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Appendix B

Selected Financial and Operating Ratios

Tables B-1 through B-6 present six ratios classified by size of firm within the six major sectors, calculated from data in the *Source Book* of the U.S. Treasury Department. They represent profitable and unprofitable corporations combined. No *Source Book* was published for the year 1952. The ratios for the "total" classification for 1952 are based on data published in *Statistics of Income*, which data, however, are not sufficiently detailed for use in constructing these ratios by size of firm. The receivables used in the receivables-to-sales ratio in Table B-1 consist of "notes and accounts receivable" and include consumer credit in the case of the retail and service sectors.

Tables B-7 and B-8 provide seasonally adjusted quarterly data on certain financial ratios for manufacturing corporations and all non-financial corporations.

Tables B-9 through B-11 show some of the findings of several earlier studies which analyzed the financial condition of unsuccessful firms. These findings served as the basis for the selection of the ratios shown in this appendix.

Other Sources of Ratio Data

Robert Morris Associates (National Association of Bank Loan Officers and Credit Men) publishes annually the average financial statement as a percentage of assets, operating data as a percentage of sales, and selected ratios for specific lines of business. Of the "quality" ratios, the

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current, worth-to-debt, and sales-to-receivables ratios are published. Most of the data are presented for four size groups and "all sizes."

A preselection bias is imposed by the fact that all the 14,000 statements summarized for 175 lines of business are supplied by banks. These data therefore represent bank borrowers, i.e., firms that have already passed a selection process. Limitations are also imposed by the absence of broad groupings of firms by industry or sector and by the small number of observations in many of the cells.

Dun & Bradstreet also publishes annually the average ratios of groups of firms. Seventy-two lines of business are represented for each of fourteen ratios. No size classification is presented, but the interquartile range is shown. The firms selected generally have a tangible net worth of over \$75,000, and thus represent the top 8 per cent of industrial and commercial business as measured by the size of their investment. Here too the lines of business are very narrow, with no aggregation into industries or sectors. The samples are generally small and nonrandom.

TABLE B-5
RATIO OF NET WORKING CAPITAL TO TOTAL ASSETS, BY SECTOR AND SIZE
OF CORPORATION, 1947-59
 (per cent)

Year	MINING			WHOLESALE			RETAIL			MANUFACTURING			CONSTRUCTION			SERVICES		
	Total	Small	Large	Total	Small	Large	Total	Small	Large	Total	Small	Large	Total	Small	Large	Total	Small	Large
1947	17.0	5.6	14.2	39.9	43.9	44.5	41.0	33.5	22.4	26.1	23.4	19.2	25.0					
1948	19.1	3.8	14.9	41.1	42.6	45.7	43.2	35.3	23.8	26.2	25.2	22.2	23.8					
1949	17.7	3.7	13.3	42.0	42.5	46.7	44.4	36.5	25.6	26.2	28.7	22.6	26.9					
1950	17.9	5.1	12.9	39.5	40.4	43.2	41.0	35.7	23.7	23.9	27.3	22.3	22.1					
1951	15.9	5.0	12.9	38.4	40.3	42.5	41.3	33.2	23.0	26.7	27.3	21.6	19.8					
1952	15.3	—	—	38.7	—	—	—	—	22.7	—	—	—	—					
1953	16.1	5.3	12.1	39.0	39.0	41.9	41.9	35.3	21.4	22.6	23.9	20.4	20.1					
1954	15.4	1.3	11.2	37.2	36.8	39.9	39.5	34.1	20.3	20.2	22.3	19.3	19.9					
1955	13.4	(2.1)	6.5	35.5	34.1	37.3	37.5	33.4	17.3	14.8	19.9	16.8	16.4					
1956	12.6	(5.0)	8.1	33.6	34.1	35.4	35.9	30.7	17.2	13.7	18.7	15.5	19.1					
1957	12.5	(4.0)	8.9	33.6	33.7	36.5	35.6	30.6	18.7	15.8	19.8	17.5	20.4					
1958	13.8	2.5	11.1	35.3	36.8	38.2	38.1	30.9	19.4	17.5	22.4	20.5	15.5					
1959	13.4	(0.8)	9.2	33.8	33.9	37.6	35.7	30.2	10.6	13.9	17.3	7.1	7.4					
1947	34.4	32.1	37.9	41.9	40.0	41.9	40.7	43.0	11.4	8.1	8.5	5.7	20.8					
1948	34.0	31.7	38.1	42.6	38.8	42.1	41.8	44.6	10.0	6.3	6.4	5.4	18.9					
1949	35.3	32.4	39.3	43.1	38.3	43.0	42.1	45.3	9.5	5.8	6.3	5.6	18.1					
1950	34.2	31.2	37.5	41.9	36.9	42.5	40.4	43.5	8.6	4.0	6.7	4.7	15.1					
1951	32.5	31.2	36.1	41.5	36.3	42.3	40.1	42.9	9.2	4.1	7.8	7.3	13.9					
1952	32.0	—	—	41.3	—	—	—	—	9.4	—	—	—	—					
1953	30.9	28.8	35.9	41.2	33.6	42.0	40.8	43.0	7.9	3.2	5.8	4.1	14.7					
1954	30.6	27.7	35.8	40.1	31.1	40.1	38.8	43.1	6.6	(.5)	1.1	2.8	16.5					
1955	30.2	26.0	34.5	37.7	28.4	36.7	36.1	42.0	5.6	(2.6)	1.5	1.4	15.0					
1956	28.7	24.9	33.2	36.6	26.5	36.1	34.9	40.8	3.8	(2.0)	1.0	(.5)	11.5					
1957	28.5	25.0	33.2	35.4	25.5	34.9	33.3	39.7	2.1	(3.4)	1.4	(1.8)	10.1					
1958	29.9	26.2	35.5	38.1	27.4	37.4	36.2	42.5	4.7	1.3	3.8	0.4	10.7					
1959	29.1	24.9	33.5	36.5	26.1	36.0	35.9	40.3	2.7	0.6	0.6	(1.6)	8.7					

Source: Treasury Source Book. The Source Book balance-sheet accounts were altered in 1959, resulting in an increase in the levels of the current and working capital ratios. Comparability with earlier years therefore is limited. The higher estimates are presented here. See note to Table B-3 and note a to Table 24.

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TABLE B-7
SELECTED RATIOS,
ALL MANUFACTURING CORPORATIONS, QUARTERLY DATA,
SEASONALLY ADJUSTED, 1947-62
 (per cent)

	<i>Ratio of Current Assets to Current Liabilities for Quarters</i>				<i>Ratio of Cash and Govt. Securities to Current Liabilities for Quarters</i>				<i>Ratio of Net Working Capital to Total Assets for Quarters</i>			
	I	II	III	IV	I	II	III	IV	I	II	III	IV
1947	284	279	279	274	89	87	86	86	39.7	38.8	38.2	37.9
1948	276	274	274	277	85	81	79	80	37.9	37.1	36.8	36.6
1949	284	293	304	317	86	93	103	110	36.7	36.8	37.3	38.0
1950	310	299	284	261	109	105	98	86	37.7	37.6	37.2	36.3
1951	244	236	233	229	76	71	67	66	35.6	34.9	34.3	33.8
1952	228	233	236	235	65	66	64	64	33.6	33.7	33.4	33.7
1953	234	231	231	239	64	63	65	66	33.5	33.1	33.2	33.3
1954	243	251	254	253	67	67	70	70	33.5	33.8	33.9	33.7
1955	254	254	252	247	72	72	71	67	33.9	34.1	34.2	33.9
1956	246	245	243	241	63	59	55	53	33.6	33.4	32.9	32.5
1957	238	239	241	247	52	52	52	53	32.2	32.0	31.9	32.0
1958	254	259	262	266	54	56	56	60	31.9	31.9	32.4	32.9
1959	260	252	255	254	59	58	57	55	32.7	32.5	32.5	32.4
1960	250	248	249	254	52	51	48	50	32.1	31.8	31.7	31.7
1961	254	253	252	251	49	49	47	47	31.6	31.7	31.6	31.6
1962	248	245	244	250	46	45	42	46	31.4	31.2	31.1	31.7
Seasonal indexes ^a	100.0	100.8	100.3	98.9	97.8	98.5	99.6	104.1	100.1	100.4	100.2	99.3

(continued)

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TABLE B-7 (concluded)

	<i>Ratio of Worth to Debt for Quarters</i>				<i>Ratio of Sales to Accounts Payable for Quarters</i>			
	I	II	III	IV	I	II	III	IV
1947	233	229	229	225	523	537	539	548
1948	220	223	220	224	549	543	543	546
1949	230	238	246	261	544	548	553	548
1950	256	248	237	217	542	556	555	528
1951	197	186	183	179	523	491	482	493
1952	177	179	177	176	483	487	461	480
1953	176	173	172	182	487	488	490	485
1954	186	194	197	196	486	482	489	481
1955	194	194	193	187	483	486	483	475
1956	186	184	183	180	476	471	454	462
1957	179	182	183	189	468	471	474	473
1958	195	198	199	200	470	463	465	473
1959	196	191	194	193	458	461	458	433
1960	190	188	189	192	442	443	436	435
1961	192	189	187	186	427	432	421	421
1962	184	181	179	181	415	415	406	424
Seasonal indexes ^a	100.0	100.8	100.3	98.9	99.3	101.9	100.0	98.8

SOURCE: *Quarterly Financial Report for Manufacturing Corporations*, Federal Trade Commission and Securities and Exchange Commission. Moving seasonal indexes by NBER.

^aThe most recently available seasonal indexes are for 1960 for the first four ratios and for 1959 for the last one. These indexes were applied to the subsequent years.

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TABLE B-8
FINANCIAL RATIOS,
ALL NONFINANCIAL CORPORATIONS, QUARTERLY DATA,
SEASONALLY ADJUSTED, 1946-62
 (per cent)

	<i>Quick Ratio for Quarters</i>				<i>Current Ratio for Quarters</i>			
	I	II	III	IV	I	II	III	IV
1946	98.6	93.9	87.2	79.5	224.5	226.3	226.9	224.5
1947	73.0	69.6	66.8	65.4	221.6	217.4	214.2	211.2
1948	64.5	62.4	60.5	62.2	207.3	207.4	206.0	207.9
1949	64.4	67.3	70.0	72.9	211.4	213.8	218.1	223.5
1950	74.3	71.8	68.8	63.0	223.9	218.5	212.8	205.1
1951	59.6	57.3	56.0	55.3	197.8	194.8	194.5	193.2
1952	53.9	54.6	53.0	52.2	193.9	195.6	194.8	195.7
1953	51.9	51.5	51.7	52.8	197.0	196.1	196.5	198.9
1954	52.2	51.7	52.6	51.8	198.2	199.9	200.2	198.5
1955	51.4	50.6	48.7	46.9	196.3	194.2	191.3	188.2
1956	44.6	42.5	41.0	40.3	188.2	187.0	186.2	185.0
1957	39.8	39.1	39.0	39.1	184.3	184.2	184.4	186.2
1958	39.4	39.6	39.5	40.0	188.4	189.5	189.3	188.8
1959	39.7	39.3	39.1	37.6	186.6	184.2	183.8	182.7
1960	36.5	35.5	34.9	34.8	181.9	181.1	182.2	183.5
1961	35.0	35.4	34.9	34.3	184.7	185.7	185.5	184.2
1962	33.8	32.7	32.0	32.4	183.2	182.3	181.1	182.2

SOURCE: *Working Capital of U.S. Corporations*, quarterly release of Securities and Exchange Commission. Moving seasonal indexes by NBER.

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TABLE B-9
ANALYSIS OF UNSUCCESSFUL FIRMS, AVERAGE EXPERIENCE OF
TWENTY-NINE INDUSTRIAL FIRMS

<i>Year Before Failure</i>	<i>Current Ratio</i>			<i>Net Working Capital Ratio</i>		
	<i>First Quartile</i>	<i>Average Ratio</i>	<i>Third Quartile</i>	<i>First Quartile</i>	<i>Average Ratio</i>	<i>Third Quartile</i>
10	1.74	4.50	10.37	.079	.284	.493
9	1.94	3.46	4.33	.088	.255	.403
8	1.77	2.04	2.48	.120	.225	.296
7	1.67	2.77	3.25	.102	.211	.313
6	1.57	2.50	2.71	.101	.207	.304
5	1.53	3.13	3.47	.084	.202	.326
4	1.61	2.55	3.22	.046	.172	.275
3	1.31	2.19	2.50	.045	.149	.246
2	1.38	2.06	2.87	.022	.118	.235
1	0.84	2.12	2.86	-.026	.061	.226

SOURCE: Raymond F. Smith, *A Test Analysis of Unsuccessful Companies*, University of Illinois, 1930, Bureau of Business Research, Bulletin 31, Table 9, p. 45.

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TABLE B-10

CURRENT POSITION OF 183 COMPANIES FOR TEN YEARS PRIOR
TO THEIR FAILURE

<i>Year Before Failure</i>	<i>Current Ratio</i>		<i>Working Capital Ratio</i>		<i>Ratio of Cash to Total Assets</i>		<i>Ratio of Net Worth to Total Assets</i>	
	<i>Aver- age Ratio</i>	<i>Relative (10th yr. = 100)</i>	<i>Aver- age Ratio</i>	<i>Relative (10th yr. = 100)</i>	<i>Aver- age Ratio</i>	<i>Relative (10th yr. = 100)</i>	<i>Aver- age Ratio</i>	<i>Relative (10th yr. = 100)</i>
10th	2.718	100	.225	100	.046	100	.715	100
9th	2.782	102	.206	92	.045	98	.683	95
8th	2.590	95	.212	94	.047	102	.668	93
7th	2.719	100	.203	90	.043	93	.641	90
6th	3.134	115	.196	87	.045	98	.664	93
5th	2.784	102	.184	82	.044	96	.642	90
4th	2.922	108	.169	75	.039	85	.635	89
3rd	2.473	91	.157	70	.032	70	.612	86
2nd	2.057	76	.129	57	.028	61	.591	83
1st	1.488	55	.062	28	.018	39	.552	77

SOURCE: R. F. Smith and A. H. Winakor, *Changes in the Financial Structure of Unsuccessful Industrial Corporations*, University of Illinois, 1935, Bureau of Business Research, Bulletin 51, p. 12, Table II; p. 41, Table 1.

TABLE B-11

AVERAGE FINANCIAL RATIOS BY YEARS BEFORE DISCONTINUANCE FOR UNSUCCESSFUL COMPANIES (U) AND COMPARABLE RATIOS FOR SUCCESSFUL COMPANIES (S), 1926-35

(per cent)

Period Before Discontinuance of Business	Baking Companies		Men's Clothing Companies		Furniture Companies		Stone and Clay Products Companies		Machine Tool Companies	
	U	S	U	S	U	S	U	S	U	S
	CURRENT ASSETS TO CURRENT LIABILITIES									
6 years	1.0	1.2	2.4	2.3	1.8	2.9	1.1	2.4	1.6	2.1
5 years	1.0	1.3	2.3	2.4	1.7	3.1	1.2	2.3	1.6	2.1
4 years	0.7	1.2	2.3	2.4	1.6	3.4	1.0	2.1	1.4	2.0
3 years	0.7	1.2	2.1	2.4	1.3	3.6	0.9	2.0	1.4	1.8
2 years	0.6	1.3	1.9	2.6	1.0	3.6	0.8	1.9	1.1	1.7
1 year	0.4	1.2	1.5	2.4	0.8	3.4	0.6	1.7	1.1	1.6
NET WORKING CAPITAL TO TOTAL ASSETS										
6 years	.011	.050	.493	.474	.293	.421	.043	.255	.189	.235
5 years	-.009	.056	.470	.474	.282	.423	.060	.242	.169	.223
4 years	-.106	.047	.467	.474	.250	.423	.004	.221	.121	.201
3 years	-.109	.049	.410	.467	.137	.425	-.035	.204	.121	.179
2 years	-.200	.054	.376	.476	.010	.407	-.085	.181	.056	.163
1 year	-.267	.048	.237	.459	-.111	.393	-.183	.157	.015	.159
NET WORTH TO TOTAL DEBT										
6 years	1.9	2.3	1.7	1.7	1.5	2.8	1.5	3.5	2.0	2.7
5 years	1.6	2.4	1.6	1.7	1.5	2.9	1.5	3.3	2.1	2.7
4 years	1.2	2.3	1.7	1.9	1.3	3.2	1.3	3.2	1.7	2.6
3 years	0.9	2.4	1.5	1.8	1.0	3.5	1.2	3.0	1.7	2.4
2 years	0.6	2.3	1.3	2.0	0.8	3.7	1.1	2.8	1.1	2.2
1 year	0.5	2.2	0.8	1.9	0.4	3.5	0.7	2.5	0.9	2.0
Number of companies in sample	47	81	41	46	38	66	43	70	31	118

SOURCE: Charles L. Merwin, *Financing Small Corporations in Five Manufacturing Industries, 1926-36*, New York, NBER, 1942, worksheets underlying Charts 6-10.

NOTE: Unsuccessful companies (U) are those that discontinued filing an income tax return sometime during 1932-36; successful companies (S) are those that filed returns continuously during 1926-36. Ratio for successful companies is an average of surviving company ratios weighted by the number of times each calendar year appears in the given year before discontinuance for the matching sample of discontinued firms.