestock output as one contribution toward an overall goal of higher living standards. This objective has simultaneously directed increased feed grain production and reliance on world markets in years of harvest failures.

An average of around 306 million acres of grains was harvested during the past five years, up less than 2 percent from the previous five years, and about 3 percent short of the 1961-65 average. The area devoted to wheat and coarse grains—rye, barley, oats, and corn—averaged 280 million acres.[3] This compares to an acreage of around 160 million in the United States. Total wheat and coarse grain acreage in the USSR has remained fairly stable during the past three five-year plans. However, there has been a marked shift from wheat and rye to barley, oats, and corn. Harvested wheat acreage fell to 152 million acres during 1971-75, nearly one-tenth below the preceding five-year average. Although rye acreage fell sharply, a marked expansion in barley boosted harvested coarse grain acreage to 128 million acres during the past five years, up about one-fifth from the previous five-year average.

Although fluctuating widely from year-to-year, per acre yields in the USSR have generally trended upward. During the last five years wheat yields averaged 21.5 bushels per acre, 8 percent above the 1966-70 average. With the exception of rye, average yields of coarse grains registered little or no improvement, as the 1972 and 1975 shortfalls were particularly evident in barley and oats. Over the past five years Soviet wheat yields averaged nearly one-third below those in the United States, while coarse grain yields in the USSR were nearly two-thirds short of the U.S average.[4]

Fluctuations in yields and harvested acreage are magnified in total grain production figures for the Soviet Union. Indeed, year-to-year changes in Soviet grain production (plus and minus) have averaged nearly 18 percent during the past 15 years. Despite these large fluctuations the trend in grain production has been decidedly upward.

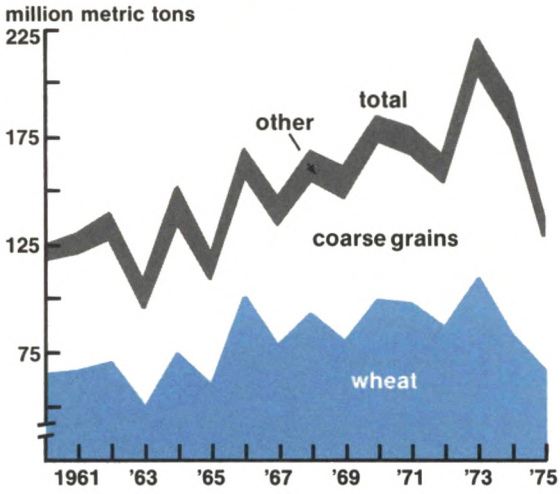
Production of coarse grains in the USSR ranged from 65 to 97 million metric tons and averaged 80 million metric tons during the past five years, up about one-fourth from the preceding five-year average and nearly one-half above the

[2]Rapid expansion in fertilizer production has boosted the USSR close to the United States as the world's largest fertilizer producer.

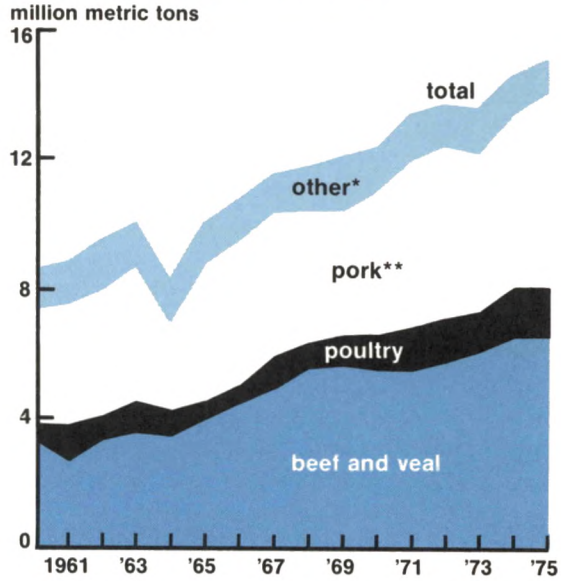
[3]Since the short grain harvest of 1972, however, harvested area of wheat and coarse grains has moved up to 290 million acres.

[4]Many factors contribute to the differences in per acre yields, including the distribution of crops that make up coarse grain production. Corn accounts for over three-fourths of the coarse grain production in the United States, while oats and barley account for about one-tenth. In the USSR the distribution is reversed: corn represents a little over one-tenth of the coarse grain production, while oats and barley account for a little over three-fourths. An acre of corn in the United States will out-yield an acre of barley in the USSR by a margin of 3.5 to 1 and an acre of Soviet corn by nearly 2 to 1.

Irregular uptrend in Soviet grain production interrupted by ten-year low in 1975



Soviet meat production posts large gains during past decade



*Primarily mutton and goat.
**Including pork fat.

1961-65 average. Despite the sharp expansion coarse grain production in the USSR is equal to only about 45 percent of that in the United States.[5] Soviet wheat production ranged from 66 to 110 million metric tons, and averaged 89 million metric tons during the 1971-75 period, down 1 percent from the average of the preceding five years but 38 percent above 1961-65. Although the USSR is by far the world's largest producer of wheat—outranking the United States by about 2 to 1—a large proportion is fed to livestock. Moreover, the Soviets frequently—at least in recent years—have imported large quantities of wheat to supplement that used for human consumption.

USSR efforts to raise living standards, coupled with its willingness to supplement crop shortfalls with large grain imports, has resulted in a marked expansion in livestock production. In 1975 total meat production was 50 percent larger than a decade earlier, and equivalent to about three-fifths of annual meat production in the United States. A two-thirds rise in beef production and a doubling in poultry production paced the rise in Soviet meat production during the past decade. Among other livestock products, egg production doubled, while milk production was up by one-fourth.

The marked expansion in livestock production in the Soviet Union is also reflected in livestock inventories.[6] Cattle numbers in the USSR have expanded at an average rate of 2.6 percent annually during the seventies. At the beginning of this year some 111 million head of cattle were in the USSR, only 13 percent fewer than in the United States. Although hog numbers in the USSR declined by one-fifth last year—reflecting distress slaughter and curtailed breedings due to the short grain harvest—they still exceeded hog inventories in the United

[5] Grain production estimates for the Soviet Union are on a gross weight basis—which includes chaff, screenings, and other foreign material—and, hence, are not strictly comparable to U.S. production estimates. The more liberal estimates in the Soviet Union may overstate actual grain production by about one-tenth.

[6] Livestock numbers can be misleading in terms of potential food production. For example, dressed weights of the cattle and hogs slaughtered in the USSR are well below averages in the United States. Similarly, milk output per cow in the USSR is much lower than in the United States.

States by one-sixth.[7] Sheep inventories in the USSR at the beginning of this year were ten times those in the United States, while Soviet poultry numbers were about equal to those in this country. Private holdings currently account for about one-fifth of the hogs and cattle in the USSR, down from one-fourth at the start of the seventies.

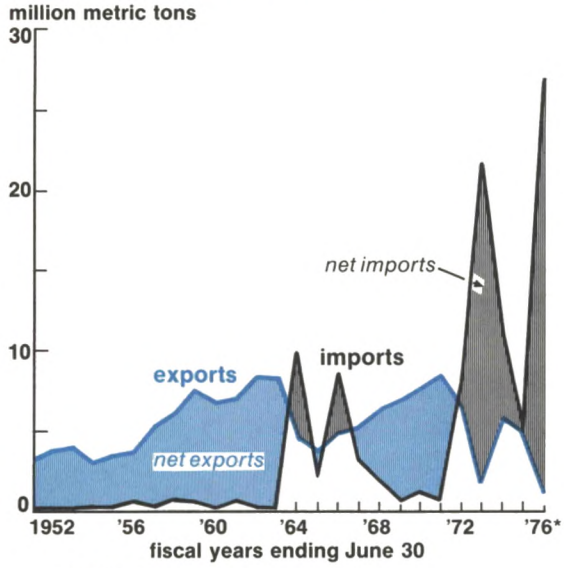
Reliance on world markets

The combination of wide swings in grain production and efforts to increase livestock production have made the USSR a major destabilizing element in world grain markets. The USSR was a net grain exporter in all but two years during the fifties and sixties. During that span net grain exports—mostly to Satellite countries—ranged up to 8 million metric tons. Following the crop shortfall in 1972—which was only a three-year low—the Soviets became net importers of 20 million metric tons of grain during 1972/73. Two years later, however, Soviet imports and exports of grain were about offsetting. But, due to the return of adverse weather last year, net grain imports apparently will rise to 26 million metric tons during 1975/76.

Soviet purchases of U.S. grains have followed similar wide fluctuations in recent years. Current estimates suggest that Soviet imports of U.S. grains will rise to 17 million metric tons during 1975/76, up from 2.3 in the previous year and the earlier high of 13.7 million metric tons in 1972/73. There is little doubt that the recent wide swings in Soviet purchases of U.S. grains have been a major factor behind the increased fluctuations in domestic commodity prices and an important incentive behind the efforts that led to the recent signing of the five-year grain agreement with the USSR.

[7]Since the Soviet Union does not have a vast cattlefeeding sector such as in the United States, hogs and poultry account for the bulk of the grain fed to livestock. As a result, inventories of hogs and poultry often fluctuate widely in response to the size of the grain harvest.

The Soviets became major grain importers in the seventies



*Estimate

What lies ahead

A look ahead must begin with the targets contained in the new five-year plan that will govern Soviet agriculture during the 1976-80 period. In general, this tenth five-year plan contains more modest growth objectives—for both the agricultural sector and the general economy—than those of past plans. For the agricultural sector the new five-year plan appears to call for a more balanced relationship between crop production and livestock output. To achieve this balance, the emphasis on production grains appears to have shifted from livestock to crops. According to one account, the increased emphasis on grain production may imply the USSR is seeking to reduce its reliance on world grain markets, perhaps to the extent that livestock imports will be required.

The targets in the new five-year plan peg grain output in the USSR at an average annual rate of 215 to 220 million metric tons during the 1976-80 period.[8] Such a level is roughly one-fifth above the average of the past five years. Meat production is targeted at an annual average of

[8]Based on past relationships, such a target for total grains would imply a target of 200 to 205 million metric tons for wheat and coarse grains.

15.0 to 15.6 million metric tons in the new plan, or approximately 9 percent above the average of the past five years, but little changed from 15.2 metric tons in 1975. A similar increase is targeted for milk production, while egg production is slated to rise about 16 percent.

Achievement of the grain targets will hinge on a number of factors. Certainly, the rather large increases in deliveries of fertilizers, chemicals, tractors, grain combines, and trucks slated for the agricultural sector will help to achieve the targets. Nevertheless, many observers have argued the grain production goals are overly optimistic, no doubt reflecting upon the poor condition of winter crops this year and the fact that total grain production in the USSR—with the exception of 1973—has never exceeded 196 million metric tons. Alternatively, an extrapolation of trend yields and a more normal distribution of years of good and bad weather would permit the attainment of grain targets without an expansion in harvested area, according to the U.S. Department of Agriculture. Such a scenario, in light of the reduced emphasis on growth in livestock output, led the Department of Agriculture to conclude that the USSR could again approach self-sufficiency in feeds under the new plan.

While the slower growth in livestock production appears to be consistent with targeted grain production, it does not appear to be consistent with planned increases in wages. The new plan targets increases of 16 to 18 percent in wages for the state sector and even larger increases for collective farmers. Increases in wages of this magnitude would normally be expected to elicit a greater response in meat consumption than currently suggested in production targets.

The new five-year plan for agriculture shifts emphasis from livestock to grain production while targeting further large increases for major inputs

		Actual results, 1971-75			Targeted increases in	
			Five-year average			
	Units	Peak year	Amount	Change[1]	1971-75 plan	1976-80 plan
				(percent)	(percent)	(percent)
Production						
Grain	mmt[2]	222.5	181.5	8	16	18-21
Cotton	mmt	8.4	7.7	26	11	10
Sunflower seeds	mmt	7.4	6.0	- 6	9	27
Sugarbeets	mmt	87.0	75.9	- 6	8	25-29
Meat[3]	mmt	15.2	14.1	21	23	7-11
Milk	mmt	91.8	87.5	9	15	7-10
Eggs	billion	57.7	51.5	44	30	13-18
Inputs						
Capital investments	billion rubles	31.0	26.3	60	56	31
Tractor deliveries	thousand	370.0	333.0	14	16	14
Combine deliveries	thousand	99.0	90.0	- 4	16	20
Truck deliveries	thousand	269.0	220.0	53	53	23
Fertilizer deliveries	mmt	75.4	61.3	65	64	59
Additional land	million acres	5.6	4.4	58	44	- 3

[1]Change from 1966-70 average.

[2]Million metric tons.

[3]Includes slaughter fat.

The comparatively small increase targeted for meat and livestock production in part reflects the constraints imposed by the short grain harvest last year. In light of the distress slaughter and reduced breedings during the latter part of 1975, meat production during the current year will likely be down from the record 15.2 million metric tons of 1975. But if historical patterns carry any precedence, the developments following the 1963 grain shortfall indicate that livestock production in the USSR can recover fairly significantly in two to three years.

The new five-year targets raise some important questions regarding future Soviet trade patterns. If the USSR again approaches self-sufficiency in grain production, reduced grain imports can be expected in the years ahead. In addition to the obvious implications from the lower world demand on grain prices, such a development raises concern about the viability of the new five-year U.S./USSR grain agreement. Although opinions vary widely, the major benefit of that agreement was initially felt to rest in the more stable pattern of Soviet grain purchases and the willingness of the USSR to replenish reserves—rather than export—in years of bumper grain production. On the one hand, a move towards self-sufficiency in grain production could lower the USSR's incentive to rebuild reserve stocks, a factor that would lessen the viability of the five-year grain agreement. At the same time, however, the five-year grain agreement may take on increased importance if it insures the United States an even larger share of the Soviet grain market in a period of contracting Soviet grain imports.

An additional concern about Soviet import intentions is raised by the apparent inconsistency between targeted livestock production and increases in wages. In light of the Soviets' desires to maintain stable prices, there are some doubts that they would raise meat prices to ration consumption. Thus, some observers suggest that the Soviet Union may well be contemplating rather significant increases in imports of meat and livestock products. Reflecting the currently reduced livestock inventories, such a development—if it in fact materializes—would most likely be expected to occur in the early part of the 1976-80 period. As yet, however, there are no indications of such imports from the United States.

A long-term outlook for the agricultural sector of the Soviet Union contains far more uncertainties than the near term. But in looking at the distant future, one must be cognizant of the vast land resources in the USSR. Nurtured by the right combination of new technological developments, the land area of the Soviet Union could generate far more imposing levels of production than current technology and practices support. Technological developments to alter weather patterns and/or promote the adaptability of land and crops to existing weather conditions represent major hurdles. Additional hurdles lie in the system of production incentives and the vast problems related to the distribution systems for both inputs and output. It is impossible to inventory or dateline pending technological breakthroughs that might alleviate some of the USSR's problems. Nevertheless, one could argue that the Soviet Union is not likely to be content in relying on the United States or the Western World for vast grain exports and therefore will continue to devote major research efforts to enhance its agricultural production capacity. In the long run such efforts could conceivably return the Soviet Union to a major exporter of agricultural commodities.

Gary L. Benjamin

Monetary aggregates compared

During the 1970s the Federal Open Market Committee (FOMC)[1] has increasingly couched public statements of monetary policy and instructions for its implementation in terms of the monetary aggregates, which represent various measures of the nation's money supply. Previously, monetary aggregate growth objectives were not stressed in the directive although in the late 1960s the FOMC Policy Record made frequent references to money and (bank) credit aggregates, sometimes making money market targets conditional upon the satisfactory behavior of these aggregates.

In early 1974 the FOMC began to include numerical specifications for short-run monetary aggregate growth in its Policy Record. Subsequent to the passage of a Congressional Resolution on March 24, 1975, the Chairman of the FOMC has publicly announced, at three-month intervals, the FOMC's desired growth rate ranges for certain monetary aggregates over the 12-month period following the most recent calendar quarter.

To accompany these steps toward increased emphasis on money the FOMC has focused on not one but a number of monetary aggregates. Annual growth rate objectives have been announced for three different measures of the money stock. Moreover, the FOMC has sought to influence money and credit market conditions so as to achieve those growth rates in monetary aggregates considered consistent with broader economic goals. The purpose of this article is to describe the monetary aggregates for which data are regularly published and to indicate how trends in their growth rates are related and why they differ.

[1]The FOMC is composed of the seven members of the Board of Governors of the Federal Reserve System plus five of the presidents of the Federal Reserve Banks. At its monthly meetings the FOMC sets monetary policy, which is implemented by the issuance of a directive–instructions to the Manager of the System Open Market Account for the period between FOMC meetings. Of the tools available for the implementation of monetary policy, purchases and sales of securities in the market for the System account are the most important. The Manager is the FOMC's agent at the Federal Reserve Bank of New York who supervises open market operations.

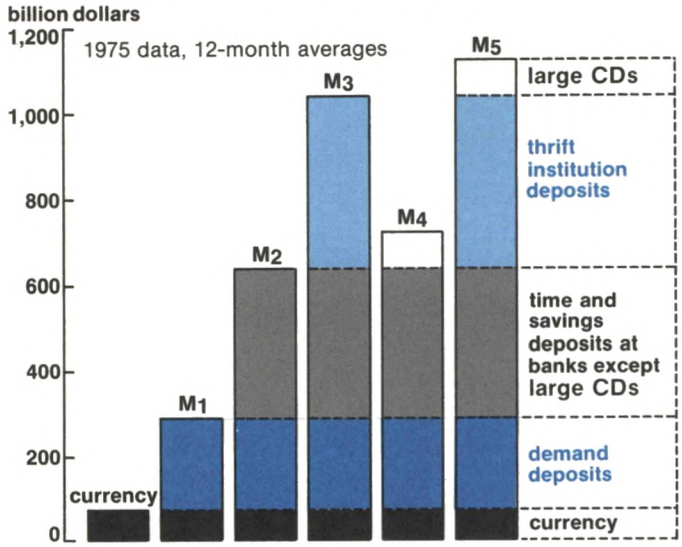
What are the monetary aggregates?

The term "monetary aggregates" is applied to a number of different sets of financial assets which possess all or some of the characteristics generally ascribed to money. Standard economic texts generally characterize "money" as anything that serves as a medium of exchange, standard of value, and store of purchasing power–in other words, whatever can be used for both current and potential transactions. Economists differ, however, as to which or how many of the various financial assets held by individuals and businesses should be included in a definition of money as it relates to economic policy. The Federal Reserve's concern about money reflects its responsibility to maintain money and credit conditions conducive to attaining national income, price, and employment objectives.

The Federal Reserve currently publishes data for five measures of the money stock. These measures, each denoted by a subscripted M (M_1, M_2, M_3, M_4, and M_5), are summations of, or aggregations of, various financial assets held outside the federal government and the banking system–mainly by individuals and businesses. The measure most commonly referred to in the literature and statements of public officials is M_1–often called the "narrow" money supply. M_1 consists of currency outside banks and demand deposits (checking accounts) held by the nonbank public. M_1 is the measure that most clearly satisfies the medium of exchange definitional criterion for money.

Each of the other four published measures adds to M_1 certain interest-bearing deposits which, like M_1, serve as stores of purchasing power. With varying degrees of ease they can be

Various financial assets are summed to derive the monetary aggregates



Source: Federal Reserve Board.

converted to cash for transaction needs. M_2 is derived by adding commercial bank savings and time deposits except CDs—negotiable certificates of deposit of $100,000 or more issued by large banks—to M_1. M_3 consists of M_2 plus deposits of mutual savings banks, savings and loan association shares, and credit union shares. The monetary aggregates M_4 and M_5 are derived by adding CDs to M_2 and M_3, respectively. This list could be extended even further to include financial assets, such as publicly held U.S. Government securities and short-term commercial paper, on grounds that such assets also can be converted into cash and, therefore, influence spending decisions.

The problem of identifying and measuring the most useful concept of money is further compounded since the components which make up the monetary aggregates are likewise aggregations of financial assets which more or less can be used for current and potential transactions. Funds held in bank passbook savings accounts are more readily available than are time deposit funds, which incur loss of interest for early withdrawal. Yet, both bank passbook savings and time deposits other than CDs are included in M_2. Thrift institution deposits are similarly composed of readily available savings deposits and less liquid time deposits. Even the components of M_1 are not completely available for transaction purposes. An unknown amount of currency has been lost or is outside the country; and demand deposits include balances held to compensate banks for services.

Recent regulatory changes—such as permitting commercial banks to transfer funds from savings to demand deposits upon a customer's telephoned instructions—have tended to further blur the distinction between M_1 and the monetary aggregates that include interest-bearing deposits. Innovations on the part of financial institutions—such as negotiable orders of withdrawal (NOW) accounts introduced by mutual savings banks in Massachusetts and New Hampshire—have had similar effects.[2]

If the relationships between the various monetary aggregates were perfectly predictable, then the whole debate over which measure of the money supply is most relevant for policy purposes would have no practical significance. Any monetary aggregate could be used for analysis and the results translated in terms of the other monetary aggregates. The need to consider several money concepts reflects the fact that these measures do not always move the same way nor in any constant relation to one another. Nevertheless, major divergences are associated with identifiable economic factors, such as interest rate differentials.

Monetary aggregates behavior

Growth in the monetary aggregates tends to be quite volatile when measured over time

[2]For a further discussion of regulatory, innovative, and technological changes affecting deposit flows, see "Deposit service—new tool for cash management," *Business Conditions*, April 1976, pp. 11-15.

periods as short as a week or a month. Over longer intervals such as six months or a year, however, accelerating or decelerating growth trends are discernible.

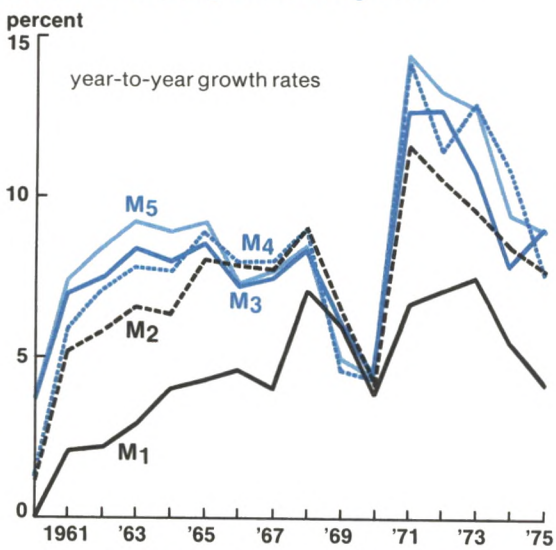
From 1960 through 1975 the five published monetary aggregates often displayed similar year-to-year growth patterns.[3] In nine of the last 15 years growth in all of the five measures accelerated or decelerated together. (In only one case did any of the aggregates decline absolutely on an annual basis. M_1 growth in 1960 was –0.1 percent.) In the other six years the direction of change in the rate of growth in at least one of the monetary aggregates diverged from the others. For example, in 1964 and 1966 M_1 rose faster than in the previous year, whereas growth in the other aggregates slowed.

When differences have occurred in changes in rates of growth among the various monetary aggregates, the M_1 measure has most often tended to deviate from the pace set by the other aggregates. The broader measures–M_2, M_3, M_4, and M_5, all of which include some segments of time and savings deposits held at commercial banks and thrift institutions–tend to be more closely related to one another in their year-to-year growth rate patterns than to M_1. Furthermore, all of the broader monetary aggregates grew faster over the 1960-75 period as a whole than did M_1. The average year-to-year growth rates were 4.5, 7.2, 8.1, 8.1, and 8.7 percent for M_1, M_2, M_3, M_4, and M_5, respectively.

Besides divergences in the direction of change in growth rates, there are also differences among the aggregates in the degree of acceleration or deceleration in growth. In 1968, for example, M_1 growth accelerated considerably more than did growth in the broader aggregates. Such differences, of course, reflect different behavior in the growth rates of the underlying components and the uneven impacts of certain economic factors on these components.

[3]Year-to-year growth rates are based on annual data calculated as the average of the 12 months in the calendar year.

Growth rates of the various Ms have differed widely in some years



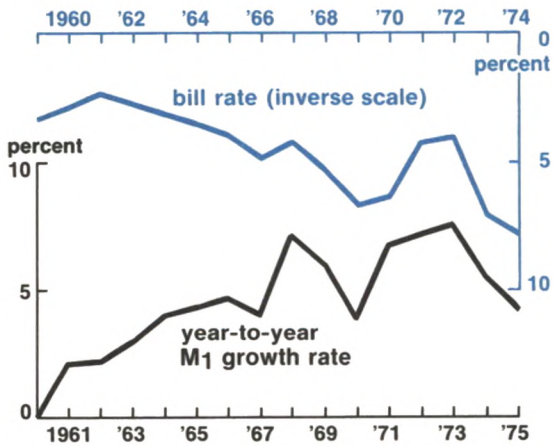
Note: Growth rates are calculated from 12-month average data.
Source: Federal Reserve Board.

Interest rate differentials the key

Commercial banks are currently prohibited from paying explicit interest on demand deposits, although most holders receive some return on these funds in the form of bank services. Currency held by the nonbank public, the second component of M_1, is also a noninterest-bearing asset. While the primary purpose for holding funds in the form of currency or demand deposits is for transaction purposes, there is an implicit, or opportunity, cost to holding financial assets in the form of M_1. In terms of foregone income, holding M_1-type balances becomes more costly as the yields on alternative financial assets increase. The higher the level of interest rates, the greater the incentive to place idle cash balances in interest-bearing assets.

Over the period 1960 to 1975 the year-to-year pace of growth in M_1 tended to respond to movements in interest rates, as proxied by the 3-month Treasury bill rate, with a lag of one year –accelerating in years following interest rate declines and slowing in years following interest rate increases. This observed relationship appears to hold better for the period 1965

Annual M1 growth lags interest rates a year



Note: M1 growth rate is calculated from 12-month average data. Bill rate is 12-month average of market yields on 3-month Treasury bills.
Source: Federal Reserve Board.

through 1975 than for the earlier years when the level of interest rates was relatively low. Moreover, the general rise in interest rates over the last decade and a half helps to explain the slower average growth in M_1 relative to the other monetary aggregates. In a climate of generally rising alternative asset yields, individuals and businesses are more prone to place funds in interest-bearing assets such as time and savings deposits than in zero return M_1-type balances.

Commercial banks, savings and loan associations, and mutual savings banks are currently permitted to pay interest on funds held in time and savings deposits subject to interest rate ceilings set by federal regulatory agencies. Whether rates paid are competitive with alternative financial assets depends on both the level of the ceilings and overall strength of credit demands. Interest rate ceilings on bank and thrift institution deposits have been changed from time to time and are at present suspended on certificates of deposit in amounts of $100,000 or more. Prior to September 26, 1966 rates paid by savings and loan associations and by mutual savings banks were not subject to interest rate ceilings.

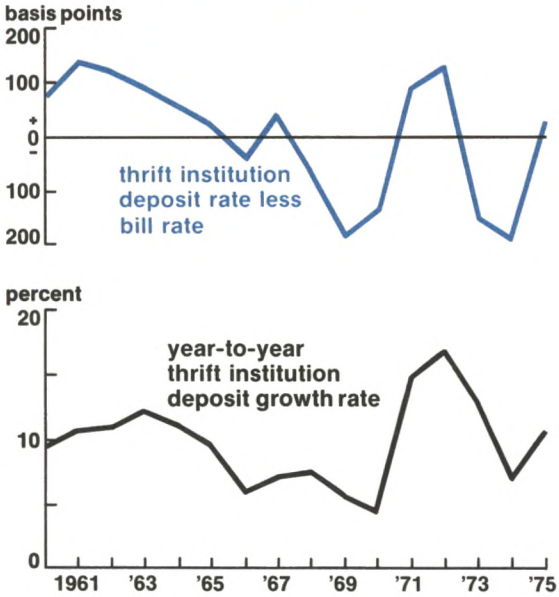
The various time and savings accounts offered by commercial banks and thrift institutions, while somewhat less liquid or usable for transaction needs than M_1-type balances, represent available interest-yielding alternatives. As rates paid on the various time and savings deposits rise, which they generally have since 1960, the proportion of funds held in M_1-type balances versus funds held in interest-bearing time and savings accounts would be expected to decline. In 1960 M_1 represented 46 percent of all financial assets held in the form of currency and total deposits of commercial banks and thrift institutions (M_5-type balances); by 1975 the proportion had declined to 26 percent.

To the extent that rates of return on other investment alternatives, such as market securities, exceed the rates paid by banks or thrift institutions, growth in the various types of time and savings deposits in turn would be expected to slow. To the extent that interest rate ceilings are changed to permit banks and thrift institutions to continue competing effectively for investment funds, and they are able to cover the increased cost of doing so, the differential rate impact may be mitigated. If alternative rates of return significantly exceed the maximum permissible rates banks or thrift institutions can pay, then disintermediation or the significant slowing of savings deposit flows into these institutions is likely to result.

The year-to-year pace of growth in the various time and savings deposit components of the broader monetary aggregates tend to respond quickly to changes in the differential between the rate paid on the particular deposit category and the 3-month Treasury bill rate. Since deposit rates tend to stay at the legal ceilings, the spreads have mainly reflected changes in market rates, except at times when ceilings were raised. In 1961 through 1963 the average annual yield on total time and savings deposits held at banks, savings and loan associations, and mutual savings banks[4] exceed-

[4]The average annual yield on financial institutions' deposits represents the average annual cost to these institutions. Source: United States League of Savings Associations.

Annual thrift institution deposit growth responds quickly to interest rate differentials



Note: Thrift institution deposits include deposits of mutual savings banks and shares of savings and loan associations and credit unions. Growth rate is calculated from 12-month average data. Thrift institution deposit rate is the arithmetic average of mutual savings banks' and savings and loan associations' average effective annual cost of deposits. Bill rate is 12-month average of market yields on 3-month Treasury bills.

Source: Federal Reserve Board, United States League of Savings Associations.

ed the average annual yield on 3-month Treasury bills, thus encouraging substantial growth in these deposits over the three years. On January 1, 1962 and July 17, 1963 interest rate ceilings on time and/or savings deposits at commercial banks were raised to allow banks to remain competitive. In 1964 the average rate paid by banks fell below the bill rate, inducing slower time and savings deposit growth at banks. Late in 1964 commercial bank interest rate ceilings were raised which, despite a continuing negative spread between the bank time and savings deposit rate and the bill rate, encouraged faster growth in bank time and savings deposits in 1965. In 1964 and 1965, as the margin of thrift institution deposit rates over the bill rate narrowed, growth in thrift institution deposits slowed.

A rising bill rate combined with the imposition of interest rate ceilings in 1966 led to a more severe decline in deposit growth at thrift institutions than at commercial banks. Large negative spreads between rates paid by financial institutions and market rates contributed to the slowing in their time and savings deposit growth also in 1969, 1970, 1973, and 1974.

The stepwise suspension of interest rate ceilings on certificates of deposit in amounts of $100,000 or more in 1970 and 1973 fostered quickening growth in these two years in total time and savings deposits at commercial banks, which includes CDs. Conversely, ceilings on CDs in 1969 had forced a steeper deceleration in total bank time and savings deposit growth than occurred in the other types of time and savings deposits at banks and thrift institutions. In 1975, in the absence of ceilings and faced with weak loan demand, CD-issuing banks allowed CDs to decline by lowering their offering rate relative to other money market yields. This had the greatest impact on M_4, the measure most affected by the supply of these deposits.

Summary

A comparison of year-to-year growth rates among the five published money stock measures suggests that differential behavior among the monetary aggregates reflects varying responses of the underlying money stock components to interest rate movements. Growth rate patterns in the broader monetary aggregates tend to be more similar to one another than to M_1 growth, reflecting the long-run trend to reduce non-interest cash balances. In response to generally increasing rates of return on alternative financial assets, M_1 growth has, on average, been slower than growth in the broader monetary aggregates and has tended to lag movements in market interest rates. Growth rates in the various time and savings deposits at banks and thrift institutions, which are included in the broader monetary aggregates, have responded quickly to the differential between the relevant deposit rate and rates on alternative money market instruments.

Anne Marie Laporte