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RELATION OF CASH BALANCES TO OTHER ASSETS IN THE BALANCE SHEET, 1919-39

For an analysis of changes in corporate cash balances, two lines of approach suggest themselves. The first is to investigate the movements of cash balances in relation to the movements of other items in the balance sheet; the second, to relate cash balances to the work they have to do, i.e. to payments, and to investigate the movement of the ratio of cash to payments. This chapter will deal with the first of these two approaches. In the immediately following section, an a priori hypothesis about the movement of cash in relation to other items in the balance sheet will be developed, which will serve as a guide in the problem that is to be investigated and in the grouping and analysis of the statistical material.

FACTORS INFLUENCING CHANGES IN CORPORATE CASH BALANCES IN RELATION TO OTHER ASSETS

Although the ratios of the various assets to total assets of a company are partly determined by the technical nature of the process of production, experience shows that they are not stable over time but vary within wide limits. The ratio of cash to total assets is no exception to this rule. Under what circumstances can a rise (fall) of this ratio be expected?

Period of Business Contraction

In a period of business contraction, a company is faced with a declining demand for and therefore declining sales of its products. The fall in sales leads automatically to a decline in receivables. Inventories also decline since it does not pay,[1] nor is it necessary, to hold the same amount of inventories as in the preceding boom. Furthermore, replacements of fixed equipment may be postponed. There will therefore be a shift out of these three assets, which

[1] Toward the end of the contraction period lower prices may lead to inventory purchases.

may be called "operating assets." Such a shift will, at first, swell the liquid funds of the company[2] (cash and marketable securities), but it is by no means certain that this increase will be lasting.

The funds obtained by the partial liquidation of operating assets may be paid out of the business in various ways, which results in a reduction in total funds employed (equity, adjusted for write-ups and write-downs, plus debt[3]). First, if losses occur they will absorb some of the funds released.[4] Second, the corporation may consider it a prudent long-run policy to pay out dividends even if they are not currently earned. Third, in order to save interest a company will try to reduce liabilities.[5] Trade payables decline automatically with a decline in inventory purchases. These transactions may absorb not only the cash released by the liquidation of operating assets (and, possibly, marketable securities) but also part of the cash which was, at the end of the preceding expansion, held for the purpose of carrying on operations. Since operating activities decline in contraction periods, a smaller amount of cash is needed for this purpose; the part of the cash balance thus freed can be used (in addition to the cash which comes in via the liquidation of operating assets) to reduce the total volume of funds employed.

This short discussion indicates that in periods of business contraction two developments are possible:

(1) In the extreme case all of the cash released by the shift out of operating assets (and possibly through the sale of marketable securities) plus part of the cash held in the preceding expansion to carry on transactions may be paid out of the company;[6] thus

[2] The postponement of replacements contributes to an influx of cash in so far as it signifies that depreciation allowances, which were not spent on replacements, have accrued.

[3] This sum is identical with the adjusted sum of the balance-sheet items.

[4] Losses can be considered as leading to an outflow of funds, even if they are less than the depreciation allowances, provided the decline of fixed property caused by the postponement of replacements is considered as leading to an influx of funds (see footnote 2).

[5] They may be forced to do so because banks call in their loans. In this case, the liquidation of operating assets, particularly inventories, may be the result, rather than the cause, of the reduction of liabilities.

[6] Some of the assets in the balance sheet, of which the most important are "permanent investments," are neglected here. They may release or absorb cash in a depression. The cash available for the reduction of equity and debt (total funds employed) is less or more than that indicated in the text, according to whether these other assets absorb or release cash during the period of business contraction.

total funds employed will be reduced. In this case a decline will occur in the absolute amount of the cash balance, although the ratio of cash to total assets may or may not decline materially. This development is likely if a company is under severe pressure either because of losses or because its debts become due or are called.

(2) The reduction in the total volume of funds employed may be less than the sum of the cash released by operating assets and that part of the cash balance which is set free by the decline in the volume of transactions. Under these conditions the ratio of liquid funds (cash and marketable securities) to total assets will increase. Whether the ratio of cash alone to total assets will rise depends on the current yield of securities and the expectations as to future security prices. If the yields are low and prices are expected to fall, the ratio of cash to total assets will increase, since the company will prefer to keep a larger part of its liquid funds in the form of cash. Such a rise in the ratio of cash to total assets indicates a *relative* shift into cash; it does not necessarily imply that the absolute volume of the cash balance has increased. An increase in the absolute volume would be the case only if the reduction in the total volume of funds were less than the absolute amount of cash released by the liquidation of operating assets (and, possibly, marketable securities).

The case in which the ratio of cash to total assets, and possibly also the absolute volume of cash, increases is most likely to occur if a company has not incurred heavy losses and has not been dependent on debt, especially short-term debt to banks, in the preceding boom, so that the reduction in liabilities cannot absorb cash.[7]

Period of Business Expansion

In periods of business expansion, the situation is the reverse of that in periods of contraction. When business expands, increased sales will cause a rise in operating assets which require cash for financing. Here, also, two cases can be distinguished, corresponding to the two cases discussed for a period of business contraction.

(1) If in the preceding period of contraction a company found itself in the situation where its cash did not exceed the minimum

[7] A more detailed discussion of the role of bank credit and also long-term credit in the accumulation of cash is found in Chapter 5.

required for carrying on transactions (case 1 described above), it is clear that the cash absorbed by an increase in operating assets must be acquired either by raising funds from outside or by the retention of profits (or the sale of marketable securities). No decrease in cash or in the ratio of cash to total assets will result from business expansion. On the contrary, since the volume of transactions rises, more cash will be required to carry on operations. The cash balance will increase in absolute terms and possibly also in relation to other assets — particularly if the latter were uncomfortably low during the recession. The additional cash required will be financed in the same way as the increase of operating assets (i.e., by new funds raised from outside or by the retention of earnings or by the sale of marketable securities).

(2) If the expansion starts from a situation in which the ratio of cash to assets was unusually high (case 2 above), the company may possibly finance the increase in operating assets at first by drawing on its surplus cash; in this case a decline in the absolute amount of cash, as well as in the ratio of cash to total assets, will occur. In later stages of the expansion, additions to the cash balance may again become necessary because of the increase in the volume of transactions. Under these circumstances, the absolute amount of the cash balance will expand, whereas the ratio of cash to total assets may remain approximately stable.

Later in this chapter the cash balances of large and of small and medium-sized manufacturing corporations for the period between the two wars will be examined, with a view to finding out which of these possibilities materialized and why. But before such analysis is begun, it is necessary to discuss briefly the method used in the investigation.

METHOD OF INVESTIGATION

The method of analysis followed in the next section is generally known as the "sources and uses of funds" analysis. A detailed description of this method cannot be presented here, but a few illustrations will serve to give an idea of the procedure that underlies the statistical analysis.

The larger part of the receipts of a company run through the enterprise and become expenditures during the same accounting period, affecting the balance sheet only in so far as profits are made on the transactions and are not paid out in the form of dividends or as losses are incurred. In the case of profits, only the increase in surplus and capital reserves is counted as a source of funds, leading to a net inflow of cash during the period.[8] The increase in surplus and capital reserves is not necessarily reflected in an increase of cash on the asset side at the year end; it may find its counterpart in an increase in inventories or fixed equipment or other items on the asset side, which then has to be considered as a use of funds leading to an outflow of cash during the accounting period. The reverse applies if losses are made on the transactions. Such current transactions, however, are not the only causes of net inflows or outflows of cash.

A company may increase its funds by borrowing or by floating stock, in which case the additional debt or stock has to be regarded as leading to an inflow of cash; and a corresponding increase in noncash items has to be regarded as leading to an outflow of funds. Again the reverse applies if debts are reduced. Profits (losses) and increases (decreases) in funds from outside involve an increase (decrease) in total funds employed (equity, adjusted for write-ups and write-downs, plus debt).

In addition, there are transactions that affect balance sheet items without changing the total of funds employed; they simply result in a shift between assets or between liabilities. Thus a decline in inventories means an inflow of cash which may be used to purchase marketable securities. The increase in the latter has then to be considered as a use of funds, involving a cash outflow. Or fixed equipment may not have been replaced fully during the accounting period. The decline is then to be considered as a source of funds, because it means that depreciation accruals are not fully spent on replacements.

It is, of course, necessary to adjust the fixed property account (as well as inventories and other assets) for write-ups and write-downs which may have been made during the accounting period, if correct results are to be obtained. Otherwise, a decline in the fixed property account, which is due to write-downs, would appear as a source of funds (and vice versa), whereas actually there was no inflow (or outflow) of cash. Such elimination of write-ups or

[8] Total receipts and payments are discussed in the following chapter.

write-downs requires corresponding surplus and reserve adjustments on the liability side of the balance sheet.

Changes in the cash balance must be equal to the difference between the sum of all changes of balance sheet items that lead to an inflow and the sum of all changes that lead to an outflow of cash. A list of such changes follows.

(A) An *increase* in the following balance sheet items must lead to an *inflow* of cash at one time or another during the accounting period:

Funds from outside	Notes payable Accounts payable Tax accruals Other current liabilities Long-term liabilities Preferred and common stock Other liabilities
Funds from operations	Surplus and reserve accounts (after adjustments for write-ups and write-downs have been made)

(B) An *increase* in the following items in the balance sheet will cause an *outflow* of cash:

Marketable securities

Receivables

Inventories

Fixed property (An increase in fixed property is identical with fixed property expenditures minus depreciation and depletion charges. Adjustments for write-ups and write-downs have to be made.)

Investments and advances

"Other" assets (deferred charges, patents, etc.)

The difference between (A) and (B) will equal the increase or decrease of cash. *It must be emphasized that the items listed as leading to an inflow of cash (sources of funds) become items leading to an outflow of cash (uses of funds) if they have negative signs, and vice versa.* By this token the repayment of debt is a use of funds and a decrease in inventories a source of funds.

In the statistical analysis, the items listed above are combined into the following five groups, in order to reduce the material to manageable proportions:

(1) The total increase or decrease of "operating assets" (receivables, inventories, and net fixed property).[9] This summary of items for our sample of large manufacturing corporations is shown in panel 1 of Chart 5.

(2) The increase or decrease in total funds employed,[10] i.e., the sum of the items listed above under (A). The changes in total funds employed are presented in Chart 6.

(3) Changes in marketables securities (panel 3 of Chart 5).

(4) Changes in cash (panel 4 of Chart 5).

(5) A residual item "other" assets (panel 2 of Chart 5).

These groups are suggested by the preliminary discussion above. They indicate, when operating assets release cash, whether the cash released was paid out — which would be reflected by a decrease in total funds employed — or whether the cash went to swell marketable securities or the cash balance. When operating assets absorb cash, the groupings show whether the cash was provided by an increase in total funds employed (either through retention of earnings or increase of liabilities) or by a decline in marketable securities or cash.[11]

STATISTICAL ANALYSIS

Large Manufacturing Corporations

In years of severe business contraction[12] the large manufacturing corporations in our sample shift out of operating assets (panel 1 of Chart 5); the sum total of operating assets invariably releases cash in such years. As shown by the chart in Appendix B, receivables and inventory fall as business activity declines, while

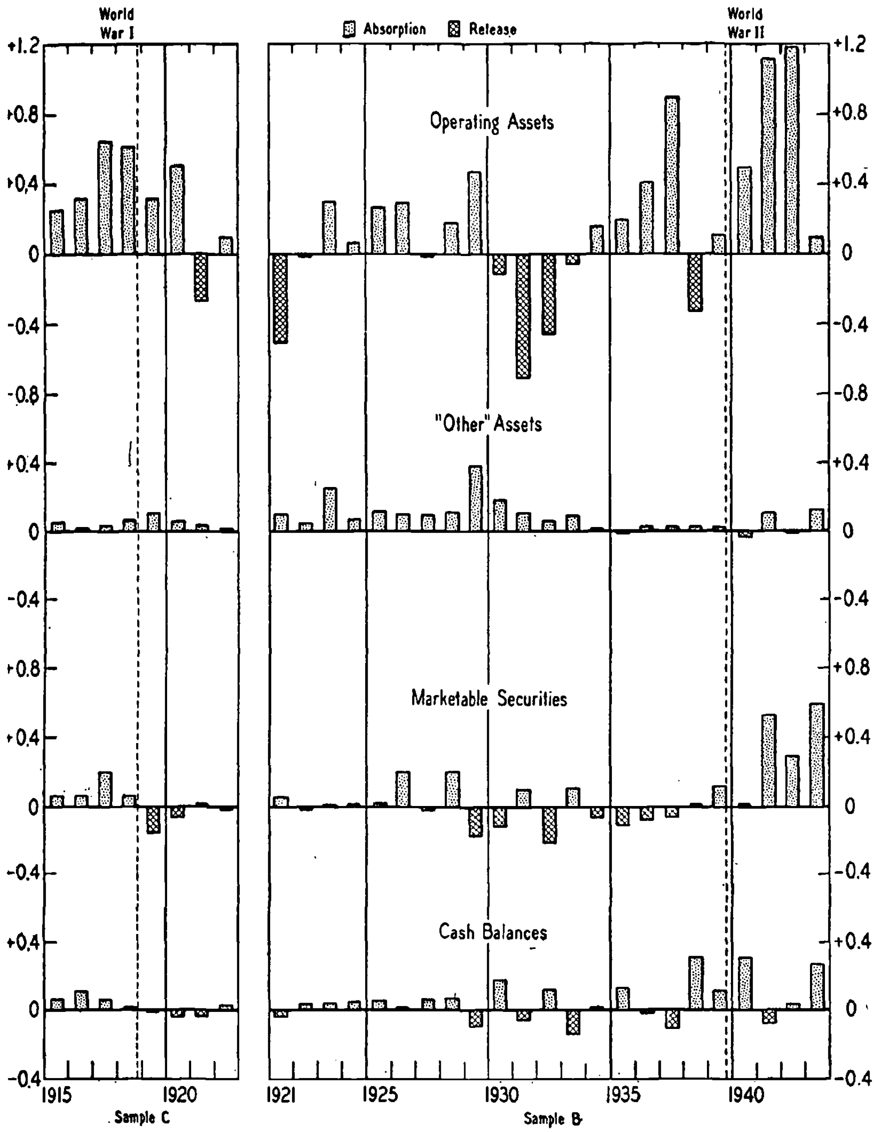
9 Since the movements of each of the three components of this total are interesting in themselves, they are shown separately in Appendix B.

10 A decline in the total volume of funds can be due to a reduction of liabilities or a decline in surplus accounts. The latter may result from actual losses or from dividend payments being greater than net income before dividends. The reverse applies in the case of an increase of total funds. A chart showing the separate movements in dividend payments, net income before dividends, and changes in funds from outside for large manufacturing corporations is given in Appendix B.

11 As to the item "other" assets, see footnote 6 above.

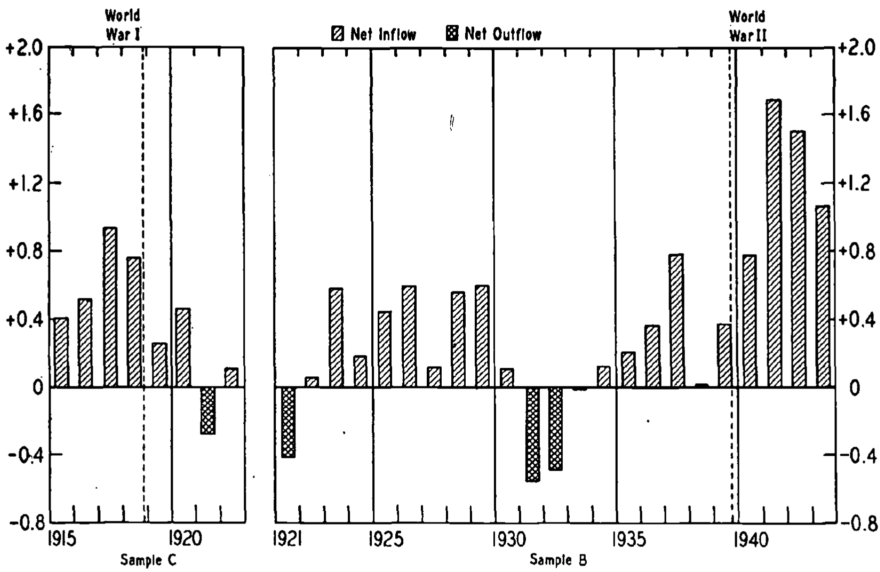
12 1921, 1930-33, and 1938.

Chart 5—NET ABSORPTION OR RELEASE OF FUNDS, BY MAJOR ASSET CLASSES, OF SAMPLES OF LARGE MANUFACTURING CORPORATIONS



Large manufacturing corporations shift out of their operating assets in times of business contraction, thus releasing funds in those years. The opposite process is at work during periods of business expansion.

Chart 6—NET CHANGE OF TOTAL FUNDS OF SAMPLES OF LARGE MANUFACTURING CORPORATIONS



As a rule there is a net inflow of corporate funds in years of business expansion and a net outflow in years of contraction.

fixed property, if it contracts at all, contracts with, roughly, a lag of one year, and the decline may occur after revival has set in.[13]

In the years 1921 and 1931-33, the bulk of the cash released by the liquidation of operating assets was paid out, resulting in a reduction in total funds employed. (See Chart 5, panel 1, and Chart 6.) A small part of the decline in 1932 came from actual losses on operations, but most of it was due to the fact that the corporations paid out dividends that were not earned during the year and, in addition, reduced their funds from outside (see Appendix B). The reduction of the last item, in so far as it represented a decline in accounts payable and tax liabilities, was

[13] In the year of minor recession, 1927, the decline of operating assets is so small that it can be neglected as a source of funds. The slight business contraction of the year 1924 shows itself only in a retardation of the increase of operating assets. It must be emphasized that our figures show changes from one year end to another; quite possibly during part of the year 1924 inventories increased although they were, at the end of the year, lower than at the end of the preceding year.

a relatively automatic consequence of the decline in the volume of business.

In two years of contraction (1930 and 1938) total funds employed *increased* in spite of the simultaneous liquidation of operating assets. Investigation shows that this increase was due to the floating of common stock (1930) and the incurring of long-term debt (1938), which more than offset the simultaneous reduction of current liabilities. The most obvious explanation is that in the preceding years arrangements for long-term financing had been made, which the corporations did not cancel.

The next point to be examined is whether the release of cash by operating assets led to a *relative* shift, in the composition of assets, in favor of cash at the same time that total funds employed showed a net decline. A positive (or negative) difference between the cash released by the decline of operating assets and the cash paid out is not identical with a net addition to (or subtraction from) the cash balance.

Chart 5 shows that in all recession years "other" assets, mainly permanent investments, increased, thus absorbing funds. At the same time, marketable securities absorbed funds in some of the recession years and released funds in others. The net result of all these movements was a drain on cash in 1921, 1931, and 1933, and an increase in cash in the years 1930, 1932, and 1938. In the last three years, there was a definite shift into cash in absolute terms.

The absolute increase in cash does not measure the *relative* shift among the assets into cash. Such a measurement is obtained by use of the ratio of cash to total assets, which is found to be higher in years of severe recession (except 1921) than it is in the preceding expansion years. For our sample of large manufacturing corporations, the average percentage of cash to total assets in the twenties (1922-29) was 5.6. In the recession years 1930-33 the ratio rose to an average of 7.0 percent, the figure for each year in this period being higher than that of any year between 1922 and 1929. In the depression year of 1938 the ratio advanced to 9.1 percent, from 6.3 percent in 1937.

Thus in severe recession years there is, as a rule, not only a partial liquidation of operating assets and a reduction in total funds employed but also a tendency toward a relative shift into cash as reflected by a rising ratio of cash to total assets.[14] Therefore, on the whole, the second case considered in the discussion of periods of business contraction above (page 19) is the one that applies to large manufacturing corporations.

The year 1921 is an exception, however. The reason for this exception is not difficult to discover. In that year large manufacturing corporations which had relied upon banks for financing inventory in the preceding boom were pressed for the repayment of loans. This situation may be contrasted with that in 1929; when the recession began in the latter year, big industrial corporations were largely independent of the banks, and funds set free did not have to be used for the retirement of bank loans.

During years of business expansion the process at work is the opposite of that in periods of contraction. The operating assets of large manufacturing corporations absorb funds. The additional funds are provided mainly out of retained profits, although in most years there is also an increase in funds from outside. Part of this inflow is again the automatic result of the increase in the volume of business. The net increase in total funds employed in the twenties was actually greater than the amount of funds absorbed by the increase in operating assets. The difference went for the most part into the building up of investments, marketable securities, and cash balances, additions to which were required to finance the increased volume of transactions. Between 1934 and 1937, however, the corporations financed their additions to operating assets and investments also by drawing on either cash or marketable securities. The fact that the ratio of cash to total assets declined in both 1936 and 1937 shows clearly a relative shift away from cash into operating assets.[15] Obviously, in this period of upswing the second case considered above in the discussion of periods of business expansion (page 20) is the one that applies to large manufacturing corporations.

[14] The ratio of marketable securities plus cash to total assets also shows a sudden rise in the recession of 1938 (from 8.7 percent in 1937 to 11.6 percent in 1938). However, the depression years, 1930-33, do not show a rise compared with the average of the years 1926-29. This can probably be traced to the attractiveness of investments in securities in the later years of the boom of the twenties because of the capital gain which could be made.

[15] In 1934 and 1935 the ratio of cash to total assets rose, in spite of the improvement of business conditions in those years. This rise, however, was accompanied by a decline in the ratio of marketable securities to total assets.

Just as the year 1921, in contrast to later periods of business contraction, did not show a rise in the ratio of cash to total assets, so the years after 1921, unlike other periods of business expansion, did not show a decline in the ratio. The reason is obvious. Since the corporations did not hold an abnormally large percentage of their assets in the form of cash in the depression of 1921, there could not be any shift "back" into operating assets, once business began to improve. In absolute terms cash actually showed an increase, which was required by the rising volume of transactions.

Medium-Sized and Small Manufacturing Corporations

For the sample of medium-sized and small corporations, also, the severe recession years show a liquidation of operating assets.[16] The funds thereby obtained are paid out of the business, which results in a decline of the total volume of funds employed. The decline during the years 1930-35 is explained in part by the negative rate of profit for the concerns in the sample, and in part by the reduction of debt. The extent to which repayment of bank debt accounts for the reduction cannot be established, since the balance sheets give only the sum of accounts payable and notes payable; the sum of these two items decreased sharply.

In contrast to the large corporations, the medium-sized and small companies do not show any relative movement into cash even in the depression of the thirties. On the contrary, the ratio of cash to total assets in most depression years, including 1921, was smaller than it was in the preceding boom. The explanation is that a drain on cash arose because of dividend payments and large losses, and also, in all probability, from the reduction of bank debt, which took place either because the corporations deliberately repaid their loans in order to save interest payments or because banks pressed them for repayment. Thus the first case considered above in the discussion of periods of contraction (page 18) is the one that applies to small and medium manufacturing corporations.

In expansion years the tendencies observed for medium and small corporations, as for large concerns, were opposite to those in years of contraction. The reason why the ratio of cash to total

[16] The figures on which this discussion is based are given in Appendix D, Table D-3.

assets does not decline in all upswings no longer needs further explanation. Only if the upswing starts from a depression which shows an abnormally high ratio of cash to other assets can such a shift take place.

SUMMARY

(1) In severe recession years during the period 1919-39, large corporations shifted out of their operating assets by partial liquidation of inventory, receivables, and fixed property.

(2) Apart from covering losses, the funds thus released were as a rule largely paid out to stockholders or creditors.

(3) When the corporations were not indebted to any considerable extent, a strengthening of the cash balance relative to other assets occurred in times of contraction. When they were so indebted, the percentage of cash to total assets did not change appreciably.

(4) In expansion years, a *relative* shift away from cash into operating assets occurred only if the upswing started from a depression in which the corporations held an abnormally high percentage of their assets in the form of cash.

(5) For medium-sized and small corporations, the ratio of cash to total assets showed no increase in a depression (and therefore no decrease in a boom), the reason being that losses and the reduction of liabilities absorbed all the funds released by the liquidation of operating assets.