



# *monthly review*

FEBRUARY 1973

The Long-Run Growth of Consumer  
Instalment Credit—  
Some Observations . . . . . page 3

Capital Flows in a Foreign  
Exchange Crisis . . . . . page 14



FEDERAL RESERVE BANK OF KANSAS CITY

*Subscriptions to the MONTHLY REVIEW are available to the public without charge. Additional copies of any issue may be obtained from the Research Department, Federal Reserve Bank of Kansas City, Kansas City, Missouri 64198. Permission is granted to reproduce any material in this publication provided the source is credited.*

# The Long-Run Growth of Consumer Instalment Credit— Some Observations

*By Michael J. Prell*

An enormous expansion of consumer instalment debt has occurred in the years since World War II. At the end of 1946, instalment credit outstanding amounted to only \$4.1 billion, but by the end of 1971 the total outstanding stood at \$111.3 billion, or an average of about \$1,700 per U. S. household. In contrast to this 27-fold growth of instalment credit, "only" 5-fold increases were registered in U. S. gross national product and in total net public and private debt between 1946 and 1971. In fact, the growth of consumer instalment credit has outpaced by generous margins the increases in most other important economic aggregates.

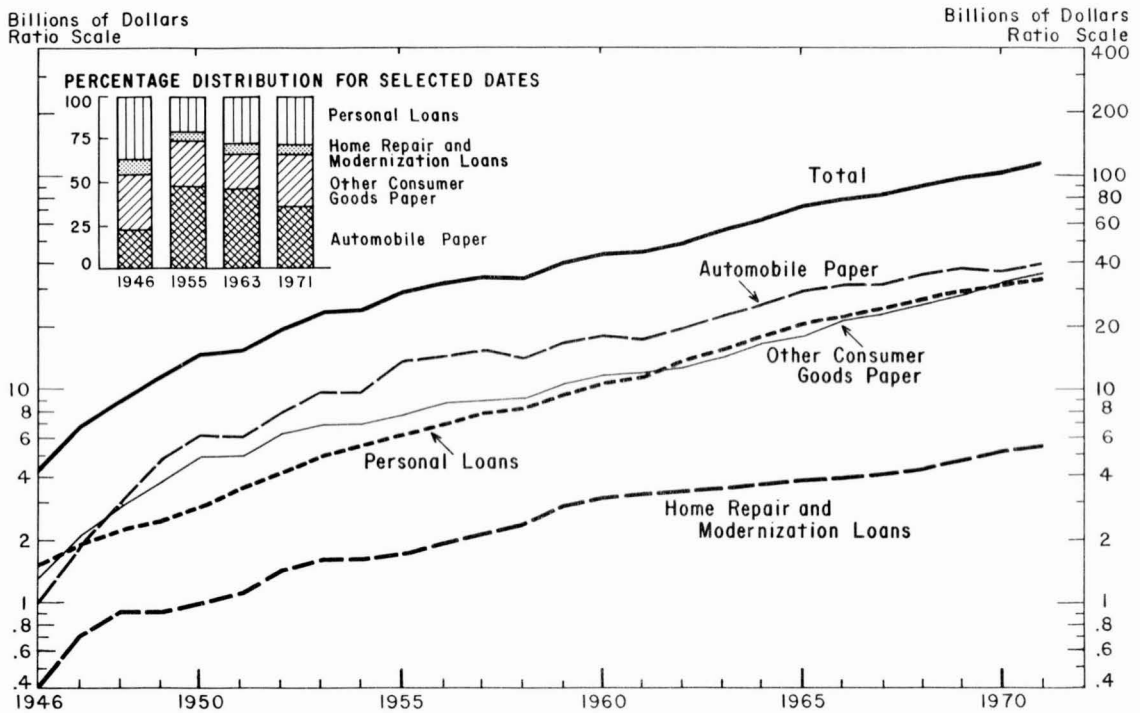
Surprisingly, very little attention and even less serious study have been devoted to the long-run expansion of instalment credit. While many statements of alarm have been heard from observers who associated that expansion of indebtedness with moral decay and impending economic collapse, thoughtful investigations of the determinants of instalment credit growth or the relationship between instalment credit and economic activity have been relatively rare. This article represents an effort to highlight the contours of instalment credit growth in the 1946-71 period and to examine some of the factors that may have influenced that growth.

The discussion begins with a summary of the postwar behavior of consumer instalment credit outstanding (CICO) and its major components. Emphasized are the apparent deceleration of CICO growth over time and, in particular, the marked retardation of CICO expansion in the late 1960's. The search for an explanation of these phenomena comprises the remainder of the article. This search leads first to a brief description and appraisal of two formal models of instalment credit growth developed by earlier researchers. Because the models are found to be inadequate as explanations of CICO behavior in the postwar years, a more eclectic investigation is made of the proximate sources of CICO growth and of some special factors involved during the late 1960's. The concluding section summarizes the findings and comments briefly on the likely growth path of instalment credit in the years ahead.

## THE PATTERN OF GROWTH

In the terminology of Federal Reserve accounting, "consumer credit" encompasses all short- and intermediate-term credit extended through regular business channels to finance the purchase of commodities and services for personal consumption, or to refinance debts incurred for such purposes. "Consumer instal-

**Chart 1**  
**CONSUMER INSTALMENT CREDIT**



SOURCE: Federal Reserve System.

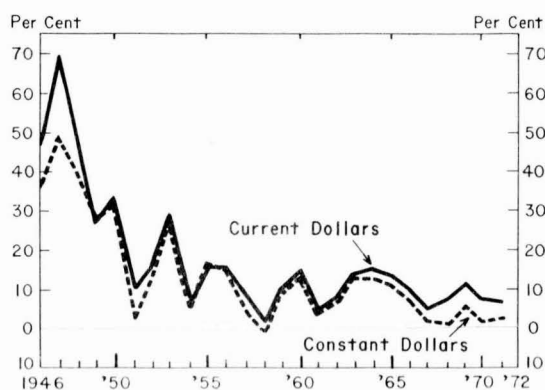
ment credit” represents all consumer credit scheduled to be repaid in two or more payments. Accordingly, instalment credit includes revolving credit, budget, and coupon accounts, which provide for scheduled repayment on a periodic basis, while *noninstalment* credit includes single-payment loans, charge accounts, and service credit, which are scheduled to be repaid in a lump sum. There are four major classes of instalment credit: automobile paper, other consumer goods paper (which includes bank credit card loans), home repair and modernization loans, and personal loans.<sup>1</sup>

Chart 1 indicates the postwar behavior of CICO and its major components. The behavior shown is generally one of rapid growth—both

for the aggregate and its components—but there are some readily discernible subpatterns. First, it is clear that the components have varied in relative importance over the postwar years. Automobile paper comprised a large and increasing share of CICO until the mid-1950’s; thereafter, personal loans and other consumer goods paper rose in relative importance at the expense of auto paper. The decline in relative importance of auto paper was most pronounced in the last 8 years of the period. Second, the growth rate of CICO has tended to fluctuate cyclically. In fact, CICO is included among the lagging indicators utilized by business cycle analysts. Finally, the trend growth rate of CICO has varied during the postwar era, being appreciably greater during the late 1940’s and early 1950’s than it was in the remainder of the period.

<sup>1/</sup> For a more detailed description of the classification scheme, the reader may consult “Consumer Credit,” Section 16 of the *Supplement to Banking and Monetary Statistics*, Board of Governors of the Federal Reserve System, 1965.

**Chart 2**  
PERCENTAGE CHANGES  
IN CONSUMER INSTALMENT CREDIT OUTSTANDING



SOURCE: Federal Reserve System; author's calculations.

Since the trend behavior of CICO is the focus of this article, it is worthwhile examining additional data documenting the deceleration in its growth rate. Chart 2 depicts year-to-year percentage changes in CICO, with current dollar, or nominal, figures traced by the solid curve and constant dollar, or deflated, figures plotted by the dotted curve. The rationale for examining the latter series is that much of the expansion of CICO is attributable to inflation, which has increased nominal incomes and the prices consumers pay for the goods they purchase on credit. The deflated figures, therefore, may be regarded as providing a better measure of the real economic role of instalment credit. The contours of both curves in Chart 2 tell essentially the same story: there were sharp cyclical fluctuations in the CICO growth rate throughout the period,<sup>2</sup> but the growth rate up to the mid-1950's was generally greater than in subsequent years. This deceleration is also evident in Table 1, where percentage changes in CICO over consecutive 5-year and overlapping 10-year spans are tabulated.

<sup>2/</sup> It should be noted that CICO growth was undoubtedly affected in some degree by Federal Reserve regulation of instalment lending in 1948-49 and 1950-52.

## EXPLAINING THE GROWTH OF CONSUMER INSTALMENT CREDIT

In seeking to account for the growth pattern of instalment credit, it is reasonable to begin by examining the income and expenditure of U. S. consumers. Rising income implies both a greater capacity for debt and increased consumption expenditure; also, consumption expenditure may influence (and be influenced by) credit use. The ratios of CICO to personal income and personal consumption expenditure are exhibited in Table 2. It may be seen that these ratios rose rapidly in the first 10 years of the postwar period, increased at a slower pace in the second 10 years, and leveled off thereafter. Stated differently, the growth rate of instalment debt tended over

**Table 1**  
CHANGES IN CONSUMER INSTALMENT  
CREDIT OUTSTANDING  
(In per cent)

	Current Dollar	Constant Dollar
1946-51	360	246
1951-56	106	97
1956-61	41	28
1961-66	71	60
1966-71	44	17
1946-56	848	581
1951-61	191	153
1956-66	142	101
1961-71	146	87

SOURCE: Federal Reserve System. Consumer Price Index used as deflator in constant dollar calculations.

**Table 2**  
RELATIONSHIP OF CONSUMER INSTALMENT  
CREDIT OUTSTANDING TO PERSONAL INCOME  
AND EXPENDITURE

Year	CICO as Percentage of Personal Income		CICO as Percentage of Personal Consumption Expenditure	
	Level	Change	Level	Change
1946	1.78		2.21	
1951	5.72	>	7.08	>
1956	9.04	>	11.29	>
1961	10.20	>	12.68	>
1966	12.42	>	15.63	>
1971	12.14	>	15.73	>

SOURCES: Federal Reserve System; *Survey of Current Business*; author's calculations.

time to fall into line with the growth rates of personal income and expenditure.

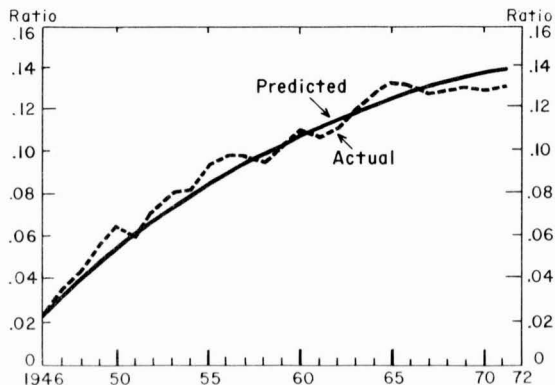
In the mid-1950's, many observers of the rapid rise of the debt-income ratio expressed considerable concern that the trend was incompatible with continued prosperity. They argued that the uptrend of the ratio was unsustainable, that eventually households would be overburdened with debt, and that the economy would then be vulnerable to a sharp contraction. The possible need for renewed regulation of instalment lending was discussed,<sup>3</sup> but the Federal Reserve Board expressed the view that selective controls were not then necessary, and no such measures were invoked. Among the economists who responded to the concern about instalment credit was Alain Enthoven. In a 1957 article,<sup>4</sup> he attempted to show that naive linear extrapolations of the debt-income ratio trend were without merit. His analysis indicated that the ratio could indeed be expected to continue to rise, but this upward movement would occur at a decelerating pace and would be consistent with continued financial and economic stability.

Enthoven visualized a "life cycle" process as a critical element in the explanation of consumer credit growth. Specifically, he held that most instalment borrowing would be done by young households purchasing their complement of durable goods (autos, furniture, appliances, etc.), while older households would do relatively little borrowing. As time passed, the number of households would increase and so would the average income per household. Enthoven assumed that these two trends taken together would result in a steady growth rate,

3/ In particular, in a six-volume study prepared under the direction of the Board of Governors of the Federal Reserve System, *Consumer Instalment Credit* (Washington: U.S. Government Printing Office, 1957). A useful review of this study was written by Warren L. Smith, "Consumer Instalment Credit: A Review Article," *American Economic Review*, Vol. 47 (December 1957), pp. 966-84.

4/ "The Growth of Instalment Credit and the Future of Prosperity," *American Economic Review*, Vol. 47 (December 1957), pp. 913-29.

Chart 3  
DEBT-INCOME RATIO: ENTHOVEN MODEL



$r$ , of total personal income. His second assumption was that the increase in instalment debt during any year will be a fixed proportion,  $k$ , of personal income in that year. From these simple assumptions, Enthoven derived the result that the ratio of CICO to personal income will tend over time to approach a limiting constant given by  $\frac{k(1+r)}{r}$ .<sup>5</sup> For example, if we assume hypothetically that personal income grows at 6 per cent a year and that the CICO increase in any year is equal to 1 per cent of personal income, then the debt-income ratio would tend toward a value of  $\frac{.01(1+.06)}{.06}$ , or about .18. It was Enthoven's belief that wartime controls had resulted in an artificially low (disequilibrium) debt-income ratio. During the postwar years, therefore, the ratio could be expected to rise and approach asymptotically from below the limiting constant.

5/ The model may be expressed algebraically as:

$$(1) PI_t = PI_0 (1+r)^t$$

$$(2) CICO_t - CICO_{t-1} = kPI_t$$

where  $PI_t$  is personal income in year  $t$  and  $CICO_t$  is instalment debt outstanding at the end of the  $t^{\text{th}}$  year.

The conclusion is that  $\lim_{t \rightarrow \infty} \frac{CICO_t}{PI_t} = \frac{k(1+r)}{r}$ .

In his original article, cited in footnote 4, Enthoven included two additional equations. In reply to certain criticisms, he eliminated those and stated that (1) and (2) were logically sufficient. "On a Debt-Income Model of Consumer Instalment Credit Growth: Reply," *American Economic Review*, Vol. 54 (June 1964), p. 418.

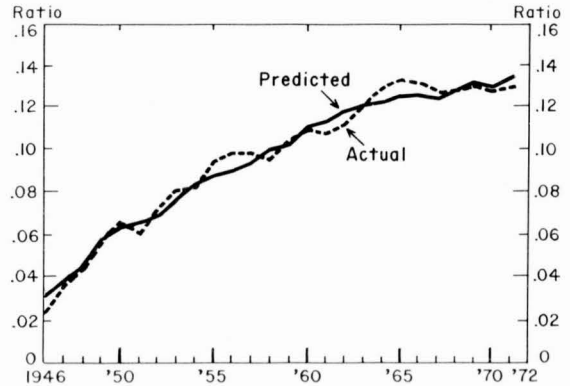
However, because this rising ratio would not imply that individual households were incurring ever-increasing debt burdens relative to their incomes, U. S. prosperity would not be endangered.

Enthoven's model is imperfect. It is quite obvious, for example, that the rate of growth of personal income has not been constant and that the ratio of the change in CICO to the level of personal income has varied considerably from year to year.<sup>6</sup> Despite this and other possible criticisms, the model seems to capture some significant elements in the CICO growth process. Furthermore, the model may be regarded as supplying a reasonably good *ex post* tracking of the long-run behavior of CICO. (*Ex post* in the sense that the estimates of the parameters  $r$  and  $k$  are derived from observed relations during the 1946-71 period.) This is demonstrated in Chart 3, where actual debt-income ratios for 1946-71 are plotted against the ratios predicted by the model. For 1971, the predicted value is .139 as compared to the observed ratio of .129. The implied limiting ratio is .172. What the chart seems to suggest is that the modest decline of the debt-income ratio after 1965 was a cyclical phenomenon within a long-run uptrend and that, in the years ahead, CICO could be expected again to grow somewhat faster than personal income. A final judgment of this interpretation will be ventured after further analysis.

Enthoven's assertion that a life cycle process underlay consumer borrowing patterns was supported by the results of numerous cross-sectional studies of household behavior. His model was not, however, the only one that might be inspired by cross-sectional evidence.

6/ For more detailed criticism of Enthoven's model, see F. R. Oliver, "On a Debt-Income Model of Consumer Instalment Credit Growth: Comment," *American Economic Review*, Vol. 54 (June 1964), pp. 415-17; John S. Y. Chiu and John J. Brosky, "On a Debt-Income Model of Consumer Instalment Credit Growth: Comment," *American Economic Review*, Vol. 57 (December 1967), pp. 1244-49; Warren L. Smith, "Is the Growth of Private Debt a Cause for Concern?" *Monetary Process and Policy: A Symposium*, ed. G. Horwich (Homewood, Ill.: Richard D. Irwin, Inc., 1967), pp. 78-88.

Chart 4  
DEBT-INCOME RATIO: HUNTER MODEL



Helen Manning Hunter subsequently presented a model of aggregate consumer borrowing behavior that differed in some important respects from Enthoven's.<sup>7</sup> In particular, where Enthoven's reasoning led him to conclude that consumer indebtedness would bear a simple linear relation to income, Hunter derived a more complex equation that related consumer indebtedness to income, the *square* of income, the number of income-receiving units, and the level of liquid assets held by the household sector.<sup>8</sup>

Hunter's model led her to an explanation of the rapidity of CICO growth in the first postwar decade that differs from Enthoven's. Rather than the critical factor being "an abnormally low ratio of debt to income at the end of the war. . . a rapid increase in the number of income-receiving units, and a decrease in the postwar level of liquid assets were chiefly responsible for the rapid postwar growth of credit extended, and were the major influences on credit

7/ "A Behavioral Model of the Long-Run Growth of Aggregate Consumer Credit in the United States," *Review of Economics and Statistics*, Vol. 48 (May 1966), pp. 124-31.

8/ In algebraic form, Hunter's basic equation was:

$$D_t = \alpha + \beta N_t + \gamma Y_t + \frac{\delta Y_t^2}{N_t} + \epsilon LA_{t-1}$$

where  $\beta, \gamma, \delta > 0, \epsilon < 0$ ,  $D$  = consumer credit,  $N$  = number of income-receiving units,  $Y$  = disposable income, and  $LA$  = liquid assets— $D, Y,$  and  $LA$  deflated by the Consumer Price Index. She estimated this equation (and certain variants of it) for three different credit aggregates over the 1923-62 span. In her final regression equations, the  $Y_t^2$  term was dropped for technical reasons.

outstanding, increases in income accounting for the rest of the change.”<sup>9</sup> Hunter’s conclusions were based on the values of the coefficients in the equation she estimated from data for 1923-62.

There is reason to question whether Hunter’s equation accurately reflects the processes at work in the postwar years. Perhaps revealing in this regard is the present writer’s attempt to update Hunter’s regression analysis by fitting a version of her equation to data for 1946-71.<sup>10</sup> A number of statistical problems were encountered, among the most important being the very high correlation between the hypothesized explanatory variables. Such a similarity of movement, or multicollinearity, makes it difficult to determine what the individual influences of those variables are, i.e., the estimated coefficients may be misleading. If, however, one takes the estimated equation at face value, considerable doubt is cast upon Hunter’s explanation of CICO behavior. For instance, the updated regression suggests that a positive relation existed between changes in liquid assets and changes in CICO during the 1946-71 period, rather than the negative relation implied by the coefficients in Hunter’s re-

gression. If a positive relation does indeed exist, the decline in real liquid assets between 1946 and 1951 tended to depress CICO expansion—not stimulate it, as Hunter concluded. The updated regression points to the conclusion that the rapid increase in the number of income-receiving units was an even more important factor in the 1946-51 surge of CICO growth than Hunter thought.

It is possible, of course, for a regression equation to be an unreliable indicator of the independent effects of various explanatory variables and yet a good predictor of the joint effects of these variables on the dependent variable. The updated Hunter-type equation is perhaps such an instance, for as seen in Chart 4 the equation does a reasonable job of predicting the trend of the debt-income ratio. It is interesting to note, however, that despite the retardation of real liquid asset growth in the late 1960’s (which the model implies should have slowed CICO expansion) the equation does not predict as marked a retardation of CICO growth as actually occurred during that period.

How far, then, do the Enthoven and Hunter models go in explaining the pattern of CICO growth observed in the postwar years? And what do they tell us about what the growth trend might be in the years ahead? The major strength of Enthoven’s model—its elegant simplicity—may also be its major weakness, for the simplifying assumptions that make it all possible seem somewhat extreme in their abstraction from reality. There are strong grounds for believing that factors overlooked, or assumed away, in the Enthoven model may have played significant roles in the expansion of CICO. Hunter’s approach seems to offer a greater richness in the description of behavior, but statistical problems prevent a clear interpretation of the influences of the particular factors she noted. Her model, unlike Enthoven’s, does not yield any obvious conclusions about the future growth path of CICO. Neither model fully explains the marked retardation of CICO growth in the late 1960’s, although a plot

9/ Hunter, p. 139

10/ The resultant equation was the following:

$$\text{CICO}_t = 2.44 \text{H}_t - 2.00 \frac{\text{DPI}_t^2}{\text{H}_t} + 0.124 \text{LA}_{t-1} - 111.5$$

(0.23)      (3.81)      (0.044)      (10.1)

$$\bar{R}^2 = .994 \quad \text{SER} = 2.17 \quad \text{DW} = .815$$

where CICO = instalment credit outstanding at end of year, in \$billions; H = number of U. S. households, in millions; DPI = disposable income, in \$billions; LA = liquid assets (currency and demand deposits, savings accounts, and U. S. savings bonds) held by household sector at end of year, in \$billions; and CICO<sub>t</sub>, DPI<sub>t</sub>, and LA<sub>t-1</sub> all are deflated by CPI<sub>t</sub> (1967 = 1.00). Numbers in parentheses are standard errors.

The apparent presence of serial correlation makes it difficult to assess the statistical significance of the signs of the coefficients, but it may be noted that the estimated signs of the DPI<sub>t</sub><sup>2</sup>/H<sub>t</sub> and LA<sub>t-1</sub> terms in the equation above are the opposite of those obtained by Hunter in her regressions. In an alternative regression in which LA<sub>t-1</sub> was deflated by CPI<sub>t-1</sub>, the estimated coefficients of DPI<sub>t</sub><sup>2</sup>/H<sub>t</sub> and LA<sub>t-1</sub> were both positive—but with t-statistics of 1.03 and 0.85, respectively. The alternative regression equation also showed appreciably greater standard error of estimate.



of actual versus predicted debt-income ratios for the Enthoven model suggests that it was a cyclical phenomenon within a trend that should see CICO growing relative to personal income for many more years.<sup>11</sup> One is compelled to conclude that an alternative approach to the matter of CICO growth may be useful.

#### SOME ADDITIONAL FACTORS IN CICO GROWTH

*A priori* reasoning suggests a large number of economic phenomena that might have influenced, directly or indirectly, the postwar growth of CICO. In this section, some of the proximate determinants of the rate of CICO expansion are examined. In addition, to provide a basis for judging whether the marked retardation of CICO growth during the late 1960's represented a transitory deviation from an existing trend or the establishment of a new trend, a few special factors that may have been involved during that period are discussed.

#### Growth and Changing Composition of Expenditure

As was asserted earlier, one of the first places to look for an explanation of CICO growth is the growth of consumer expenditure. However, the rising ratio of CICO to personal consumption expenditure documented in Table 2 indicates that increasing consumer expenditure is not the whole story behind the pattern of CICO expansion in the postwar years. The observed deceleration of the CICO growth rate must be explained in some other way.

An examination of the changing composition of household expenditure in the postwar years suggests one likely factor in the deceleration of CICO growth. Conventional wisdom is that there is a strong tie between purchases of "large ticket" items,<sup>12</sup> particularly consumer durables, and extensions of instalment credit. (This linkage between debt and household capi-

tal formation has its analog in the relationship between corporate debt and business capital formation.) Consequently, it is interesting to note that these types of expenditure grew much more rapidly in the 1946-56 span than they did in subsequent years, and that they rose more rapidly relative to total consumption expenditure and personal income in the earlier than in the later subperiod. For example, personal consumption expenditure on durables rose at an annual rate of 9.4 per cent in 1946-56 and at a 6.7 per cent rate in 1956-71. Purchases of large ticket items rose at a 10.9 per cent rate between 1946 and 1956 and at a 6.9 per cent rate from 1956 to 1971. These figures may be compared with the growth rates for the same periods of total personal consumption expenditure, 6.4 per cent and 6.3 per cent, respectively, and personal income, 6.4 per cent and 6.5 per cent, respectively. Moreover, after rising significantly in the first 10 years of the postwar period, the ratios of durables and large ticket purchases to total expenditure and personal income remained rather stable.

The simplest, and probably most accurate, explanation of this pattern is that households were understocked with durables after World War II and proceeded to satisfy the backlog of demands in the first postwar decade. Whether or not durables purchases will continue to grow in future years at approximately the same pace as the broader aggregates is impossible to say with certainty—consumer tastes, responses to technical innovations, and relative price movements will all play roles in the outcome. If one looks at the alternative variable, large ticket purchases, which includes a number of luxury goods and services, perhaps a stronger case could be made for the judgment that expenditures in this category will grow at least as fast as total spending or personal income.

#### Credit Use

Changes in the intensity of instalment credit use have tended to accentuate the effects of changing expenditure composition on CICO growth. Thus, not only has the relative impor-

11/ The corresponding graph for the Hunter model is also suggestive of a similar conclusion, but the underlying model does not provide the clear projection of the CICO growth trend which is necessary to justify such an interpretation of the graph.

12/ Large ticket items, as defined in this article, consists of jewelry and watches, furniture, kitchen appliances, physicians' and dentists' fees, new cars and net used cars, funeral and burial expenses, radios and TV's, private education and research, foreign travel, and additions and alterations to nonfarm residences.

tance of durables and large ticket purchases increased during the postwar years, but the proportion of expenditure on these items financed by credit has also risen. Furthermore, this intensification of credit use occurred in such a time pattern as to help produce the observed deceleration of CICO growth. For example, in 1946 the ratio of consumer instalment credit extended (CICE) to consumer durables expenditure was .54; by 1956, the ratio had risen to 1.02; but in 1971 it was only slightly higher at 1.20.<sup>13</sup> Similarly, the ratio of CICE to large ticket purchases was .56 in 1946, .93 in 1956, and 1.09 in 1971. Furthermore, it may be noted that most of the post-1956 increase in these ratios occurred before the mid-1960's.

A number of factors that might have contributed to this increase in credit use could be cited; however, definitive confirmation of their roles would, in most cases, be difficult given available data. Surveys of Consumer Finances suggest some changes in consumer attitudes toward the use of instalment credit, but the Surveys were less comprehensive in the early postwar period and the relevant questions were not asked in every year's Survey. Nonetheless, it would seem fair to draw the following conclusions from the Surveys: first, consumers over time have come to regard the use of instalment credit as acceptable for a greater variety of purposes;<sup>14</sup> second, the percentage of families that regarded instalment buying generally as a good idea increased significantly during the 1950's but was much lower in early 1965 and early 1967 than it was in late 1959;<sup>15</sup> third, the percentage of families actually using instalment credit rose in the 1950's but leveled off there-

after;<sup>16</sup> and, fourth, the replacement in the population of an older generation less disposed toward the use of credit by a new generation more disposed toward doing so has contributed to the overall change in credit use.<sup>17</sup> When considered along with developments on the supply side of the instalment loan business (including legal reforms, changing views regarding loan risks and appropriateness of uses of funds, plus the geographical and physical expansion and competitiveness of the firms in the industry), these observations help to explain the postwar pattern of CICO growth. Furthermore, they support the view that CICO growth rates will not return to the levels observed in the first postwar decade, barring further innovations that significantly spur credit use.<sup>18</sup>

#### **Maturities of Instalment Contracts**

It can be demonstrated that an increase in the number of months over which an instalment loan is repaid leads by mathematical necessity to an increase in the amount of instalment credit outstanding per dollar of instalment credit extended. As a consequence, it is possible to conclude that the lengthening of loan maturities during the postwar period has accounted in part for the rapid growth of CICO.<sup>19</sup> Unfortunately, it is not possible to calculate the average maturity of instalment debt from available data. It would be a simple matter to do so if the volume of extensions did not vary, but this is clearly not the case. Still, partial evidence of the changing maturities is available, and the relationship between the growth of

13/ The difference between the amount of instalment credit extended during a year and the amount of debt repaid will equal the change in CICO for that year, after allowance is made for losses and charge-offs. CICE is a less ambiguous measure of the degree of credit usage in consumer purchases than is CICO, for CICO may rise without a change in CICE when loan maturities are lengthened and the pace of repayments thereby reduced. This point is given further emphasis in the subsequent section on changes in loan maturities.

14/ *1967 Survey of Consumer Finances*, p. 144.

15/ *Ibid.*, p. 141; *1965 Survey of Consumer Finances*, p. 42.

16/ *1970 Survey of Consumer Finances*, p. 21; *1960 Survey of Consumer Finances*, p. 155.

17/ *1960 Survey of Consumer Finances*, pp. 164-5.

18/ The advent of the bank credit card and the switch from charge accounts to revolving credit plans are developments that conceivably could increase the proportion of expenditure financed through instalment credit. In the latter case, a shift from a form of noninstalment credit to a type of instalment credit is involved, which could result directly in a small boost in CICO. As regards bank credit cards, their convenience might lead to further growth in total instalment credit use, but it seems likely that they will in part merely substitute for other instalment credit forms. In short, it is felt that rises in the CICE-expenditure ratio resulting from these particular institutional changes will be of rather modest size.

19/ Lengthening of maturities also tends to reduce monthly payments, which in turn may induce increased demand for credit and a greater volume of extensions. This interrelationship may be ignored for the purposes of the discussion in this section.

CICE and that of CICO makes clear the impact of the lengthening.

One source of information regarding maturities is surveys by the National Consumer Finance Association. Their data show that the average length of loan contracts was 18 months in 1950, 20 months in 1954, 22 months in 1958, 25 months in 1968, and 26 months in 1969.<sup>20</sup> Figures compiled by the Federal Reserve on new auto loans by major sales finance companies indicate an average length of 22 months in 1954, 30 months in 1955, 31.7 months in 1957, and 32.2 months in 1963. Some further increase in the average length of new auto loan contracts has occurred, but it is most certainly still significantly below 36 months. Although the data on loan maturities is limited, an indirect measure of maturities is available. As stated earlier, the longer the loan contract the greater will be the amount of credit outstanding for a given volume of credit extended. In fact, "the ultimate difference in amount outstanding is very nearly in proportion to the difference in maturity."<sup>21</sup> Thus it may be noted that, while CICE grew 369 per cent between 1946 and 1956 and 212 per cent between 1956 and 1971, CICO grew 848 per cent in the earlier period and 248 per cent in the later.<sup>22</sup> The figures indicate clearly that the lengthening of maturities was most dramatic in the first half of the postwar period, partly because of the removal of controls on instalment lending terms. The contribution of maturity lengthening in more recent years seems to have been much more modest, though still significant. In the future, some further movement in this direction may be expected, particularly if mobile home loans increase further in relative importance and thereby raise the average loan length. However, that movement may well proceed at a moderate pace be-

cause the accepted rules of sound financial practice dictate a reasonable rate of repayment of loan principal, especially when depreciating goods provide the security for the loan.

### Special Factors in the Late 1960's

Trends in the composition of consumer expenditure, in credit use, and in instalment loan maturities have been cited as important factors in explaining the deceleration of CICO growth toward a rate in line with the growth trend of personal income. Nevertheless, some further explanation would seem warranted regarding the very sharp retardation of CICO growth in the late 1960's. To be sure, a special factor probably would have exerted its influence through an immediate impact on the preceding three proximate sources of CICO growth, but any phenomenon that brings about what appears to be a significant deviation from underlying trend behavior deserves attention. The hypothesis sketched in this section is that unusually stringent financial conditions, inflation, and attendant uncertainty resulted in a curtailment of instalment borrowing. This set of circumstances might be regarded as a somewhat exaggerated cyclical episode, thus implying no lasting alteration of the CICO growth trend.

The inflationary spiral of the 1965-71 period is well-known and well-documented, as are the "credit crunches" experienced in 1966 and 1969-70. What requires elucidation is the process by which these phenomena may have contributed to the deceleration of CICO growth during that span. The mere existence of inflation does not imply a slowing of consumer credit expansion—in fact, one might argue that the demand for instalment credit would be boosted, at given interest rates, by the desire to buy before prices rise. With regard to credit crunches, *a priori* logic suggests that swings toward monetary tightness would tend to reduce instalment lending, but there is a frequently heard view that consumer credit is not highly responsive to general monetary policy (thus,

20/ S. Lees Booth, 1971 *Finance Facts Yearbook*. (Washington: National Consumer Finance Association, 1971), p. 65.

21/ *Consumer Instalment Credit*, Vol. 1, p. 120.

22/ On the basis of year-end data—rather than annual-average data—CICO grew 660 per cent between 1946 and 1956, and 245 per cent between 1956 and 1971.

the call for selective controls on instalment credit).

Thomas Mayer, in a recent article, has argued that there is empirical evidence of a direct impact of tight monetary policy on instalment credit.<sup>23</sup> His approach is simply to observe a positive correlation between the rates of nominal money stock growth and instalment credit or debt-income ratio growth. While Mayer's approach may not be completely convincing to all analysts, one may point to additional facts supporting the assertion that the sharp rise in interest rates retarded CICO growth in the late 1960's.

Caught in a profit squeeze between statutory ceilings on consumer loan rates and the rising cost of funds, financial institutions undoubtedly were less willing to make instalment loans. Commercial banks, perhaps recognizing the long-run profitability of established relationships with other business customers, became less willing to make instalment loans, according to Federal Reserve surveys of bank lending practices. The surveys also show that the willingness of banks to extend lines of credit or to make loans to finance companies changed with the swings in general credit conditions—as did the terms of loans made. Although the large finance companies may have been able to find other sources of funds (e.g., commercial paper), smaller companies probably found it more difficult to do so. This may have been a factor in the decline of the finance companies' share of the instalment loan market from 33 per cent in 1966 to 26 per cent in 1971.

In addition to these supply side effects on instalment borrowing, a case can be made for contractionary financial impulses on the demand side. During the late 1960's the household sector experienced the slowest rise in its real liquid asset holdings since the marked decline of 1945-51. This may be seen in the Federal Reserve Flow of Funds accounts; however,

the household category there includes personal trusts and nonprofit organizations and may, consequently, be an inexact portrayal of the financial position of consumers. The Surveys of Consumer Finances do, though, provide some further substantiation for the view that potential borrowers may have felt themselves in uncomfortable circumstances. Though median liquid assets of all families taken together rose significantly between 1965 and 1970, according to the Surveys, the median assets of families in the middle income (\$5,000 to \$15,000) group which do the bulk of instalment borrowing dropped appreciably. Perhaps more significant than this quantitative result is the fact that during this period consumers voiced the feeling that their holdings of liquid assets were inadequate. In 1962, 51 per cent of Survey respondents expressed dissatisfaction with the reserves they had accumulated, whereas in 1969 and 1970, the figures were 59 per cent and 54 per cent, respectively.<sup>24</sup> Dissatisfaction was greatest in 1970 among the aforementioned middle income group and among the under 45 age group (such breakdowns are unavailable for other years).

While it can be argued that consumers will tend to borrow more to make urgent purchases when their liquid assets are low, there is a well-documented pattern of consumers holding liquid assets in excess of their instalment indebtedness. A significant proportion of consumers apparently feel the necessity to retain a liquid reserve against emergencies and prefer to pay the added cost of borrowing rather than running down that liquid balance. It is clear from most measures of consumer sentiment that the acceleration of inflation in the late 1960's created considerable uncertainty about future economic prospects. The inflation may have reduced real discretionary income below previously expected levels and thus reduced the willingness of consumers to borrow. In any event, the reduction

---

23/ "Financial Guidelines and Credit Controls," *Journal of Money, Credit, and Banking*, Vol. 4 (May 1972), pp. 362-64.

---

24/ 1970 *Survey of Consumer Finances*, p. 96.

in consumer confidence certainly increased the desired level of liquid assets and reduced the desire to borrow.<sup>25</sup>

It would appear, then, that the marked and prolonged retardation of CICO growth in the late 1960's was not simply the result of underlying trend forces, but was brought about in considerable part by events of a cyclical nature—foremost among them episodes of severe financial stringency and an acceleration of inflation. The reversal of these cyclical processes may be seen in the resurgence of instalment credit growth that accompanied the easing of interest rates and deceleration of inflation late in 1970.

### CONCLUDING REMARKS

This article has sought to explain the pattern of instalment credit growth witnessed in the postwar years. In particular, an effort was made to determine whether the very slow real growth of consumer instalment credit outstanding during the late 1960's represented the basic trend or was the result of shorter-run influences. Two formal models of long-run CICO growth were examined, but neither seemed wholly satisfactory as an explanation of postwar phenomena.

In a more eclectic approach, three proximate sources of CICO growth were discussed,

25/ The Survey Research Center's "Index of Consumer Sentiment" declined from 102.9 in November 1965 to 75.4 in October-November 1970, with the sharpest drops in 1966 and 1969-70—the earlier-mentioned periods of pronounced financial stringency. *1970 Survey of Consumer Finances*, p. 207.

i.e., growth and changing composition of consumer expenditure, increased use of credit, and lengthening of instalment contracts. It was concluded that each of these factors contributed to the growth of CICO and did so in such a way that the deceleration of CICO growth seemed largely explained. The major elements in that deceleration seem to have been the early postwar surge in durables purchases, which constituted a catch up with demands unsatisfied during the wartime years, the decontrol of instalment credit, the widening acceptance of credit use, and the expansion of the consumer lending business. By the mid-1950's, most of those forces had spent themselves, and the impulse for CICO growth in excess of personal income growth came largely from a further moderate lengthening of average loan maturities and a continued widening of the range of acceptable uses for instalment credit. The conclusion offered here is that these latter two forces will also decline in quantitative significance in the years ahead and, as a result, the rate of CICO growth may not exceed by much that of personal income during the 1970's.

Examination of the forces at work in the late 1960's led to the conclusion that the marked retardation of CICO growth during that period was in part due to strong influences of a cyclical nature. On the basis of this finding, a recovery of CICO growth, including a significant rise in the instalment debt-personal income ratio, might be expected during 1972-73—unless interest rates rise sharply or the pace of inflation quickens.

# Capital Flows in a Foreign Exchange Crisis

By Donald L. Kohn

Massive movements of capital between countries have been a prominent feature of recent international monetary crises. Although the underlying causes of each crisis can usually be identified with longer-run considerations, like differences in inflation rates between countries, its acute phase is often marked by extremely large capital flows. In this acute phase, capital moves from the weak currency to the strong currency country, thereby increasing the reserve losses and gains which must be offset or financed in order to maintain existing par values.<sup>1</sup> Although such flows are not a new phenomenon, their size seems to have increased greatly over the last few years. Contributing to this trend has been the growth of international capital markets, the expanding links between commercial banks and all financial markets, and the enlarged volume of international trade in financial assets as well as goods and services.

---

<sup>1</sup>/ Some countries now use central rates, rather than par values, to specify the relative worth of their currencies. Since there is no substantive difference between these two concepts for the purposes of this article, the term "par value" will be used exclusively, although it should also be understood to connote central rate.

The disruptive potential of capital flows was amply illustrated in 1971 when crisis-induced capital movements interfered with the achievement of domestic monetary objectives and hastened worldwide exchange rate adjustments. As a result, methods of dealing with these flows have become an important item on the agenda of the current negotiations over the future shape of the international monetary system. To illuminate some of the problems of coping with capital flows, this article first discusses the causes of capital movements in an exchange crisis, and then examines the U.S. balance of payments for 1971 to obtain a more concrete idea of the form and magnitude capital flows can take during a crisis.

## INSTITUTIONAL AND MARKET FACTORS AFFECTING CAPITAL FLOWS IN A CRISIS

An exchange crisis occurs when there is a generalized loss of confidence that a currency's par value can be maintained. Under the International Monetary Fund (IMF) rules governing exchange rate movements, member countries are obligated to maintain the price of

their currencies within specific buying and selling margins around a par value. The limits of the margins are known as intervention points. When official transactions undertaken to prevent price movements outside an intervention point result in large and persistent increases or decreases in a country's international reserve assets, expectations begin to build that a change in par value may be necessary. Persistent deficits in the balance of payments can signal devaluation, just as surpluses can signal revaluation. If these reserve changes continue without indications of relief in the underlying economic factors, such as corrective actions by the governments involved, there can be growing expectations about a change in par value.

The exchange crisis of 1971, in which the U.S. dollar was the currency under downward pressure, was characterized by large reserve movements during the period preceding the crisis. In 1970, the United States incurred a sizable balance of payments deficit of \$9.8 billion on an official reserve transactions basis (measuring changes in U.S. official reserves and liabilities to foreign official agencies), with steadily larger deficits being registered in each quarter of the year. The continuation of this trend into 1971, coupled with disappointing trade balance figures through the early summer, were sufficient to convince transactors of the inevitability of dollar devaluation and to precipitate the foreign exchange crisis that climaxed with the suspension of dollar convertibility on August 15, 1971. A disproportionate amount of U.S. liabilities generated in 1970 and the first quarter of 1971 were accumulated by West Germany as surpluses. As a result, the mark came under considerable upward pressure, and in May 1971 the German authorities stopped purchasing dollars and allowed the value of the mark to float. This first phase of the 1971 crisis seemed at the time to be as much in favor of the mark as against the dollar. How-

ever, the continuing dollar buildup in the reserves of many other countries, especially Japan, made the very weak position of the dollar more obvious as the year wore on and led to expectations of more widespread revaluations against the dollar.

In such cases of prolonged reserve accumulations and decumulations, the rates of exchange between strong and weak currencies are generally at their intervention points for some time before the onset of an exchange crisis. The exchange rates will remain near these levels throughout the crisis so long as the par values continue to be officially supported. But a country's pledge to maintain its par value refers to the price at which its currency is traded for immediate exchange, i.e., the spot exchange rate. There are no legal constraints concerning prices negotiated now for currency exchanges to be consummated at some specific time in the future. Such an agreement for a future currency transaction is called a forward contract and the price embodied in the contract is the forward rate. Since forward rates naturally reflect participants' expectations of what spot rates are likely to be in the future, movements in forward rates outside the normal spot intervention points are often the first signal of the change in expectations that produces a foreign exchange crisis.<sup>2</sup>

While forward rate movements in a crisis are mostly the result of actions by speculators, the primary function of the forward market is to allow an international trader or investor to eliminate the risk of unexpected exchange rate movements over the life of a transaction.

2/ It has been suggested that instances of forward rates outside intervention points be used to define crisis periods. However, government intervention in the forward market, which is not uncommon, would lead to an understatement of the severity and duration of the crisis if this were the sole criterion used. See Edward E. Leamer and Robert M. Stern, *Quantitative International Economics* (Boston, Mass.: Allyn and Bacon, 1970), p. 97. In 1971, the forward rate on the German mark did not move outside its spot intervention point until April. While this accurately signaled the upward floating of the mark, which occurred in May, German central bank sales of forward marks delayed the appearance of this crisis indicator.

For example, an importer might be faced with paying foreign currency for goods sometime after the price had been agreed upon. In this case, he can make a forward purchase of the foreign currency in order to establish the domestic cost of the goods at the time the foreign price is fixed.

The forward market can also be used by an importer who wishes to borrow money to pay for goods. While borrowing domestically would necessitate an immediate spot purchase of foreign exchange, borrowing abroad will require foreign exchange when the debt must be repaid. In the latter case, if the trader does not wish to gamble on the future spot price of the borrowed currency, he can purchase it now in the forward market. Thus, in deciding whether to borrow domestically or abroad, an importer must not only consider foreign versus domestic lending rates but also the relationship between the spot and forward exchange rates. Similarly, an investor comparing returns on domestic and foreign assets must consider not only relative interest rates but also the price of domestic currency at the time he will wish to repatriate his foreign holdings. The investor can use the forward market to eliminate the risk of unforeseen exchange rate changes between the time when the investment was made and when it matures. An investor covering his investment in the forward market in this manner is called an arbitrager. Like the trader financing his purchase, the arbitrager compares the domestic interest rate with a "covered" foreign rate, which consists of the foreign interest rate adjusted by any difference between the spot and forward rates.

In a crisis, forward market speculation alters the relationship between the forward and spot rates and affects the financial flows of arbitragers and trade financiers. For example, assume that the spot dollar/mark exchange rate was  $\$.27 = \text{DM } 1$ , but that speculators certain of a dollar devaluation relative to the mark bid the 3-month forward mark to  $\$.28 =$

$\text{DM } 1$  (the dollar here is said to be at a forward discount and the mark at a premium). In this case, a dollar asset holder can contract now to exchange dollars into marks at  $\$.27$  and to convert the marks back into dollars in 3 months at  $\$.28$ , gaining  $\$.01$  for each mark invested in addition to the interest earned on the investment. Unless U.S. interest rates were well above German rates, there would be an inducement for sales of U.S. assets in favor of purchases of German assets. Also, there would be an inducement to borrow dollars for conversion into marks in the spot market, with simultaneous purchase of forward dollars needed when the loan had to be repaid. Normally, these transactions would continue until the sale of forward marks (purchases of forward dollars) moved the premium on the mark back down to where additional capital flows were no longer profitable. In a crisis situation, however, the impact of speculative activity on forward rates is typically so strong that the profitable arbitrage margin tends to be sustained.<sup>3</sup>

Widely held expectations of par value changes also have important effects on other kinds of balance sheet decisions. If an investor or trader wishes to avoid losses from an expected devaluation, he will not want to have a net asset position in the weak currency or a net liability position in the strong currency. A net asset position in the weak currency is avoided because if the weak currency is devalued its assets will be worth less in terms of the strong currency. A net liability

---

<sup>3/</sup> Speculators take positions only in the forward market, expecting to make profits from simultaneous purchases and sales of foreign exchange when the forward contract matures. Since this requires little capital, a practically unlimited supply of forward exchange is available to force the forward rate to the expected future spot rate when the latter is held with certainty, as in a crisis.

In addition to active speculation, a continuing arbitrage incentive requires that interest rates not move to offset the change in the relationship between forward and spot rates. The capital flow from weak to strong currency countries will induce some movement in this direction. However, the arbitrage margin is usually so wide that eliminating it would necessitate much larger changes in domestic credit conditions than the monetary authorities are usually willing to tolerate.



position in a strong currency is avoided because after devaluation it will take more of the weak currency to repay a debt denominated in the strong currency.<sup>4</sup> Thus, assets denominated in a currency about to be devalued will be divested and strong currency assets accumulated. Weak currency liabilities will be sought, while strong currency liabilities are liquidated. In short, those who wish to profit from the expected devaluation will try to obtain a net asset position in the strong currency and a net liability position in the weak one.

Of course, a transactor might find himself with a weak currency asset (or strong currency liability) which he cannot sell immediately. Such an asset could arise out of trade transactions or be a security or fixed investment which is either not liquid enough to sell without a large loss or which may look profitable over the longer run if the exchange risk can be minimized. One method of eliminating such an exposed position is by balancing the asset with a liability (or vice versa) in the same currency, thus maintaining an overall neutral position. Alternatively, a forward contract can be purchased to establish a domestic currency value for the investment.<sup>5</sup> Under normal conditions, the forward market operations are preferred because they do not tie up assets or give rise to borrowing costs. However, in a crisis, the forward discount on the weak currency can become so large that balancing assets and liabilities in the spot market is less expensive. Also, there may be a drying up of the forward market at the height of a

crisis forcing transactors to use the spot market.<sup>6</sup> Both of these tendencies will lead to an increase in the volume of capital flows.

In brief, an exchange crisis encourages capital flows out of the weak currency into the strong currency. These flows occur when weak currency assets are divested and strong currency assets are increased, and when weak currency liabilities are increased and strong currency liabilities are decreased. The transactions can be on both a covered and uncovered basis. The deep discount that develops on the forward rate of the weak currency makes it profitable for covered arbitrage out of weak and into strong currency assets, and out of strong and into weak currency liabilities. Similar flows can result from uncovered asset and liability manipulations by those who are trying to profit from the prospective exchange rate change and by those who find the forward market nonexistent or too expensive to use for risk minimization. Uncovered flows are likely to predominate over covered flows at the very height of the crisis because the more certain is the expectation of a change in par value the less likely transactors will be to cover their positions. Covered flows, on the other hand, are more likely to occur in the initial stages of the crisis when the forward rate has moved to create an arbitrage incentive, but before expectations as to the inevitability or size of the devaluation are universally held.

#### PRIVATE CAPITAL FLOWS IN THE U.S. BALANCE OF PAYMENTS IN 1971

A more precise idea of the size and form that capital flows may take during a crisis can

4/ For example, a German holding a \$100 U.S. bond at the end of 1970 would have valued it at 365 marks in his balance sheet. At the end of 1971, and after dollar devaluation, that same bond was worth only 327 marks. On the other hand, an American who had borrowed 365 marks from a German bank at the end of 1970 and converted it into \$100 would find at the end of 1971 that he needed \$112 to repay the principal of the German debt.

5/ The forward sale of foreign currency equal to the value of the asset guarantees a domestic currency equivalent no worse than that established by the price in the forward contract. Should the foreign currency be devalued by an amount greater than discounted in the forward rates, the extra loss in asset value will be made up by unexpected profits in the forward contract.

6/ Although there are no data on the volume of forward transactions, it is not uncommon for exchange crises and unavailability of forward contracts to be associated. (See, for example, Leamer and Stern, *Quantitative International Economics*, p. 96.) However, a participant has reported that the forward markets generally remained operative through 1971 and that, where impediments were encountered, they could be traced to government controls, not market instability. Renaldo Levy, "Exchange Markets in a Period of Crisis," in *The International Monetary System in Transition* (Chicago, Ill.: Federal Reserve Bank of Chicago, 1972), pp. 42-47.

**Table 1**  
**ERRORS AND OMISSIONS AND SECURITY TRANSACTIONS**  
(In millions of dollars, not seasonally adjusted)

			1971				1972
	1970	1971	I	II	III	IV	I
Errors and Omissions	-1,174	-10,927	-1,097	-2,532	-5,006	-2,293	+774
Foreign Securities	-942	-909	-361	-372	-249	+73	-393
U.S. Securities	+2,190	+2,282	+559	+196	+606	+921	+1,067
Credits +: Capital inflows (increase in U.S. liabilities or decrease in U.S. assets).							
Debits -: Capital outflows (decrease in U.S. liabilities or increase in U.S. assets).							

be obtained from an inspection of private capital flows in the U.S. balance of payments in 1971. Expectations of U.S. dollar devaluation were present for much of the year, growing strongest immediately prior to the August suspension of dollar convertibility. Consequently, for the year as a whole and particularly for the third quarter, the effects of the crisis should be evident in the U.S. accounts.

Of course, the foreign exchange crisis was not the only factor influencing private capital movements in 1971. Business and credit cycle developments may also account for some of the 1971 results. In 1970, a large deficit in private capital accounts was caused by a simultaneous easing of monetary policy in the United States in reaction to a business recession, and a tightening of European credit markets to forestall inflation. The relative phasing of the cycles was felt most directly by U.S. banks which repaid previous Euro-dollar borrowing and by German businesses which reborrowed the dollars to use for domestic expansion. These same forces continued to work through the first quarter of 1971. However, from April 1971 through the end of the year, credit conditions in the United States were no longer easing relative to most other industrialized countries. Because this shift did not slow down or reverse the capital outflow from the United States, it is necessary to look at the abnormal circumstances of 1971 for the causes of capital flows through the last three quarters of the year.

### Errors and Omissions

The balance of payments account which showed the most pronounced effects of the currency crisis in 1971 was errors and omissions. This account was in deficit by \$10,927 million in 1971 with nearly half of that deficit occurring in the third quarter when the crisis was at its peak (Table 1). Errors and omissions is the residual or balancing account in the system of double entry bookkeeping used in the balance of payments statistics. Under this system each transaction is supposed to be entered twice, once as a credit (plus) and once as a debit (minus), so that the total of all such transactions equals zero. However, errors and omissions can occur under this system when forms are not filled out, when the Government fails to request the necessary information, or when the two sides of a transaction are recorded at different times. The value for errors and omissions, therefore, equals the net balance of all the transactions in which only one entry is recorded during the specified reporting period.

One reason errors and omissions was so large in 1971 was the increased volume of unrecorded capital outflows from the United States. There are likely to be more unreported capital movements in a crisis as the total volume of capital movements is increased and as the large potential profits attract transactors who are so small they are not required to report, are unaware of the reporting rules, or are ignoring the rules. In the 1971 crisis

large profits could be made by covered and uncovered capital transfers from the U.S. dollar to strong currency assets. Also, foreigners bid up Eurodollar rates in May and August as they attempted to borrow dollars to obtain liabilities in the currency about to be devalued, and this provided a strong incentive to move dollar assets out of the United States into the Eurodollar market. Some of this outflow undoubtedly went unreported, adding to errors and omissions.<sup>7</sup>

Changes in the relative timing of merchandise shipments and their balancing payments were a second cause of the large errors and omissions in 1971. Such alterations in international trading and payment procedures, called leads and lags, are a common result of expectations of changes in par values. Leads result in greater payments for imports by a weak currency country. For example, if the dollar is expected to be devalued, a foreign exporter's knowledge that the dollars he earns by selling goods to the United States will be worth less after devaluation induces him to speed up his shipments and demand faster payment to be able to convert the largest possible volume of dollars before devaluation. The accounts receivable from U.S. importers are viewed as weak currency assets by the foreign exporter and he wants as few of them as possible. Lags result in a smaller volume of payments for the weak currency country's exports. In 1971, foreign importers could see that dollar-denominated exports and export bills (weak currency liabilities) would be less expensive after devaluation, and consequently they delayed payments and orders for U.S. goods as long as possible. Thus, increased leads and lags result in higher import payments out of the weak currency country and

lower export payments into it. Most lead and lag behavior shows up in errors and omissions due to changes in the timing of payments, rather than in the trade account due to changes in the volume of imports and exports because of the greater flexibility of payment procedures over production schedules.

### Securities Transactions

In contrast to errors and omissions, recorded transactions involving foreign and U.S. securities seemed to show little effects of the exchange crisis.<sup>8</sup> Despite the potential gains to be made from revaluation of foreign currencies, U.S. investors increased their holdings of foreign securities in 1971 only in about the same amounts as they did in 1970. Moreover, foreigners apparently ignored the potential losses to be suffered from a dollar devaluation by purchasing about the same dollar amount of U.S. securities in 1971 as they did in 1970 (Table 1).

There are a number of reasons why security transactions may not adapt well to the types of balance sheet manipulations expected in an exchange crisis. First, for balance of payments purposes, the securities reported in this account are by definition long-term securities—they have a maturity of over 1 year. Since forward contracts generally do not extend beyond 1 year under the most stable conditions, it is difficult to carry out interest arbitrage operations in long-term securities. Second, where they are available, shorter maturity instruments are more likely to be used for purchases of uncovered assets to even out balance sheet positions or to speculate on a devaluation as their value is less subject to large capital gains or losses. And, third, international security transactions are often discouraged by government regulations. An example of these reg-

7/ Although flows from the United States to Eurodollar markets were unlikely to have been a major factor in 1971, a study covering the period 1952-64 found them the single most important component of errors and omissions. See William H. Branson, *Financial Capital Flows in the U.S. Balance of Payments* (Amsterdam: North Holland Publishing Company, 1968), p. 151.

8/ Of course, as explained in the previous section, there were probably some unreported security transactions in the errors and omissions outflow. This section is addressed to the quite striking failure of the recorded data to respond to the crisis.

**Table 2**  
**TRANSACTIONS OF U.S. BUSINESSES**  
(In millions of dollars, not seasonally adjusted)

	1970	1971	1971				1972
			I	II	III	IV	I
U.S. direct investment abroad	-4,400	-4,765	-1,560	-1,687	-1,330	-188	-1,561
Intercompany accounts	-969	-1,718	-1,125	-813	-692	+912	-1,047
Foreign direct investment in United States	+1,030	-67	+124	+1	-374	+181	-360
Intercompany accounts	+206	-384	+85	-6	-538	+75	-439
U.S. nonbanks	+1,418	-995	-522	-226	-300	+53	-426
Claims	-596	-1,170	-424	-179	-238	-329	-403
Long-term	-586	-109	-33	-11	-31	-34	-78
Short-term, nonliquid	-361	-555	-67	-160	-64	-264	+20
Short-term, liquid	+351	-506	-324	-8	-143	-31	-345
Liabilities	+2,014	+175	-98	-47	-62	+382	-23
Long-term	+1,112	+233	+164	+32	-218	+255	-119
Short-term	+902	-58	-262	-79	+156	+127	+96

Credits +: Capital inflows (increase in U.S. liabilities or decrease in U.S. assets).

Debits -: Capital outflows (decrease in U.S. liabilities or increase in U.S. assets).

ulations is the U.S. Interest Equalization Tax which reduces the yield that a U.S. citizen can earn on most foreign bonds.<sup>9</sup>

### Direct Investment

Direct investment outflows from U.S. businesses to their foreign affiliates did not react uniformly to the expectation of exchange rate changes.<sup>10</sup> For 1971 as a whole, U.S. direct investment abroad was only moderately greater than the increase in assets the year before (Table 2). However, the small increase in total outflow masked a large increase in the outflow on intercompany accounts which consist mostly of short-term transfers. Indeed, the 1971 outflow on intercompany accounts was nearly twice its 1970 level, despite an extraordinarily large inflow in the fourth quarter of 1971 in

response to the Smithsonian agreement and to conform to U.S. regulations covering net investment in foreign affiliates and liquid assets held abroad. The large 1971 outflow is not too surprising though, because in a crisis companies use intercompany accounts to accumulate strong currency assets and weak currency liabilities. They do so by accelerating payments from subsidiaries in weak currency countries to those in strong currency countries, by delaying any reverse flows as long as possible, and by concentrating company borrowing in the weak currency subsidiaries. Nonintercompany accounts, on the other hand, are primarily capital stock and other equity positions in foreign affiliates. The permanence and lower liquidity of these investments dictate that they be undertaken in response to long-run profit considerations, rather than the short-run gains to be made from devaluation.

In contrast to U.S. direct investors, foreigners not only reduced their intercompany account investments in the United States from 1970 to 1971, but also reduced the rate at which they added to nonintercompany accounts. The intercompany accounts fell \$384

9/ However, the increased probability in a crisis of the weak currency country interfering with the repatriation of capital from it should reduce foreign capital inflows. In this light, the maintenance of a high level of foreign purchases of U.S. securities in 1971 is quite surprising. It may have occurred because a large proportion of the securities were offshore issues of U.S. corporations which investors felt would be less subject to government control.

10/ For the purpose of U.S. regulations and statistics, a foreign company is an affiliate if it is at least 10 per cent owned by a U.S. investor. A U.S. company must be at least 25 per cent owned by a foreign resident to be considered affiliated with a foreigner.

million in 1971 and their nonintercompany accounts rose \$317 million, about \$500 million less than their rise in 1970. The pattern of reduced investment reflected the course of the crisis as the only reduction in total investments took place in the third quarter of 1971.

### Nonbank Institutions

The transactions of U.S. businesses, or nonbank institutions, with unaffiliated foreigners contributed much more heavily to the deterioration in the balance of payments than did their direct investments with affiliates. In 1971, U.S. nonbanks had net capital exports from the United States of \$995 billion, after capital imports of \$1,418 million in 1970 (Table 2).

All types of claims of U.S. nonbank institutions registered increases in 1971. Like many other long-term investments, long-term claims did not react to the crisis and grew less rapidly than in previous years. However, short-term nonliquid claims, which are loans to foreign importers and loans by brokers to finance security purchases, rose substantially. Short-term liquid claims of nonbanks, consisting mostly of dollar deposits at banks overseas, also increased rapidly in 1971. Much of the increase in these liquid claims came in the first quarter of 1971, suggesting that they

may have been accumulated as transaction balances held to make accelerated payments for imports as part of the leads and lags behavior.

The large increase in nonbank claims on foreigners was accompanied by only a small growth in liabilities due to foreigners. Total nonbank indebtedness to foreigners rose only \$175 million in 1971 after an increase of \$2,014 million in 1970. The slow growth in liabilities also conforms to behavior that would be anticipated when the dollar is expected to be devalued. U.S. businesses would try to avoid strong currency liabilities and their ability to borrow dollars from foreigners would be impaired by the latter's unwillingness to accumulate dollar assets.

### U.S. Banks

U.S. banks contributed \$9,890 million to the private capital outflow in 1971 (Table 3). Their foreign assets, or claims on foreigners, rose \$2,938 million and their liabilities to foreigners declined \$6,952 million. Unlike businesses, banks felt the effects of the crisis in all maturities of their balance sheets.

Most of the decline in U.S. banks' foreign liabilities in 1971 resulted from the repayment of Eurodollar loans by the banks to their foreign branches. While these Eurodollar

**Table 3**  
**TRANSACTIONS OF U.S. BANKS**  
(In millions of dollars, not seasonally adjusted)

	1970	1971	1971				1972
			I	II	III	IV	
U.S. banks	-7,660	-9,890	-2,701	-409	-3,237	-3,543	-461
Claims	-947	-2,938	+134	-508	-1,059	-1,505	-933
Long-term	+175	-565	+25	-153	-237	-200	-177
Short-term, nonliquid	-1,023	-1,807	+111	-377	-481	-1,060	-332
Short-term, liquid	-99	-566	-2	+22	-341	-245	-424
Liabilities	-6,713	-6,952	-2,835	+99	-2,178	-2,038	+472
Long-term	+23	-249	-152	-61	-71	+35	+203
Short-term	-6,736	-6,703	-2,683	+160	-2,107	-2,073	+269

Credits +: Capital inflows (increase in U.S. liabilities or decrease in U.S. assets).

Debits -: Capital outflows (decrease in U.S. liabilities or increase in U.S. assets).

transactions did not involve the sale of dollars for foreign currency, and so had no direct impact on the foreign exchange markets, they did have a considerable indirect effect. That is because the lower Eurodollar interest rates produced by this large repayment encouraged foreigners to borrow dollars and exchange them for use in their own countries. These exchanges contributed to the onset of the crisis by depressing the dollar exchange rate far enough to require supporting purchases from several European central banks. The remaining decline in U.S. banks' foreign liabilities in 1971 resulted from foreigners reducing their holdings of dollar deposits—a weak currency asset. This portion of the outflow was more a result than a cause of the crisis, and required only that U.S. banks accommodate the attempts of others to adjust to the crisis.

The same accommodative role can be ascribed to U.S. banks with respect to much of the increase in their foreign assets. Specifically, U.S. banks' long-term and short-term nonliquid assets, which are primarily dollar loans to foreigners, rose \$2,373 million in 1971. This increase mainly reflected bank efforts to meet an increase in loan demand by foreigners who sought to take advantage of the favorable arbitrage margin for covered dollar borrowing and to accumulate uncovered dollar loans as weak currency liabilities.<sup>11</sup> However, some active attempt by U.S. banks or their customers—in whose behalf the banks may be holding deposits—to obtain strong currency assets undoubtedly occurred in 1971. This attempt is indicated by a substantial increase in U.S. banks' short-term liquid claims on foreigners, which contain a sizable foreign currency component.

---

11/ The growth of short-term nonliquid claims in the fourth quarter was not entirely related to the crisis. It was mainly due to a loosening of the Voluntary Foreign Credit Restraint guidelines to exclude export credits from bank foreign asset ceilings. See Andrew F. Brimmer, "Commercial Bank Lending Abroad and the U.S. Balance of Payments," in *The International Monetary System in Transition* (Chicago, Ill.: Federal Reserve Bank of Chicago), pp. 76-91.

## CONCLUSION

A crisis in the foreign exchange markets is precipitated by expectations that existing currency par values will change. The anticipated profits or losses that accompany the expected realignment of exchange rates induce balance sheet adjustments that result in a flow of capital out of the country whose currency is threatened with devaluation. Although the principles guiding transactors are few and uncomplicated, the experience of the United States in 1971 demonstrated that capital outflows can be quite large and that they can manifest themselves in many different forms, depending on the specific method or instrument chosen to adapt to the crisis situation. In terms of size, private capital outflows and errors and omissions accounted for \$25 billion of the \$30 billion official reserve transactions deficit in the U.S. balance of payments in 1971. A major portion of the \$25 billion outflow was most probably caused by the crisis. Among the salient features of the 1971 outflow was its predominantly short-term nature, its high proportion of unrecorded transactions, and the prominent role played by dollar transactions between U.S. and foreign residents through the Eurodollar market.

These characteristics of crisis-related capital flows make the problem of controlling them quite complex. The large volume of unreported transactions, especially the difficult-to-pinpoint leads and lags, would seem to doom attempts at detailed regulation. Also international agreements on Eurodollar transactions would need to be a part of the rules governing capital flows. More importantly, controls on capital, or other interferences with the free flow of money or goods between countries, do not deal with the expectations of exchange rate change which are the fundamental cause of these capital flows.

One method of coping with such expectations is to fulfill them, by allowing exchange

rates to change. Proposals for a greater range of permissible fluctuations around par value ("wider bands") and more frequent par value changes embody this approach. A second method is to correct the conditions in the national economies which led to the persistent balance of payments imbalances that generated the expectations. This approach requires that large quantities of international reserves be available to the deficit country to give it time to make the necessary corrections and to have these changes perceived by transactors. The creation of large pools of temporary credit avail-

able to support currencies, such as drawings on the IMF, and additional permanent liquidity, such as SDR's (Special Drawing Rights), are steps that have been taken in this direction. However, the magnitude of the 1971 capital flows indicates that when transactors perceive that underlying conditions are not being changed sufficiently, changes in exchange rates become necessary. Therefore, it is likely that more flexibility in exchange rates combined with additional reserves will be necessary to reduce the disruptive effects of crisis-related capital flows.