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# Financing Capital Formation

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Up to this point in our narrative we have dealt with cash, working capital, and total assets, asking in each case what transactions added to or diminished each quantity as an entity. These entities are the familiar objects of financial management. In this chapter we shall depart from the commonplace and design our flow analysis more to the liking of the economist, perhaps, than to that of the company treasurer. We shall take note of the combined inventory and plant, and then trace the inflow and outflow of goods and services in order to account for the change in that quantity. Concurrently our special attention will be devoted to the sources of funds for the expansion of inventory and plant and to the disposition of funds which grow out of its shrinkage.<sup>1</sup>

Although industrial companies survive by the intake and output of goods, and most of management's financial negotiations revolve about goods, nevertheless, treasurers, according to available writings, simply do not phrase their financial problems in these terms, but rather in terms of solvency (projected cash flows), debt limits, and the cost and availability of new money. Therefore, in the present chapter, which is patently experimental, the statement of the sources of funds (other than the money market) will appear strained by comparison with conventional quantities. In the next few paragraphs we shall define our terms more explicitly and outline our measuring procedure.

### THE STOCK OF GOODS AND THE STATUS OF CLAIMS

In Table 8, using the accounts of a single company which are by now somewhat familiar, we have rearranged the balance sheet, separating the

<sup>1</sup> Again, it may be emphasized that the measurements in this chapter refer to dollar amounts only. However, if price deflators and machine-productivity indexes are to be used in the analysis of corporate data for the study of welfare economics, it would seem that this is the most promising place for their introduction.

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TABLE 8  
STOCK OF GOODS AND STATUS OF CLAIMS, ALLIS-CHALMERS MANUFACTURING COMPANY, DECEMBER 31, 1947  
(thousands of dollars)

GOODS	<i>Purchase Fund, Composition and Net Balance</i>	<i>Company's Net Obligation to the Money Market</i>
Inventory	109,496	
Plant, net	44,693	
	10,596	
	27,005	
	1,061	
	0	
	240	
	356	
	<u>39,258</u>	U.S. and other securities
		<u>9,000</u>
	42,777	Debit total
	5,019	Notes payable, short-term
	3,730	Term loan, 1950-53
	813	2% debentures, 1956
	26,465	Preferred stock
		Common stock and paid-in surplus
	<u>78,804</u>	<u>72,706</u>
		Credit total
		<u>123,643</u>
	<u>39,546</u>	
		Net balance (cr.)
	<u>154,189</u>	<u>114,643</u>
		Combined balance (cr.) <u>154,189</u>

Source: Table A-1.

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goods from the claims. On the claims side we have again subdivided, separating the money-market titles from the others. In consonance with accounting notation, the *net balance* of money-market claims against the company plus the *net balance* of other claims against the company equal the stock of goods on hand and may be considered the sources of the goods. In order to differentiate the money-market claims from the others, we have designated the latter as the *purchase fund*.<sup>2</sup> In brief, then, we have the following statement (in thousands of dollars):

<i>Goods</i>		<i>Sources</i>	
Inventory and plant, net	154,189	Net balance of purchase fund	39,546
	154,189	Net obligation to money market	114,643
			154,189

### THE STOCK AND FLOW OF GOODS AND THE STATUS AND FLOW OF CLAIMS

In Table 9 we have tabulated the outflow of goods and the intake of goods and services. These transactions constitute the steps by which the goods on hand at the beginning of the year become the closing balance of goods.<sup>3</sup> We have also indicated what specific claims (cash or promises) were given or received in each class of transactions.<sup>4</sup> Again, in consonance with accounting notation, the net balance of claims against the company was changed only by the goods transactions. It will also be noted that the balance-sheet account titles affected by these transactions were cash, accounts receivable, accounts payable, taxes payable, and earned surplus; and these are the principal constituents of what we have labeled purchase fund. Had there been no access to the money market during the year, the \$19,607,000 of capital formation would have been financed, i.e. made possible, by letting the net balance of unpaid bills for goods and services move upward. But, as a matter of fact, the money market was called upon for help at the rate of \$19,000,000, so the net balance of bills ran up to only \$607,000. A parallel way of saying the same thing is that capital

<sup>2</sup> This term is meant to indicate the power to purchase goods without recourse to the money market. Any other name would do as long as it was unique in its reference to the group of specific accounts. "Trading fund" sounds right but is rejected because of its reference to net quick assets.

<sup>3</sup> Logically, the table should have read "Service of Equity Capital (pretax), 26,242," as it would have read had this enterprise been a partnership.

<sup>4</sup> On a national scale, checking accounts would be considered a claim upon the banking sector for legal tender, rather than an ultimate asset, like coin or currency, in the hands of the industrial sector.

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TABLE 9  
STOCK AND FLOW OF GOODS, AND STATUS AND FLOW OF FUNDS, ALLIS-CHALMERS MANUFACTURING COMPANY,  
YEAR ENDING DECEMBER 31, 1948  
(thousands of dollars)

	FUNDS					
	GOODS		Taken In		Given Out	
	In	Out	Receivables	Cash	Cash	Payables
Beginning balance, Dec. 31, 1947:						
Goods	154,189					154,189
Claims			17,461	311,799		
Delivery of goods (sales)		329,260				
Receipt of goods and services:						
Employees, materials, services	315,435				306,676	8,795
Government services	10,800				3,365	7,435
Services of equity capital (excl. tax)	15,442				5,193	10,249
Plant and equipment installed	7,190				7,190	
Subtotals	348,867	329,260	17,461	311,799	322,424	26,443
			329,260		348,867	
Excess		19,607				19,607
Closing balance, Dec. 31, 1948:						
Goods	173,796					
Claims						173,796

SOURCE: Table A-5.

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TABLE 10

TRANSACTIONS AFFECTING THE PURCHASE FUND FOR GOODS AND SERVICES AND FOR  
THE FINANCING OF CAPITAL FORMATION, ALLIS-CHALMERS  
MANUFACTURING COMPANY, 1948 AND 1949  
(thousands of dollars)

	1948		1949	
	<i>Dr.</i>	<i>Cr.</i>	<i>Dr.</i>	<i>Cr.</i>
<i>Transfer of goods and services</i>				
Delivery of goods (sales)		329,260		352,282
Receipt of goods and services				
Employees, materials	315,435		271,572	
Government services	10,800		14,450	
Services of equity capital (excl. tax)	15,442		18,755	
Gross plant expenditures	7,190		4,115	
Subtotals	348,867	329,260	308,892	352,282
Subtotal difference	19,607			43,390
<i>Money-market transactions</i>				
U.S. and other marketable securities	6,000		20,000	
Notes payable, short-term		15,000	(15,000)	453
Notes payable, long-term		10,000		(15,000)
Bonds		0		0
Preferred stock		0		0
Common stock		0		0
Subtotals	6,000	25,000	20,000	453
Subtotal difference		19,000	19,547	
<i>Total payments and total receipts</i>	354,867	354,260	328,892	352,735
Effect on purchase fund	607			23,843

SOURCE: Annual reports of the company. Payments are entered in debit column; receipts, in credit column.

formation required the net expenditure of \$19,607,000 in funds and that the money market was called upon to replenish the depleted fund. This is the usual phraseology of a company president when, in speaking of the working-capital fund, he cites his reasons for the sale of new securities to replenish the supply of funds that have already been expended for plant expansion. The only difference is that here we are speaking of a negative-

## *Financing Capital Formation*

TABLE 11

CHANGE IN THE ACCOUNT TITLES OF THE PURCHASE FUND, ALLIS-CHALMERS  
MANUFACTURING COMPANY, 1948 AND 1949, YEAR ENDING DECEMBER 31  
(thousands of dollars)

	CHANGE			
	1948		1949	
	<i>Dr.</i>	<i>Cr.</i>	<i>Dr.</i>	<i>Cr.</i>
Cash	7,537		7,478	
Trade receivables	17,461		10,865	
Other current assets	641			797
Investments and advances	0		0	
Deferred charges	220		256	
Other assets		23	22	
Accounts payable		8,759	22,091	
Res., income tax		7,435		3,516
Res., inventory, contingencies		0		0
Res., employers liability insurance		0		0
Earned surplus		10,249		12,556
Totals	25,859	26,466	40,712	16,869
Net change		607	23,843	

SOURCE: Table A-1.

balance fund, and inventory and plant together are the consumers of funds. In fund language, the following schedule, condensed from Table 10 for 1948, gives the briefest possible statement of the flow of goods, the formation of capital, and its financing (in thousands of dollars):

	Payments <i>Dr.</i>	Receipts <i>Cr.</i>
Receipt of funds for goods delivered		329,260
Payment of funds for goods received	348,867	
Net difference on goods account	19,607	
Money market, net		19,000
Effect on purchase fund	607	

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Table 10 covers the same transactions in detail and is offered as a statement of the minimum amount of required information.

In contrast to 1948, 1949 was a year of capital consumption for the company. Plant and inventory decreased by \$43,390,000, the consequence of giving out \$352,282,000 in goods and taking in only \$308,892,000 in services and goods. The resulting net intake of funds allowed the company to return \$19,547,000 to the money market and to enjoy an improvement in its net balance of unsettled bills of \$23,843,000; or, in fund language, to diminish the net balance of its fund outstanding. The change in the account titles of the purchase fund during 1948 and 1949 are shown in Table 11.

With this brief description of terminology in mind, we may next consider the cyclical behavior of the flow of goods and the formation of capital by reference first to an individual company and then to a group of companies. At the same time, we shall consider the role of the money market as both a provider of funds in expansion and a recipient of funds generated by the liquidation of physical goods in a contraction.

### ONE COMPANY'S EXPERIENCE, 1919-57

Table 12 reports Allis-Chalmers' payments and receipts of purchase funds in the exchange of all goods, the replenishment of the fund by the money market, and the net effect of these transactions on the fund itself, for 1919-57. Discussion will be directed first to the transfer of goods and services and to net capital formation or consumption. A second review will take the net capital difference as its starting point and discuss the manner in which it was financed, since the financing problem comes into its critical aspect at this net difference level.

#### *Transfer of Goods and the Net Change of Capital*

Chart 9 shows goods and services received, goods delivered, and their difference, capital change. One is struck instantly by the wide gyrations of the gross curves in contrast with the relative stability of the net capital-change curve. The curves for the transfer of goods and services reveal a long-term growth underlying the cyclical deviations. Of course, the curves are in terms of current prices and might assume different characteristics were they deflated by a price index. So, too, with the net capital curve. As it stands, the latter shows a net capital formation in most of the years. Capital consumption appears in those years when the transfer curves contract initially after an expansion. At such times there is a cutback in goods delivered but a still sharper cutback in goods acquired. About the same congruence with the business cycle is apparent for net capital change as



*Financing Capital Formation*

TABLE 12  
PAYMENTS AND RECEIPTS OF PURCHASE FUNDS IN THE TRANSFER OF GOODS AND SERVICES AND THE  
FINANCING OF CAPITAL FORMATION, ALLIS-CHALMERS MANUFACTURING COMPANY, 1919-57  
(thousands of dollars)

	1919		1920		1921		1922	
	Dr.	Cr.	Dr.	Cr.	Dr.	Cr.	Dr.	Cr.
<i>Transfer of goods and services</i>								
Delivery of goods (sales)		30,795		32,003		25,234		21,714
Receipt of goods and services	19,847		32,162		15,529		16,397	
Employees, materials, etc.	2,368		1,100		160		300	
Government services	3,600		3,564		2,215		2,208	
Services of equity capital (excl. tax)	1,609		2,774		312		315	
Gross plant expenditures								
Subtotals	27,424	30,795	39,600	32,003	18,216	25,234	19,220	21,714
Subtotal difference		3,371	7,597			7,018		2,494
<i>Money-market transactions</i>								
U.S. and other marketable securities				6,829				1,828
Notes payable, short-term	3,944				3,962			
Notes payable, long-term								
Bonds								
Preferred stock								
Common stock								
Subtotals	3,944	0	0	6,829	3,962	0	1,828	0
Subtotal difference	3,944			6,829	3,962		1,828	
<i>Total payments and total receipts</i>								
	31,368	30,795	39,600	38,832	22,178	25,234	21,048	21,714
Effect on purchase fund	573		768			3,056		666

## Financing Capital Formation

	1923		1924		1925		1926	
	Dr.	Cr.	Dr.	Cr.	Dr.	Cr.	Dr.	Cr.
<i>Transfer of goods and services</i>								
Delivery of goods (sales)		26,333		28,487		29,610		31,402
Receipt of goods and services	24,885		23,811		25,206		27,823	
Employees, materials, etc.	531		515		554		620	
Government services	2,703		3,221		3,417		3,597	
Services of equity capital (excl. tax)	609		1,666		199		462	
Gross plant expenditures								
Subtotals	28,728	26,333	29,213	28,487	29,376	29,610	32,502	31,402
Subtotal difference	2,395		726		234		1,100	
<i>Money-market transactions</i>								
U.S. and other marketable securities		2,742	1,395		1,817		122	
Notes payable, short-term								
Notes payable, long-term								
Bonds								
Preferred stock								
Common stock								
Subtotals	0	2,742	1,395	0	1,817	0	122	0
Subtotal difference		2,742	1,395		1,817		122	
<i>Total payments and total receipts</i>								
Effect on purchase fund	28,728	29,075	30,608	28,487	31,193	29,610	32,624	31,402
	347	=	2,121	=	1,583	=	1,222	=

## Financing Capital Formation

TABLE 12 (Continued)

	1927		1928		1929		1930	
	Dr.	Cr.	Dr.	Cr.	Dr.	Cr.	Dr.	Cr.
<i>Transfer of goods and services</i>								
Delivery of goods (sales)		34,058		36,971		45,961		42,091
Receipt of goods and services	28,378		33,256		42,212		35,486	
Employees, materials, etc.	511							
Government services	3,664		3,750		5,149		4,426	
Services of equity capital (excl. tax)	4,035		1,453		2,219		1,594	
Gross plant expenditures								
Subtotals	36,588	34,058	38,459	36,971	49,580	45,961	41,506	42,091
Subtotal difference	2,530		1,488		3,619			585
<i>Money-market transactions</i>								
U.S. and other marketable securities		7,219	286		505	2,000	2,000	1,656
Notes payable, short-term								
Notes payable, long-term					350		1,107	
Bonds	18,149							
Preferred stock						3,710		5,534
Common stock							3,107	7,190
Subtotals	18,149	21,659	286	0	855	5,710	3,107	7,190
Subtotal difference		3,510	286			4,855		4,083
<i>Total payments and total receipts</i>								
Effect on purchase fund	54,737	55,717	38,745	36,971	50,435	51,671	44,613	49,281
	980		1,774		1,236		4,668	

## Financing Capital Formation

	1931		1932		1933		1934	
	Dr.	Cr.	Dr.	Cr.	Dr.	Cr.	Dr.	Cr.
<i>Transfer of goods and services</i>								
Delivery of goods (sales)		29,288		15,740		13,633		20,849
Receipt of goods and services	23,070		15,790		14,244		24,314	
Employees, materials, etc. }	1,256		2,955		2,894		325	1,039
Government services }	1,177		287		156		325	
Services of equity capital (excl. tax)								
Gross plant expenditures								
Subtotals	25,503	29,288	16,077	18,695	14,400	16,527	24,639	21,888
Subtotal difference		3,785		2,618		2,127		2,751
<i>Money-market transactions</i>								
U.S. and other marketable securities	10		220		201			42
Notes payable, short-term								
Notes payable, long-term	2,600	103	84		54			105
Bonds								
Preferred stock		412		430		579		383
Common stock								
Subtotals	2,610	515	304	430	255	579	0	530
Subtotal difference		2,095		126		324		530
<i>Total payments and total receipts</i>								
Effect on purchase fund	28,113	29,803	16,381	19,152	14,655	17,108	24,639	22,418
Effect on purchase fund		1,690		2,744		2,451		2,221

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TABLE 12 (Continued)

	1935		1936		1937		1938	
	Dr.	Cr.	Dr.	Cr.	Dr.	Cr.	Dr.	Cr.
<i>Transfer of goods and services</i>		39,413		59,787		88,504		78,422
Delivery of goods (sales)	37,802		58,589		92,895		62,205	
Receipt of goods and services	492		1,865		3,006		980	
Employees, materials, etc.			4,014		7,841		2,554	
Government services	1,985		1,936		5,445		4,029	
Services of equity capital (excl. tax)	709							
Gross plant expenditures								
Subtotals	40,988	39,413	66,404	59,787	109,187	88,504	69,768	78,422
Subtotal difference	1,575		6,617		20,683		8,654	
<i>Money-market transactions</i>								
U.S. and other marketable securities		714		1,775				
Notes payable, short-term				2,100		2,100		
Notes payable, long-term								
Bonds		656		15,005		23,325		
Preferred stock		579		15,412		145		11
Common stock								
Subtotals	0	1,949	15,005	19,287	2,100	25,470	0	11
Subtotal difference		1,949		4,282		23,370		11
<i>Total payments and total receipts</i>	40,988	41,362	81,409	79,074	111,287	113,974	69,768	78,433
Effect on purchase fund		374	2,335			2,687		8,665

## Financing Capital Formation

	1939		1940		1941		1942	
	Dr.	Cr.	Dr.	Cr.	Dr.	Cr.	Dr.	Cr.
<i>Transfer of goods and services</i>								
Delivery of goods (sales)		75,315		88,001		123,282		198,084
Receipt of goods and services	73,147		85,244		124,784		178,860	
Employees, materials, etc.	1,109		2,518		8,600		21,400	
Government services	4,820		6,160		7,089		7,195	
Services of equity capital (excl. tax)	966		1,202		2,438		3,174	
Gross plant expenditures								
Subtotals	80,042	75,315	95,124	88,001	142,911	123,282	210,629	198,084
Subtotal difference	4,727		7,123		19,629		12,545	
<i>Money-market transactions</i>								
U.S. and other marketable securities							25,007	
Notes payable, short-term						3,000	3,000	25,750
Notes payable, long-term					10,908			
Bonds								
Preferred stock								
Common stock								
Subtotals	0	0	0	0	10,908	12,250	28,007	25,750
Subtotal difference						1,342	2,257	
<i>Total payments and total receipts</i>								
Effect on purchase fund	80,042	75,315	95,124	88,001	153,819	135,532	238,636	223,834
	4,727		7,123		18,287		14,802	

## Financing Capital Formation

TABLE 12 (Continued)

	1943		1944		1945		1946	
	Dr.	Cr.	Dr.	Cr.	Dr.	Cr.	Dr.	Cr.
<i>Transfer of goods and services</i>		298,293		381,195		291,549		94,832
Delivery of goods (sales)	267,727		329,782		239,941		132,967	
Receipt of goods and services		38,250		42,667		16,757		25,400
Employees, materials, etc.		7,006		12,168		6,442		404
Services of equity capital (excl. tax)		2,589		3,958		4,915		12,419
Gross plant expenditures								
Subtotals	310,572	298,293	388,593	381,195	268,055	291,549	145,386	120,636
Subtotal difference	12,279		7,398			23,494	24,750	
<i>Money-market transactions</i>								
U.S. and other marketable securities	18,495		10,143			7,681		22,964
Notes payable, short-term		15,000		10,000	14,428		25,572	
Notes payable, long-term				15,627				14,962
Bonds								17,329
Preferred stock								17,678
Common stock				28,993				
Subtotals	18,495	15,000	35,770	28,993	14,441	7,681	25,572	72,933
Subtotal difference	3,495		6,777			6,760		47,361
<i>Total payments and total receipts</i>	329,067	313,293	424,363	410,188	282,496	299,230	170,958	193,569
Effect on purchase fund	15,774		14,175			16,734		22,611

## Financing Capital Formation

	1947		1948		1949		1950	
	Dr.	Cr.	Dr.	Cr.	Dr.	Cr.	Dr.	Cr.
<i>Transfer of goods and services</i>								
Delivery of goods (sales)		212,918		329,260		352,282		345,398
Receipt of goods and services	233,260		315,435		271,572		302,209	
Employees, materials, etc.	3,650		10,800		14,450		23,900	
Government services	5,422		15,442		18,755		23,120	
Services of equity capital (excl. tax)	8,367		7,190		4,115		7,477	
Gross plant expenditures								
Subtotals	250,699	212,918	348,867	329,260	308,892	352,282	356,706	345,398
Subtotal difference	37,781		19,607		43,390		11,308	
<i>Money-market transactions</i>								
U.S. and other marketable securities		14,000	6,000		20,000		20,000	
Notes payable, short-term				15,000	(15,000)	453	453	
Notes payable, long-term				10,000		(15,000)	7,000	
Bonds								
Preferred stock								33
Common stock								33
Subtotals	0	14,000	6,000	25,000	20,000	453	27,453	33
Subtotal difference		14,000		19,000	19,547		27,420	
<i>Total payments and total receipts</i>	250,699	226,918	354,867	354,260	328,892	352,735	384,159	345,431
Effect on purchase fund	23,781		607			23,843	38,728	



## Financing Capital Formation

TABLE 12 (Concluded)

	1951		1952		1953		1954	
	Dr.	Cr.	Dr.	Cr.	Dr.	Cr.	Dr.	Cr.
<i>Transfer of goods and services</i>		459,270		516,117		516,575		495,310
Delivery of goods (sales)			438,738		481,645		425,073	
Receipt of goods and services	437,629		41,525		21,504		23,882	
Employees, materials, etc.	47,500		24,458		21,944		26,130	
Government services	22,417		15,543		21,353		9,893	
Services of equity capital (excl. tax)	10,004							
Gross plant expenditures								
Subtotals	517,550	459,270	520,264	516,117	546,446	516,575	484,978	495,310
Subtotal difference	58,280		4,147		29,871		10,332	
<i>Money-market transactions</i>								
U.S. and other marketable securities		26,000				40,000	26,962	
Notes payable, short-term		26,000		5,000		3,750	18,000	
Notes payable, long-term				42,000				5,750
Bonds								
Preferred stock								34,885
Common stock		235		222		104		243
Subtotals	0	52,235	11,000	47,222	3,750	40,104	44,962	40,878
Subtotal difference				36,222		36,354	4,084	
<i>Total payments and total receipts</i>								
Effect on purchase fund	517,550	511,505	531,264	563,339	550,196	556,679	529,940	536,188
Effect on purchase fund	6,045		32,075		6,483		6,248	

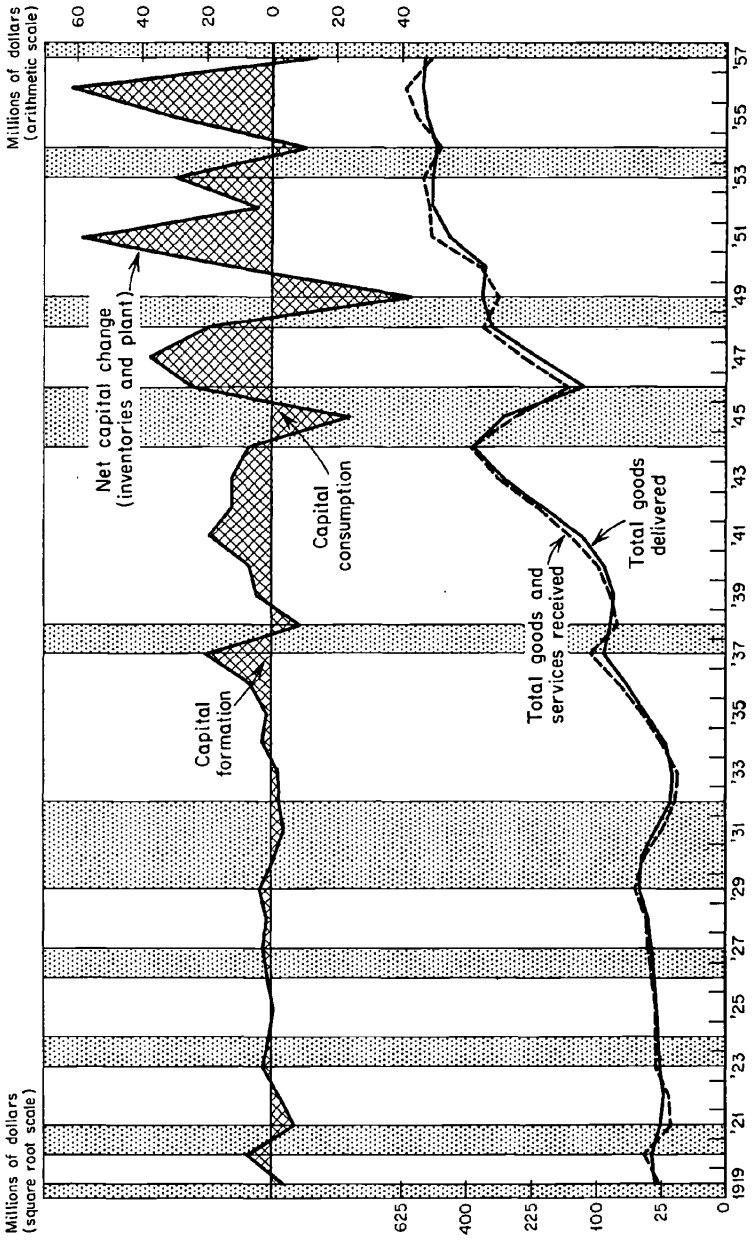
## Financing Capital Formation

	1955		1956		1957	
	Dr.	Cr.	Dr.	Cr.	Dr.	Cr.
<i>Transfer of goods and services</i>						
Delivery of goods (sales)		538,045		551,593		537,191
Receipt of goods and services	505,056		555,899		469,281	
Employees, materials, etc.	25,300		22,450		17,325	
Government services	24,805		20,355		17,819	
Services of equity capital (excl. tax)	12,056		14,431		16,229	
Gross plant expenditures						
Subtotals	<u>567,217</u>	<u>538,045</u>	<u>613,135</u>	<u>551,593</u>	<u>520,654</u>	<u>537,191</u>
Subtotal difference	<u>29,172</u>		<u>61,542</u>			<u>16,537</u>
<i>Money-market transactions</i>						
U.S. and other marketable securities	7,320			35,589	0	
Notes payable, short-term				50,000	28,000	
Notes payable, long-term	250		250		250	
Bonds						
Preferred stock						277
Common stock		282		467		
Subtotals	<u>7,570</u>	<u>282</u>	<u>250</u>	<u>86,056</u>	<u>28,250</u>	<u>277</u>
Subtotal difference	<u>7,288</u>			<u>85,806</u>	<u>27,973</u>	
<i>Total payments and total receipts</i>	<u>574,787</u>	<u>538,327</u>	<u>613,385</u>	<u>637,649</u>	<u>548,904</u>	<u>537,468</u>
Effect on purchase fund	<u>36,460</u>			<u>24,264</u>	<u>11,436</u>	

SOURCE: Annual reports of the company. Payments are entered in debit column; receipts, in credit column.

# Financing Capital Formation

**CHART 9**  
**Receipt and Delivery of Goods and Services and Net Capital Change, Allis-Chalmers Manufacturing Company, 1919-57**



SOURCE: Table 12.  
 Shaded areas represent NBER business cycle contractions; white areas, expansions.

## *Financing Capital Formation*

was noted earlier for net flow of cash on business account, the war period being an exception in both cases. Obviously, this cursory glance is not adequate to describe the complex relationship between the three curves of Chart 9. Doubtless there is not a problem more fascinating in all economics than the causes which shape the course of the net difference curve, nor a problem in which so many variables are so effectively at work.

### *Net Capital Change and Money-Market Transactions*

In Chart 10, the net capital-difference curve is taken as a statement of net receipts or expenditures on goods; the chart shows to what extent these net differences were financed via the money market. Here again, as in the case of cash, we observe a pattern of counterflow, a seesaw effect in which the purchase-fund balance functions as an adjustable fulcrum. Of course, there is a much wider latitude in the matter of deficit expenditures of the purchase fund than there is with cash. A treasurer may not overdraw his cash balance in a burst of excess payments, but he may acquire additional assets by running up bills with suppliers of goods and services. To be sure, a treasurer cannot impose upon the trade suppliers beyond conventional limits without trouble; but he can, and does, impose upon the suppliers of capital services to the extent of retained earnings, the unpaid balance of which is acknowledged in the surplus. It is not to be expected, then, that the seesaw effect will appear here as precisely as it did in the cash flows, since the purchase fund is almost perpetually expendable.

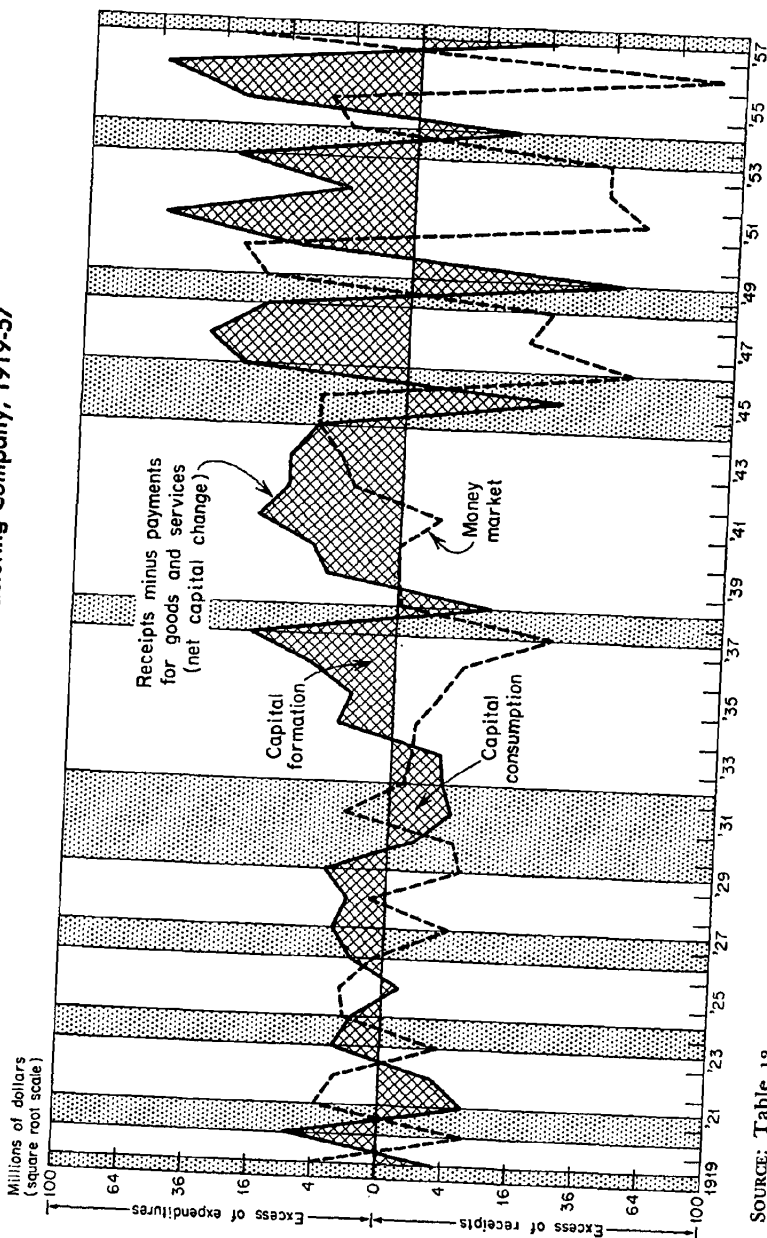
The experience of Allis-Chalmers is in line with that view. The curves for capital formation and for money-market transactions (Chart 10) show a cyclical pattern in their seesaw relationship fairly approximating that observed for cash flows (Chart 1). There, the money-market curve moved counter to net payments (receipts) on total business account. Here, it is seen moving counter to net capital change. Except in the defense and war periods, the major bursts of capital formation have been accompanied by calls upon the money market. And in the years of contraction, the proceeds arising from the liquidation of capital have, in most instances, been returned to the money market.

### *Experience of Large Manufacturing Companies as a Group*

Chart 11 shows the flow of goods, net capital formation, and its financing for 84 large manufacturing corporations, 1921-39, and for 198 corporations, 1939-56.<sup>5</sup> As in the case of the individual company, the curves showing the gross intake and output of goods describe the progress of the business cycle. Again, the outstanding characteristic is revealed in the

<sup>5</sup> See Note on the Data for the Group of Large Manufacturing Corporations at the end of this chapter.

**CHART 10**  
**Payments and Receipts on Goods and on Money-Market Accounts in the Financing of Capital Formation,**  
**Allis-Chalmers Manufacturing Company, 1919-57**



Source: Table 12.  
 Shaded areas represent NBER business cycle contractions; white areas, expansions.

## *Financing Capital Formation*

first year of a business downturn: the delivery of goods is cut back, but the intake of services and goods is cut back more sharply still. For the group, although the capital-change curve is responsive to business indexes, the cutback does not result in net capital consumption as often as in the case of the individual company. The explanation is probably to be found in the fact that individual companies do not approach turning points with regimental uniformity either of timing or of acceleration.

On the supply side, funds were provided by the purchase fund (roughly, the net balance of unsettled claims for services or goods) in exact conformity with the business cycle (Table 13). The progress of a company toward liquidity in a business downturn was noted in the chapter on cash; and this tendency is observed in the present case, the purchase-fund balance either rising less rapidly or diminishing absolutely with the business downturn and continuing thus into the trough. At the peaks of prosperity and of capital formation the fund was invariably employed as a source, and more extensively so than in the year preceding. But in the intervening years, years not marked by unusual cyclical characteristics, its use was not uniformly predictable on the basis of changes in the rate of capital formation.

The money market was almost equally uniform in its role of supplier of funds over the business cycle, its fall from statistical grace having occurred in 1927 when the large manufacturing corporations drew funds heavily from the market (instead of lightly or none at all, as might be expected in view of the slight business downturn in that year).

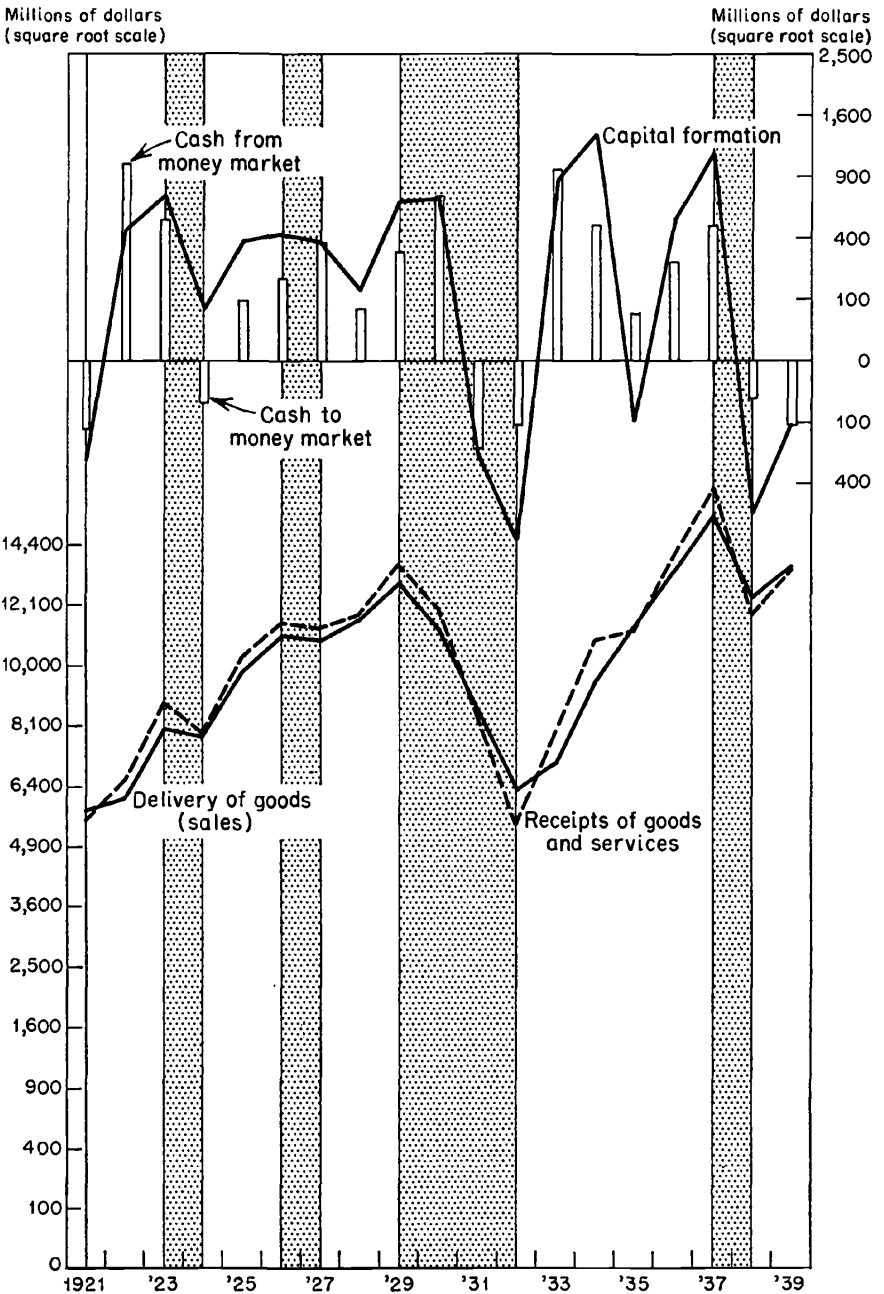
### *Note on the Data for the Group of Large Manufacturing Corporations*

The data used in this chapter are not the same as in Chapter 1, although they concern the same corporations. For this chapter I have made up a separate statement of sources and uses of funds, instead of using the prepared tables. My table is based on the aggregate income accounts and balance sheets as reported by the corporations and as cumulated by the NBER and the FRB. I am keenly aware of the gross quantitative errors involved in this procedure; but, having elected to cast this chapter on a total goods-flow basis (which requires the integration of the flow table with the opening and closing balance sheets), I had no choice but to make a new table based on the annual reports as published.

If we could reconstruct an annual report, placing it on a realized transaction basis (e.g. no reserves for bad debts, etc.), meanwhile deconsolidating companies merged during the period via exchange of stock—in short, making all of the adjustments that are required to derive a cash flow—then the source-and-use schedule would reconcile to the annual report. But the adopted procedure has been to adjust the *differences* between the

CHART

Capital Formation and Its Demands upon the Money



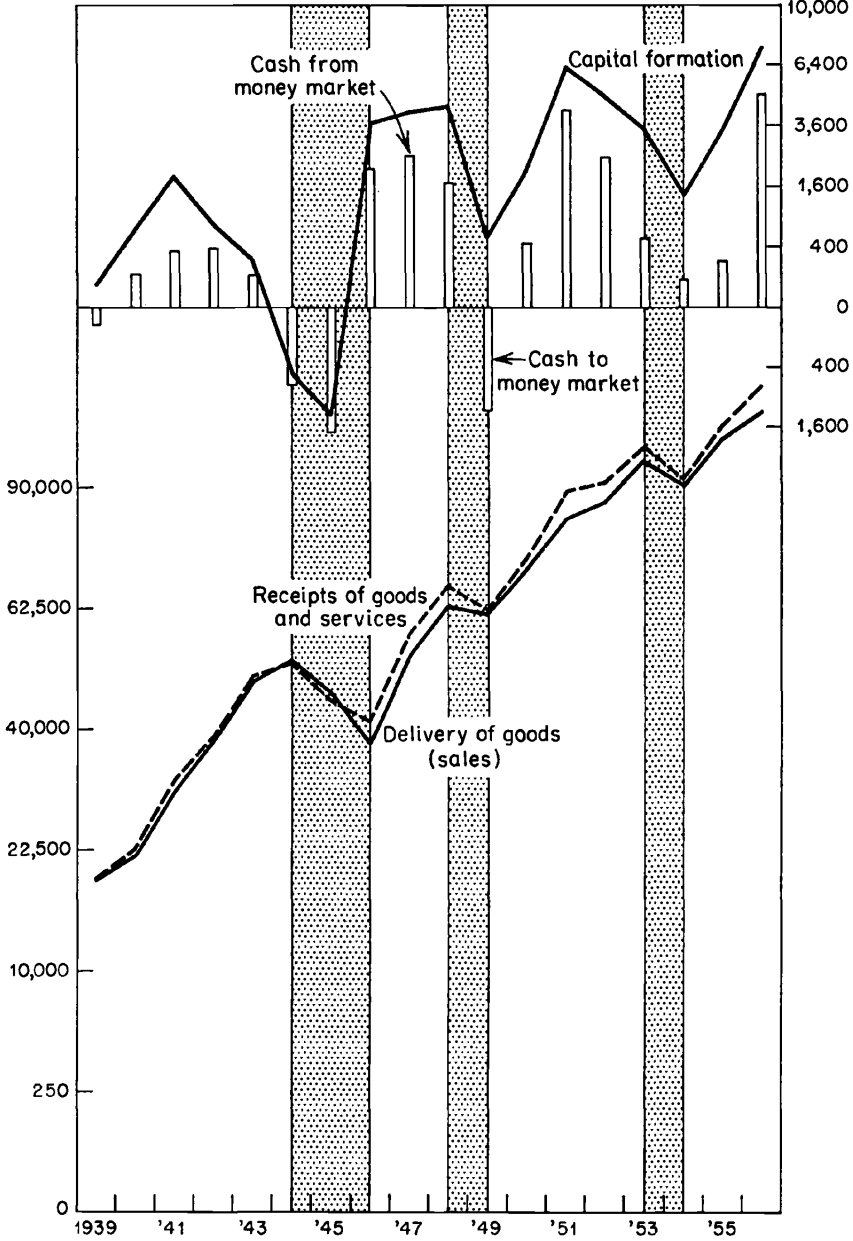
SOURCE: Table 14.

Shaded areas represent NBER business cycle contractions; white areas, expansions.

Market, Large Manufacturing Corporations, 1921-56

Millions of dollars  
(square root scale)

Millions of dollars  
(square root scale)





## Financing Capital Formation

TABLE 13

INDEXES OF CONFORMITY TO BUSINESS CYCLES, FINANCIAL TRANSACTIONS AFFECTING  
CAPITAL FORMATION, LARGE MANUFACTURING CORPORATIONS, 1921-54

	<i>Expansion</i>	<i>Contraction</i>	FULL CYCLE		
			<i>T-T</i> <sup>a</sup>	<i>P-P</i> <sup>b</sup>	<i>Both</i>
<b>NBER SAMPLE, 4 CYCLES, 1921-38</b>					
Current account, net difference	+100	+100	+100	+100	+100
Plant expenditures	+100	+50	+100	+33	+71
Total capital formation	+100	+100	+100	+100	+100
Money market, net	+50	+50	+50	+33	+43
Purchase fund, net	+100	+100	+100	+100	+100
<b>FRB SAMPLE, 1½ CYCLES, 1948-54</b>					
Current account, net difference	+100	+100	+100	+100	+100
Plant expenditures	+100	0	+100	+100	+100
Total capital formation	+100	+100	+100	+100	+100
Money market, net	+100	+100	+100	+100	+100
Purchase fund, net	+100	+100	+100	+100	+100
<b>COMBINED SAMPLE, 5½ CYCLES, 1921-38, 1948-54</b>					
Current account, net difference	+100	+100	+100	+100	+100
Plant expenditures	+100	+33	+100	+50	+78
Total capital formation	+100	+100	+100	+100	+100
Money market, net	+60	+67	+60	+50	+56
Purchase fund, net	+100	+100	+100	+100	+100

NOTE: All indexes are computed on the basis of changes between calendar peak and trough years. For a description of the method of measuring the degree of conformity of a particular series to business cycles, see Wesley C. Mitchell, *What Happened during Business Cycles*, New York, NBER, 1951, pp. 15 ff.

<sup>a</sup> *T-T* = trough-to-trough.

<sup>b</sup> *P-P* = peak-to-peak.

published beginning and closing account titles for nonrealized and non-cash entries, thus severing the ties of the source-and-use schedule to the annual report. It should be emphasized that there is no escape from the dilemma. One is obliged either to restate the annual report on a realized and deconsolidated basis or to adjust the *differences* thereto. Thus, errors of unknown magnitude will inhere in the flow data based on the unadjusted reports.

Another difference between the data offered here and those in Chapter 1 involves the amount of expenditures made for plant and equipment. The source-and-use tables give the total additions to the gross plant account and are taken mainly from the Form 10K reports of the company to the SEC. Here, we give the net additions to the gross plant account.

## Financing Capital Formation

The following brief schedule (in millions of dollars) will help to describe the difference.

	Plant and equipment		
	<i>Gross Asset Account (Dr.)</i>	<i>Depreciation Reserve: Offset to Asset Account (Cr.)</i>	<i>Net Account (Dr.)</i>
Beginning balance, Dec. 31, 1954	( )	( )	32,816
Gross capitalized expenditure	7,051		
Disposition of plant *	643	0	
Net capitalized expenditure	6,408		
Depreciation charged to sales		4,408	
Change in net plant investment			2,000
Closing balance, Dec. 31, 1955	( )	( )	34,816

\* Sale or disposition of plant at book value in excess of depreciation thereon.

In the transactions reported above, \$643 million worth of plant was sold or disposed of for value. Our net capitalized expenditure takes account of neither the sale as a source of funds nor the re-application of the proceeds to plant as a use of funds. Our derivation of net additions to the gross-plant account adds depreciation to the change in net plant investment to obtain \$6,408 million. If used for national accounts, the net capitalized expenditure has much to recommend it, since the transfer of plant from one company to another does not increase the stock of capital goods.

As a final act of violence I have imputed the omitted and balancing figures in the income account as shown in italics, e.g. 1955 (in millions of dollars):

Sales	103,006
<i>Costs and other expenses</i>	84,828
Depreciation	4,408
	-----
Net profit before tax	13,770
<i>Provision for tax</i>	5,888
	-----
Net income after tax	7,882

It will be recalled from Chapter 1 that the current reserve for income taxes for 1939-56 is stated net of U.S. securities held.



## Financing Capital Formation

	1931		1932		1933		1934		1935	
	Dr.	Cr.	Dr.	Cr.	Dr.	Cr.	Dr.	Cr.	Dr.	Cr.
<i>Transfer of goods and services</i>										
Delivery of goods (sales)		8,538		6,306		7,077		9,524		11,279
Receipt of goods and services	7,299		5,530		6,691		8,924		9,989	
Employees, materials, etc.										
Government services			σ. 29		244		462		787	
Services of equity capital (excl. tax)	237		σ. 52		1,017		1,493		402	
Gross plant expenditures	759									
Subtotals	8,295	8,538	5,449	6,306	7,952	7,077	10,879	9,524	11,178	11,279
Subtotal difference	212	243	115	857	875	981	1,355	487	101	60
<i>Money-market transactions, net</i>										
Effect on purchase fund		31		742		106		868		161
<hr/>										
	1936		1937		1938		1939			
<i>Transfer of goods and services</i>										
Delivery of goods (sales)		13,442		15,512		12,351		13,582		
Receipt of goods and services	11,800		13,943		10,571		11,806			
Employees, materials, etc.										
Government services			1,427		652		1,048			
Services of equity capital (excl. tax)	1,264		1,293		500		613			
Gross plant expenditures	906									
Subtotals	13,970	13,442	16,663	15,512	11,723	12,351	13,467	13,582		
Subtotal difference	528	256	1,151	479	40	628	116	115		
<i>Money-market transactions, net</i>										
Effect on purchase fund		272		672		588		1		

## Financing Capital Formation

TABLE 14 (Concluded)

	1939		1940		1941		1942		1943	
	Dr.	Cr.	Dr.	Cr.	Dr.	Cr.	Dr.	Cr.	Dr.	Cr.
<i>Transfer of goods and services</i>										
Delivery of goods (sales)		18,839		21,898		30,371		38,112		48,850
Receipt of goods and services	16,174		18,681		25,882		32,400		41,781	
Employees, materials, etc.	300		777		2,254		3,123		3,860	
Government services	1,585		1,968		2,457		2,457		2,287	
Services of equity capital (excl. tax)	838		1,137		1,672		1,131		1,194	
Gross plant expenditures										
Subtotals	18,897	18,839	22,563	21,898	32,265	30,371	38,873	38,112	49,122	48,850
Subtotal difference	58		665	118	1,894	344	761	380	272	109
<i>Money-market transactions, net</i>	39									
Effect on purchase fund	97		547		1,550		381		163	
	1944		1945		1946		1947		1948	
<i>Transfer of goods and services</i>										
Delivery of goods (sales)		52,327		46,324		37,539		53,406		63,103
Receipt of goods and services	44,780		40,067		35,062		47,704		54,905	
Employees, materials, etc.	3,401		1,814		1,118		2,060		2,722	
Government services	2,317		1,988		2,095		3,846		5,155	
Services of equity capital (excl. tax)	1,316		1,143		3,016		3,905		4,691	
Gross plant expenditures										
Subtotals	51,814	52,327	45,012	46,324	41,291	37,539	57,515	53,406	67,463	63,103
Subtotal difference	684	513	1,769	1,312	3,752	2,092	4,109	2,486	4,370	1,646
<i>Money-market transactions, net</i>										
Effect on purchase fund	171		457		1,660		1,623		2,724	

## Financing Capital Formation

	1949		1950		1951		1952	
	Dr.	Cr.	Dr.	Cr.	Dr.	Cr.	Dr.	Cr.
<i>Transfer of goods and services</i>								
Delivery of goods (sales)		61,755		71,274		82,611		86,444
Receipt of goods and services	51,777		59,295		71,852		74,981	
Employees, materials, etc.	2,399		4,663		6,421		5,056	
Government services	4,672		5,971		5,430		5,077	
Services of equity capital (excl. tax)	3,442		3,336		5,300		6,207	
Gross plant expenditures								
Subtotals	62,290	61,755	73,265	71,274	89,003	82,611	91,321	86,444
Subtotal difference	535		1,991		6,392		4,877	
<i>Money-market transactions, net</i>	1,232			443		4,198		2,458
Effect on purchase fund	1,769		1,548		2,194		2,419	
	1953		1954		1955		1956	
<i>Transfer of goods and services</i>								
Delivery of goods (sales)		97,041		90,311		103,006		109,812
Receipt of goods and services	83,030		75,267		86,346		94,595	
Employees, materials, etc.	5,742		4,123		5,888		5,337	
Government services	5,707		6,020		7,882		7,841	
Services of equity capital (excl. tax)	5,985		6,255		6,408		9,369	
Gross plant expenditures								
Subtotals	100,464	97,041	91,665	90,311	106,524	103,006	117,142	109,812
Subtotal difference	3,423		1,354		3,518		7,330	
<i>Money-market transactions, net</i>		526		83		236		4,947
Effect on purchase fund	2,897		1,271		3,282		2,383	

SOURCE: 1921-39: NBER, sample of 84 large companies; 1939-56: FRB sample of 198 large manufacturing companies (see text, Chapter 1, for further description, and especially "Note on the Data for the Group of Large Manufacturing Corporations," p. 77). Payments are entered in debit column; receipts, in credit column.

