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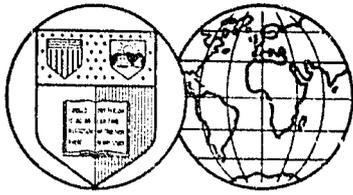
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PROGRAM ON POLICIES FOR SCIENCE  
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INDUSTRIAL AVERAGES OF FINANCIAL RATIOS  
FOR MANUFACTURING FIRMS IN  
MONTERREY, N.L., MEXICO  
1960 to 1973

by

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CURRENT-ASSETS-TO-CURRENT-LIABILITIES  
(Current Ratio)

Table 1: Ratio expressed as "a number to one" (not percentage)

	All Firms	Size		Industrial Classification					
		Large Firms	Medium & Small Firms	Chemicals	Non-metallic Minerals	Food, Beverages & Tobacco	Metal Products	Other (Assembly)	
1960	(12) 5.21 3.65 .96	(5) 4.60 3.44 .80	(7) 5.59 2.41 .96	(4) 5.60 2.14 .49	N.A.	(5) 6.20 3.72 .85	N.A.	N.A.	
1963	(14) 5.65 2.23 1.40	(6) 19.00 5.19 .84	(8) 4.99 2.11 1.48	(5) 5.00 2.32 .86	N.A.	(5) 18.25 6.30 .87	N.A.	N.A.	
1965	(18) 3.38 2.09 1.32	(6) 10.98 3.22 .59	(12) 3.50 1.15 1.45	N.A.	N.A.	N.A.	(8) 3.50 1.86 .71	(5) 10.98 4.60 1.45	
1966	(39) 3.37 2.48 1.30	(17) 3.04 1.90 1.14	(22) 4.09 2.67 1.63	(10) 2.99 2.43 .52	(5) 5.89 3.67 1.08	(6) 9.39 3.44 .81	(11) 2.74 1.97 1.04	(6) 9.19 3.71 1.30	
1967	(22) 4.35 2.42 1.64	(9) 5.59 2.50 1.68	(13) 3.80 2.33 1.59	(4) 4.91 2.98 1.22	N.A.	N.A.	(11) 2.78 1.75 1.53	(5) 9.71 4.90 2.50	
1968	(24) 5.34 1.92 1.56	(11) 4.30 2.43 1.63	(13) 2.60 1.80 1.44	(4) 2.60 1.80 .57	N.A.	N.A.	(12) 2.76 1.78 1.55	(5) 13.89 5.18 1.33	
1969	(39) 2.35 1.44 .91	(23) 2.91 1.50 .94	(16) 2.35 1.41 .42	(7) 2.92 1.39 .91	(5) 1.71 .93 0.00	N.A.	(18) 2.63 1.43 .18	(7) 2.52 1.02 .87	
1970	(43) 2.47 1.42 .51	(27) 3.05 1.43 .86	(16) 2.12 1.34 .30	(9) 2.71 1.32 .58	(5) 1.43 1.08 0.00	N.A.	(18) 3.06 1.35 .35	(8) 3.52 2.02 .35	
1971	(42) 3.15 1.17 .44	(26) 3.15 1.22 .49	(16) 3.23 1.09 .37	(8) 1.92 1.10 .41	(5) 1.50 .94 0.00	N.A.	(18) 3.02 1.43 .35	(9) 3.07 2.63 .29	
1972	(43) 2.39 1.20 .62	(29) 2.17 1.15 .63	(14) 2.72 1.43 .15	(8) 1.49 .96 .29	(5) 1.62 1.01 (-.01)	N.A.	(18) 2.92 1.78 .42	(10) 2.07 1.46 .56	
1973	(42) 2.70 1.30 .80	(30) 2.49 1.43 .87	(12) 1.39 1.26 0	(9) 1.52 1.02 .69	(5) 1.57 .96 0.00	N.A.	(13) 2.65 1.38 .34	(8) 2.68 1.44 .73	

N.A. = Not Available

\* Indicates negative working capital and ratio values. See page 14 for a complete explanation.

| | See page 13 for an explanation of what figures are enclosed in brackets.

CURRENT-LIABILITIES-TO-NET-WORTH

Table 2: (percentages)

	All Firms	Size		Industrial Classification				
		Large Firms	Medium & Small Firms	Chemicals	Non-metallic Minerals	Food, Beverages & Tobacco	Metal Products	Other (Assembly)
1960	(12) 334 40 16	(5) 334 92 16	(7) 570 40 12	(4) 904 267 12	N.A.	(5) 570 201 28	N.A.	N.A.
1963	(14) 134 62 31	(6) 377 142 5	(8) 93 62 40	(5) 350 114 22	N.A.	(5) 377 128 5	N.A.	N.A.
1965	(17) 94 56 24	(6) 141 70 11	(11) 89 38 20	N.A.	N.A.	N.A.	(8) 139 64 27	(5) 105 53 11
1966	(37) 88 49 36	(17) 101 59 40	(20) 91 49 29	(10) 139 57 35	N.A.	(6) 459 111 11	(12) 105 54 37	(6) 273 68 10
1967	(20) 117 40 18	(9) 76 40 21	(11) 140 39 16	(4) 231 98 7	N.A.	N.A.	(11) 126 46 24	(5) 72 35 11
1968	(21) 78 51 26	(11) 77 47 23	(10) 120 52 26	(4) 156 75 39	N.A.	N.A.	(11) 80 53 23	(5) 63 32 8
1969	(51) 78 46 28	(28) 97 50 30	(23) 68 40 24	(11) 68 48 30	(5) 190 80 33	(5) 602 150 6	(18) 83 42 26	(12) 97 50 24
1970	(49) 95 53 32	(30) 68 48 32	(19) 22 63 22	(11) 96 63 41	(6) 88 44 4	(5) 257 94 14	(18) 106 51 32	(9) 79 59 23
1971	(41) 96 47 25	(25) 78 46 29	(16) 140 43 15	(8) 140 78 46	(5) 81 51 25	N.A.	(17) 109 41 21	(9) 104 51 19
1972	(42) 96 48 29	(28) 100 55 33	(14) 109 34 21	(8) 202 107 62	(5) 57 43 19	N.A.	(17) 78 33 24	(10) 76 44 32
1973	(44) 81 59 32	(31) 80 60 32	(13) 89 55 36	(9) 129 67 59	(5) 56 44 27	N.A.	(18) 89 58 27	(10) 105 64 31

N.A. = Not Available

\* Indicates negative working capital and ratio values. See page 14 for a complete explanation.

[ ] See page 13 for an explanation of what figures are enclosed in brackets.

Total-Liabilities-to-Net-Worth

Table 3: (percentages)

	All Firms	Size		Industrial Classification				
		Large Firms	Medium & Small Firms	Chemicals	Non-metallic Minerals	Food, Beverages & Tobacco	Metal Products	Other (Assembly)
1960	(12) 334 124 43	(5) 334 143 15	(7) 980 123 50	(4) 960 317 50	N.A.	(5) 1900 524 43	N.A.	N.A.
1963	(14) 304 122 54	(6) 400 175 10	(8) 230 127 70	(5) 430 166 37	N.A.	(5) 558 253 14	N.A.	N.A.
1965	(18) 137 112 40	(7) 154 127 119	(11) 121 62 21	N.A.	N.A.	N.A.	(8) 154 124 33	(5) 165 93 20
1966	(37) 140 81 46	(17) 168 97 52	(20) 137 72 41	(10) 275 124 58	N.A.	(6) 459 134 11	(12) 143 97 47	(6) 248 85 19
1967	(20) 139 91 31	(9) 119 104 47	(11) 181 46 19	(4) 379 165 7	N.A.	N.A.	(11) 139 104 35	(5) 109 52 19
1968	(22) 102 76 34	(12) 102 76 29	(10) 159 70 30	(4) 279 118 39	N.A.	N.A.	(11) 102 89 23	(5) 80 51 21
1969	(51) 115 81 35	(28) 126 100 40	(23) 115 53 24	(11) 144 53 40	(5) 364 150 35	(5) 602 174 6	(18) 110 80 25	(12) 108 76 27
1970	(49) 153 104 42	(30) 138 106 68	(19) 161 92 21	(11) 115 92 39	(6) 194 91 16	(5) 1803 462 14	(18) 166 114 42	(9) 125 54 21
1971	(41) 135 101 32	(25) 154 88 42	(16) 183 91 14	(8) 191 112 32	(5) 153 82 25	N.A.	(17) 133 68 39	(9) 117 45 19
1972	(42) 141 84 37	(28) 158 105 49	(14) 154 41 24	(8) 238 137 41	(5) 127 71 19	N.A.	(17) 154 83 37	(10) 156 69 31
1973	(44) 146 96 39	(31) 146 115 57	(13) 132 51 29	(9) 160 120 34	(5) 99 62 26	N.A.	(18) 179 105 44	(10) 177 59 33

N.A. = Not Available

\* Indicates negative working capital and ratio values. See page 14 for a complete explanation.

[ ] See page 13 for an explanation of what figures are enclosed in brackets.

Inventory-to-Working-Capital

Table 4: (percentages)

	All Firms	Size		Industrial Classification				
		Large Firms	Medium & Small Firms	Chemicals	Non-metallic Minerals	Food, Beverages & Tobacco	Metal Products	Other (Assembly)
1960	(12) *	*	(7) *	*	N.A.	*	N.A.	N.A.
	74		69					
	7		7					
1963	(14) 110	*	(8) 108	*	N.A.	*	N.A.	N.A.
	47		30					
	12		3					
1965	(18) 260	*	(12) 221	N.A.	N.A.	N.A.	(8) *	(5) 221
	90		90				119	92
	53		49				69	20
1966	(39) 161	(17) 636	(22) 138	(10) 109	(5) 882	*	(12) *	(6) 255
	92	97	82	80	205		122	99
	47	50	29	50	6		56	20
1967	(23) 134	(19) 119	(13) 193	(4) 335	N.A.	N.A.	(11) 239	(5) 103
	81	68	103	116			126	64
	33	40	6	7			55	6
1968	(24) 94	(11) 117	(13) 106	*	N.A.	N.A.	(13) 118	(4) 82
	79	83	81				90	63
	60	65	67				70	46
1969	(39) *	(23) *	(16) *	(7) *	N.A.	N.A.	(18) *	(8) *
	226	174	264	271			208	194
	98	84	107	107			44	100
1970	(43) *	(27) *	(16) *	(9) *	(5) 294	N.A.	(18) *	(8) *
	172	166	182	265	212		166	171
	111	91	112	78			78	91
1971	(42) *	(27) *	(16) *	(8) *	N.A.	N.A.	(18) *	(9) *
	336	294	2464	2464			276	110
	111	97	111	133			101	97
1972	(43) *	(29) *	(14) *	(8) *	N.A.	N.A.	(18) *	(10) *
	312	312	255	*			144	261
	105	113	83	202			71	96
1973	(42) *	(30) *	(12) *	(9) *	N.A.	N.A.	(18) *	(8) *
	232	179	346	2242			168	178
	113	97	130	149			59	107

N.A. = Not Available

\* Indicates negative working capital and ratio values. See page 14 for a complete explanation.

[ ] See page 13 for an explanation of what figures are enclosed in brackets.

Accounts-<sup>1</sup>Receivables -to-Working-Capital

Table 5: (percentages)

	All Firms	Size		Industrial Classification				
		Large Firms	Medium & Small Firms	Chemicals	Non-metallic Minerals	Food, Beverages & Tobacco	Metal Products	Other (Assembly)
1960	(11) *	*	(7) *	*	N.A.	*	N.A.	N.A.
	51		50					
	17		17					
1963	(14) 130	*	(8) 125	*	N.A.	*	N.A.	N.A.
	84		84					
	35		41					
1965	(18) 162	*	(12) 97	N.A.	N.A.	N.A.	(8) 228	(5) 97
	78		64				60	70
	31		23				19	29
1966	(39) 189	(17) 379	(22) 167	(10) 208	(5) 606	*	(12) *	(6) 139
	87	94	84	74	199		96	90
	44	58	40	40	61		44	35
1967	(23) 138	(10) 131	(13) 143	(4) 858	N.A.	N.A.	(11) 144	(5) 81
	80	82	64	258			83	58
	54	54	40	10			53	32
1968	(24) 134	(11) 124	(13) 208	*	N.A.	N.A.	(12) 134	(5) 73
	112	73	117				116	54
	56	31	63				67	30
1969	(39) *	(23) *	(16) *	(7) *	N.A.	N.A.	18) *	(7) *
	217	222	207	246			220	141
	96	82	114	52			116	82
1970	(43) *	(27) *	(16) *	(9) *	(5) *	N.A.	(18) *	(8) *
	182	166	205	146	459		205	172
	84	77	108	92	166		109	41
1971	(42) *	(26) *	(16) *	(9) *	N.A.	N.A.	(18) *	(9) *
	324	324	303	401			308	174
	95	60	117	48			115	52
1972	(43) *	(29) *	(14) *	(8) *	N.A.	N.A.	(18) *	(10) *
	429	579	245	*			204	186
	108	93	117	237			111	62
1973	(42) *	(30) *	(12) *	(9) *	N.A.	N.A.	(18) *	(8) *
	331	206	446	3338			345	162
	119	100	218	192			110	64

[ ] See page 13 for a description of what figures are enclosed in brackets

N.A. Not Available

\* Indicates negative ratios due to negative working capital. See page 14 for a complete discussion.

1. Note that the data requested was "accounts receivable". In the majority of cases it is most likely equal to the total of all receivables.

Long-Term-Liabilities-to-Working-Capital

Table 6: (percentages)

	All Firms	Size		Industry Classification						
		Large Firms	Medium & Small Firms	Chemicals	Non-metallic Minerals	Food, Beverages & Tobacco	Metal Products	Other (Assembly)		
1960	(12) 169 53 0	(5) 109 46 0	(7) 220 56 30	*	N.A.	(5) 169 69 0	N.A.	N.A.		
1963	(14) 112 69 10	*	(8) 125 69 35	*	N.A.	(5) 193 73 0	N.A.	N.A.		
1965	(17) 82 38 3	*	(11) 50 30 0	N.A.	N.A.	N.A.	(8) 99 38 0	(5) 93 38 0		
1966	(37) 92 44 0	(17) 120 67 13	(20) 67 8 0	(10) 111 61 3	N.A.	*	(12) 127 64 0	(6) 44 19 0		
1967	(20) 78 25 0	(9) 94 48 25	(11) 55 0 0	(4) 295 101 0	N.A.	N.A.	(11) 82 13 0	(5) 34 19 4		
1968	(21) 63 30 0	(11) 67 42 21	(10) 66 0 0	(4) 141 50 0	N.A.	N.A.	(11) 73 42 0	(5) 39 23 0		
1969	(39) * 102 15	(23) * 101 31	(16) * 125 1	(7) 159 73 0	N.A.	N.A.	(18) * 125 33	(7) 188 27 3		
1970	(41) 906 80 12	(26) * 224 28	(15) 367 43 0	(8) 122 57 0	N.A.	N.A.	(17) * 256 41	(8) 191 26 0		
1971	(40) * 148 18	(25) * 135 19	(15) * 197 3	(7) 636 111 00	(5) * 271 0	N.A.	(17) * 347 45	(9) * 18 3		
1972	(41) * 141 15	(28) * 187 19	(13) * 33 0	(7) * 141 0	N.A.	N.A.	(17) * 215 19	(10) * 31 0		
1973	(41) * 165 30	(29) * 165 35	(12) * 344 23	(8) * 90 0	N.A.	N.A.	(18) * 153 30	(8) * 148 21		

N.A. = Not Available

\* Indicates negative working capital and ratio values. See page 14 for a complete explanation.

[ ] See page 13 for an explanation of what figures are enclosed in brackets.

Before-Tax-Net-Profit-to-Net-Worth

Table 7: (percentages)

	All Firms	Size		Industrial Classification				
		Large Firms	Medium & Small Firms	Chemicals	Non-metallic Minerals	Food, Beverages & Tobacco	Metal Products	Other (Assembly)
1960	(9) 15 8 2	(4) 37 19 7	(5) 9 (-20) (-120)	N.A.	N.A.	(4) 21 (-22) (-120)	N.A.	N.A.
1963	(12) 22 7 3	(4) 23 14 3	(8) 22 7 (-8)	(4) 25 15 7	N.A.	(4) 21 6 (-8)	N.A.	N.A.
1965	(15) 19 0.8	(6) 32 11 0.8	(9) 22 8 (-7)	N.A.	N.A.	N.A.	(7) 4 3 (-14)	(5) 66 27 8
1966	(31) 18 11 .	(14) 19 12 6.5	(17) 20 10.5 (-1)	(7) 27 14 7	N.A.	(5) 39 14 (-0.1)	(10) 12 9 (-15)	(6) 53 20 (-18)
1967	(17) 24 12 8	(9) 24 13 12	(8) 29 8 (-4)	N.A.	N.A.	N.A.	(9) 12 12 2.5	(5) 49 23 7
1968	(10) 24.5 10.5 5.5	(11) 23 12 6	(7) 26 6 (-10)	N.A.	N.A.	N.A.	(9) 11.5 7 4.5	(5) 34 19 6
1969	(48) 26 10 7	(27) 28 11.5 8	(21) 22.5 10 1	(10) 30 9 5	(5) 89 39 12	(4) 35 11.5 (-8)	(18) 19 10 (-4)	(11) 56 10 8
1970	(48) 23 11 5	(29) 27 17 6	(19) 14 10 2	(11) 28 11 10	(6) 42 22.5 7	(5) 100 63 (-23)	(17) 18 10 1	(9) 20 11 2
1971	(41) 20 9 3	(25) 25 9 5	(16) 18 8.5 (-3)	(8) 14 8.5 (-3)	(5) 43 18 3	N.A.	(17) 22 9 2	(9) 18 12 9
1972	(42) 21 10.4 5.6	(28) 27.8 11.3 6.1	(14) 17 7 4.2	(8) 26 6 2	(5) 47 20 (-0.6)	N.A.	(17) 19 8 3	(10) 24 14 8
1973	(44) 23.6 13.8 9.7	(31) 28.1 13.2 10.7	(13) 20.4 16.4 4.6	(9) 27 12 2	(5) 48 23 11	N.A.	(18) 22 15 7	(10) 26 19 12.5

N.A. - Not Available

\* Indicates negative working capital and ratio values. See page 14 for a complete explanation.

| | See page 13 for an explanation of what figures are enclosed in brackets.

Net-Sales-to-Fixed-Assets

Table 8: Ratio expressed as "a number to one" (not percentages)

	All Firms	Size		Industrial Classification					
		Large Firms	Medium & Small Firms	Chemicals	Non-metallic Minerals	Food, Beverages & Tobacco	Metal Products	Other (Assembly)	
1960	(12) 6.10 2.48 1.47	(5) 18.00 6.13 1.47	(7) 5.39 2.63 1.26	(4) 5.39 2.69 .56	N.A.	(5) 19.00 7.19 1.91	N.A.	N.A.	
1963	(15) 6.82 3.17 1.86	(6) 23.63 7.01 1.22	(9) 7.94 3.17 2.04	(6) 9.94 4.80 2.31	N.A.	(5) 33.08 13.30 1.20	N.A.	N.A.	
1965	(18) 5.72 2.94 1.28	(6) 4.70 2.89 .41	(12) 7.45 2.94 1.08	N.A.	N.A.	N.A.	(8) 2.55 1.28 .41	(5) 15.28 6.65 2.87	
1966	(39) 8.43 3.52 1.96	(17) 5.54 3.52 2.16	(22) 8.84 3.66 1.39	(10) 8.55 4.96 1.30	N.A.	(6) 62.09 19.22 1.40	(12) 3.08 2.45 .88	(6) 16.44 7.16 4.23	
1967	(23) 6.01 3.43 1.85	(10) 5.88 3.66 2.58	(13) 7.32 2.91 1.47	(4) 8.50 4.92 .12	N.A.	N.A.	(11) 3.50 2.52 1.31	(5) 10.46 6.77 3.15	
1968	(24) 6.71 3.38 2.25	(11) 5.25 3.30 1.83	(13) 9.25 5.46 2.36	(4) 8.20 5.19 .18	N.A.	N.A.	(12) 5.25 2.48 1.07	(5) 10.57 6.79 4.02	
1969	(53) 6.22 3.73 2.16	(28) 6.35 3.45 2.03	(25) 6.21 3.67 2.34	(10) 11.86 5.33 2.55	(7) 3.16 2.10 2.03	(5) 23.58 9.37 1.53	(19) 5.20 2.74 1.99	(12) 6.35 5.54 3.43	
1970	(51) 6.98 3.84 1.86	(31) 8.56 3.12 1.86	(20) 6.11 4.06 1.44	(11) 16.93 4.50 2.09	(6) 4.54 2.45 1.66	(5) 24.58 11.41 1.71	(20) 5.98 2.88 1.47	(9) 6.98 4.37 2.56	
1971	(42) 5.88 2.87 1.55	(26) 7.79 3.08 1.73	(16) 5.10 2.45 1.15	(8) 9.81 3.70 1.45	(5) 2.29 1.96 1.65	N.A.	(18) 5.26 2.03 1.23	(9) 7.21 4.67 2.59	
1972	(43) 5.65 3.18 2.08	(29) 6.86 3.11 2.11	(14) 5.55 3.44 1.18	(8) 17.70 4.18 1.32	(5) 2.96 2.37 2.08	N.A.	(18) 6.28 3.27 1.33	(10) 7.63 4.02 2.82	
1973	(44) 7.62 3.74 2.21	(32) 7.79 3.74 2.68	(12) 7.07 3.85 1.03	(9) 11.96 7.03 2.69	(5) 3.17 2.95 2.68	N.A.	(18) 7.09 3.54 1.55	(10) 8.38 5.01 3.12	

N.A. = Not Available

\* Indicates negative working capital and ratio values. See page 14 for a complete explanation.

[ ] See page 13 for an explanation of what figures are enclosed in brackets.

Net-Sales-to-Working-Capital

Table 9: Ratio expressed as "a number to one" (not percentage)

	All Firms	Size		Industrial Classification					
		Large Firms	Medium & Small Firms	Chemicals	Non-metallic Minerals	Food, Beverages & Tobacco	Metal Products	Other (Assembly)	
1960	(12) *	*	(7) *	*	N.A.	*	N.A.	N.A.	
	2.52		2.55						
	1.47		1.47						
1963	(14) 7.93	*	(8) 5.40	*	N.A.	*	N.A.	N.A.	
	2.38		2.90						
	2.08		2.19						
1965	(18) 8.15	*	(12) 8.93	*	N.A.	N.A.	(8) *	(5) 3.19	
	3.29		3.27				3.68	2.46	
	2.10		2.07				1.05	1.29	
1966	(39) 7.94	(17)	31.07 (22) 6.79	(10)	17.10	(5) 35.88	*	(12) *	(6) 3.79
	3.79		3.42 3.79		5.22	10.04		4.32	2.89
	2.37		2.24 2.48		2.77	2.10		2.25	1.62
1967	(23) 4.91	(10)	4.94 (13) 5.24	(4)	19.53	N.A.	N.A.	(11) 6.44	(5) 2.70
	2.91		2.71 2.97		6.68			4.05	2.32
	2.10		1.85 1.86		.33			1.60	1.54
1968	(24) 5.11	(11)	5.20 (13) 4.98	*	N.A.	N.A.	(12) 5.20	(5) 2.77	
	3.01		2.77 3.07				3.68	2.02	
	2.23		2.18 2.27				2.18	1.19	
1969	(39) *	(23) *	(16) *	(7) *	N.A.	N.A.	(18) *	(7) *	
	8.05		7.00 10.15				8.57	7.00	
	4.29		3.00 5.08				3.62	3.34	
1970	(43) *	(27) *	(16) *	(9) *	(5) *	N.A.	(18) *	(8) *	
	9.00		7.70 9.57		10.02	14.50	8.36	7.18	
	5.25		3.42 5.60		6.25	7.63	4.57	2.85	
1971	(42) *	(26) *	(16) *	(8) *	N.A.	N.A.	(18) *	(9) *	
	16.22		15.67 61.09		70.41		16.41	5.78	
	4.31		3.90 5.78		8.57		3.86	2.83	
1972	(43) *	(29) *	(14) *	(8) *	(5) *	N.A.	(18) *	(10) *	
	14.03		15.32 11.57		*	591.35	10.74	10.09	
	4.24		6.58 3.37		13.44	8.14	3.29	2.96	
1973	(42) *	(30) *	(12) *	(9) *	N.A.	N.A.	(18) *	(8) *	
	12.37		11.14 17.47		95.54		13.25	8.60	
	4.76		3.83 9.32		10.35		3.76	3.13	

N.A. = Not Available

\* Indicates negative working capital and ratio values. See page 14 for a complete explanation.

[ ] See page 13 for an explanation of what figures are enclosed in brackets.

Fixed-Assets-to-Net-Worth

Table 10: (percentages)

	All Firms	Size		Industrial Classification				
		Large Firms	Medium & Small Firms	Chemicals	Non-metallic Minerals	Food, Beverages & Tobacco	Metal Products	Other (Assembly)
1960	(11) 166 104 46	(5) 166 88 15	(7) 636 104 62	(4) 636 244 89	N.A.	(5) 680 199 15	N.A.	N.A.
1963	(14) 130 79 40	(6) 204 100 9	(8) 93 74 43	(5) 204 97 53	N.A.	(5) 247 104 7	N.A.	N.A.
1965	(18) 92 54 43	(6) 184 87 31	(12) 82 52 42	N.A.	N.A.	N.A.	(8) 140 83 53	(5) 54 40 12
1966	(37) 110 77 38	(17) 116 82 45	(29) 111 43 29	(10) 112 86 51	N.A.	(5) 140 73 5	(12) 129 80 49	(6) 59 36 19
1967	(20) 82 64 29	(9) 92 74 27	(11) 78 57 38	(4) 198 94 47	N.A.	N.A.	(11) 102 75 38	(5) 45 32 21
1968	(21) 84 63 28	(11) 74 63 37	(10) 103 50 24	(4) 136 86 26	N.A.	N.A.	(11) 79 72 35	(5) 50 30 18
1969	(50) 100 66 35	(28) 100 85 37	(22) 92 52 29	(10) 112 74 29	(5) 178 113 45	(5) 136 81 10	(18) 95 61 43	(12) 82 35 25
1970	(48) 116 70 30	(30) 116 73 28	(18) 121 65 33	(10) 122 67 30	(6) 127 85 24	(5) 220 115 11	(18) 121 82 38	(11) 85 47 24
1971	(40) 109 76 36	(25) 110 73 39	(15) 103 84 36	(7) 135 92 62	(5) 111 80 49	N.A.	(17) 127 84 35	(9) 85 48 21
1972	(40) 110 72 33	(28) 117 72 38	(13) 124 68 31	(7) 147 92 66	(5) 88 71 46	N.A.	(17) 135 67 32	(10) 96 57 26
1973	(43) 101 63 41	(31) 100 63 41	(12) 115 54 30	(8) 123 68 60	(5) 75 61 40	N.A.	(18) 121 62 36	(10) 92 47 24

N.A. = Not Available

\* Indicates negative working capital and ratio values. See page 14 for a complete explanation.

[ ] See page 13 for an explanation of what figures are enclosed in brackets.

Collection Period<sup>1</sup>

Table 11: (days)

	All Firms	Size		Industrial Classification				
		Large Firms	Medium & Small Firms	Chemicals	Non-metallic Minerals	Food, Beverages & Tobacco	Metal Products	Other (Assembly)
1960	(12) 102 70 6	(5) 102 64 6	(7) 148 70 4	(4) 152 62 3	N.A.	(5) 148 68 9	N.A.	N.A.
1963	(14) 148 73 36	(6) 163 73 16	(8) 170 80 64	(5) 117 70 22	N.A.	(5) 170 62 16	N.A.	N.A.
1965	(18) 116 92 72	(6) 114 93 70	(12) 164 92 66	N.A.	N.A.	N.A.	(8) 114 83 74	(5) 164 104 66
1966	(39) 95 70 51	(17) 80 70 54	(22) 106 76 47	(10) 72 54 34	(5) 127 96 62	(6) 147 50 2	(12) 95 74 51	(6) 139 95 70
1967	(23) 155 92 69	(10) 159 90 75	(13) 162 98 58	(4) 168 101 62	N.A.	N.A.	(11) 179 88 55	(5) 105 89 73
1968	(24) 172 120 85	(11) 133 96 80	(13) 187 159 86	(4) 196 120 56	(4) 178 130 36	N.A.	(11) 172 128 88	(5) 135 101 80
1969	(54) 124 87 56	(25) 105 77 45	(26) 134 98 64	(11) 103 67 53	(7) 168 120 43	(5) 108 58 9	(19) 133 98 82	(12) 104 93 58
1970	(52) 112 91 55	(31) 106 69 52	(21) 142 104 60	(12) 107 76 45	(6) 185 104 48	(5) 69 49 9	(20) 146 103 68	(9) 111 82 54
1971	(43) 124 79 62	(26) 119 74 56	(17) 140 110 69	(9) 125 71 47	(5) 163 102 73	N.A.	(18) 159 111 60	(9) 102 79 63
1972	(44) 130 84 63	(29) 118 81 55	(15) 138 103 75	(9) 133 75 48	(5) 175 107 78	N.A.	(18) 150 110 61	(10) 105 80 75
1973	(45) 107 87 64	(32) 97 87 60	(13) 123 91 74	(10) 121 74 39	(5) 166 107 87	N.A.	(18) 136 91 70	(10) 94 80 66

[ ] See page 13 for a description of what figures are enclosed in brackets  
 N.A. = Not Available

<sup>1</sup> Net sales was used in calculating these ratios since credit sales ( i.e. net sales minus those for cash ) are unavailable. Since most selling of these products is for credit at least until the invoice arrives, there is probably little discrepancy in using net sales as a proxy for credit sales.

Net-Sales-to-Inventory

Table 12: Ratio expressed as "a number to one" (not percentage)

	All Firms	Size		Industrial Classification				
		Large Firms	Medium & Small Firms	Chemicals	Non-metallic Minerals	Food, Beverages & Tobacco	Metal Products	Other (Assembly)
1960	(12) 27 6 2.5	(5) 26.6 7.8 2.5	(7) 28 15 3	(4) 23.0 13.8 1.9	N.A.	(5) 15.9 16.9 2.5	N.A.	N.A.
1963	(14) 26 7 3	(6) 25.3 7.3 2.6	(8) 31 19 4	(5) 27.0 12.3 4.3	N.A.	(5) 124.3 37.4 2.6	N.A.	N.A.
1965	(18) 5.5 3.5 2	(6) 5.1 3.6 2.4	(12) 10 3 1.4	N.A.	N.A.	N.A.	(8) 3.5 2.5 1.3	(5) 10.4 4.4 1.4
1966	(40) 13 4.5 3	(18) 6 4.6 3.3	(22) 15 4 2.4	(10) 15 6.5 3.5	(5) 85.1 22.5 4.1	(6) 82.6 26.8 2.3	(13) 4.8 3.3 2.7	(6) 16.9 5.1 1.5
1967	(23) 6 4.6 3	(10) 4.8 4.5 3.2	(13) 8 5 2.3	(4) 5.8 5.6 5.1	N.A.	N.A.	(11) 4.8 3.7 2.7	(5) 16.3 11.6 2.1
1968	(25) 5.5 3.9 2.8	(12) 4.5 3.7 3	(13) 6.5 4 2.4	(4) 8.1 5 2.1	N.A.	N.A.	(13) 4 4 3	(5) 3.9 3 1.4
1969	(55) 8 5.1 3.3	(29) 8 5.1 3.4	(26) 8 4.6 3.1	(11) 6.6 5.4 2.8	(7) 16.4 8 6	(5) 79 24 3	(20) 8 3.8 3	(12) 6.3 3.9 3.1
1970	(52) 7 4.5 2.9	(31) 7 4.7 3.1	(21) 7 4.4 2.9	(12) 8.9 6.2 2.6	(6) 6 5 3	(5) 7 4 1	(20) 10.8 4.5 5	(9) 13 4 2.8
1971	(43) 6.1 4.1 2.7	(26) 6.7 4.3 2.9	(17) 5.5 3.2 2.5	(9) 6.3 4.9 2.6	(5) 5 4 3	N.A.	(18) 6.9 3 2.7	(9) 10.6 5.3 3
1972	(44) 7 4.9 2.8	(29) 8.8 5.4 3	(15) 6.6 3.4 2.6	(9) 6.9 6.6 3.4	(5) 6 5 3	N.A.	(18) 10.1 3.4 2.8	(10) 12.2 4.7 2.6
1973	(45) 8.1 4.8 3.4	(32) 8.6 5.1 3.6	(13) 7.8 3.4 2.7	(10) 7.9 5 3.4	(5) 12 8 3	N.A.	(18) 9 4.2 3.4	(10) 7.5 5 3.3

N.A. = Not Available

\* Indicates negative working capital and ratio values. See page 14 for a complete explanation.

[ ] See page 13 for an explanation of what figures are enclosed in brackets.

Net-Sales-to-Net-Worth

Table 13: Ratio expressed as "a number to one" (not percentage)

	All Firms	Size			Industrial Classification				
		Large Firms	Medium & Small Firms		Chemicals	Non-metallic Minerals	Food, Beverages & Tobacco	Metal Products	Other (Assembly)
1960	(12) 10.4 2.3 1.0	(5) 10.5 3.6 1.1	(7) 20.4 2.8 .8	(4) 34.2 10.2 .5	N.A.	(5) 20.4 7.5 1.8	N.A.	N.A.	
1963	(14) 4.8 2.2 1.4	(6) 11.5 4.8 1.1	(8) 4.4 2.2 1.4	(5) 11.5 4.6 1.8	N.A.	(5) 10.8 4.2 1.2	N.A.	N.A.	
1965	(18) 3.5 1.8 .7	(7) 3.4 1.9 1.5	(11) 3.6 1.5 .6	N.A.	N.A.	N.A.	(8) 2.1 .8 .6	(5) 3.6 2.1 1.5	
1966	(37) 3.9 2.4 1.4	(17) 3.2 2.0 1.8	(20) 3.8 2.7 1.1	(10) 5.3 4.3 2.6	N.A.	(6) 11.8 3.9 1.7	(11) 2.8 2.0 1.0	(6) 3.3 2.3 1.2	
1967	(20) 2.9 2.1 1.3	(9) 2.6 2.0 1.5	(11) 3.5 2.2 .6	(4) 9.8 4.3 .1	N.A.	N.A.	(11) 2.6 2.1 1.1	(5) 2.9 2.0 1.3	
1968	(22) 2.5 1.9 1.2	(12) 2.5 1.9 1.3	(10) 3.8 2.0 .8	(4) 8.6 3.7 .2	N.A.	N.A.	(11) 2.0 1.8 .9	(5) 2.5 1.8 1.2	
1969	(51) 2.8 2.2 1.5	(28) 5.0 2.3 1.9	(23) 2.4 2.1 1.3	(11) 4.5 3.3 1.5	(5) 4.9 2.6 1.4	(5) 14.1 4.7 1.8	(18) 2.4 2.1 1.1	(12) 2.4 2.1 1.5	
1970	(49) 2.8 2.1 1.6	(30) 5.8 2.2 1.7	(19) 2.8 2.0 1.3	(11) 3.8 2.6 1.3	(6) 2.5 1.8 1.1	(5) 18.8 6.5 2.0	(18) 2.6 2.1 1.4	(9) 2.5 2.1 1.7	
1971	(41) 2.3 1.8 1.3	(25) 2.4 2.0 1.4	(16) 2.3 1.6 1.1	(8) 4.3 2.7 1.0	(5) 2.2 1.8 1.1	N.A.	(17) 2.2 1.8 1.3	(9) 2.5 1.8 1.5	
1972	(42) 2.5 2.0 1.5	(28) 2.5 2.1 1.7	(14) 2.3 1.6 1.1	(8) 4.8 3.3 1.1	(5) 2.3 1.7 1.0	N.A.	(17) 2.3 1.9 1.2	(10) 5.7 2.0 1.6	
1973	(44) 3.1 2.1 1.6	(31) 3.1 2.3 1.9	(13) 2.7 1.7 1.2	(9) 5.1 2.3 1.5	(5) 2.1 1.8 1.2	N.A.	(18) 2.8 2.1 1.5	(10) 3.1 2.4 1.7	

N.A. = Not Available

\* Indicates negative working capital and ratio values. See page 14 for a complete explanation.

[ ] See page 15 for an explanation of what figures are enclosed in brackets.

Before-Tax-Net-Profit-to-Net-Sales

Table 14: (percentages)

	All Firms	Size		Industrial Classification						
		Large Firms	Medium & Small Firms	Chemicals	Non-metallic Minerals	Food, Beverages & Tobacco	Metal Products	Other (Assembly)		
1960	(9) 12 4 2	(4) 34 12 4	(5) 18 4 (-6)	N.A.	N.A.	(4) 7 2 (-6)	N.A.	N.A.		
1963	(12) 9 3 1	(4) 21 9 3	(8) 5 3 (-2)	(4) 14 6 3	N.A.	(4) 9 3 (-2)	N.A.	N.A.		
1965	(16) 10 4 1	(6) 22 6 1	(10) 12 6 (-20)	N.A.	N.A.	N.A.	(7) 2 2 (-24)	(5) 27 17 4		
1966	(33) 10 4 2	(14) 10.5 6 3.5	(19) 8 4 1	(7) 8 5 1	(5) 32 13 2	(5) 13 6 (-0.1)	(10) 4 3 (-19)	(6) 27 10 (-7)		
1967	(20) 10 5.5 3	(11) 12 8 6	(9) 4.5 3 (-8)	N.A.	N.A.	N.A.	(10) 8 5 (-2)	(5) 20 11 4		
1968	(21) 8.5 5 3	(11) 10 8 4	(10) 6.5 3.0 (-2.5)	N.A.	N.A.	N.A.	(11) 8 4 3	(4) 10 7 3		
1969	(51) 11 5 2	(27) 10 6 2	(24) 11 4 1	(10) 7 3.5 2	(7) 18 10 6	(4) 15 5 (-3)	(19) 11 7 (-0.4)	(11) 17 11 6		
1970	(51) 11 6 2	(30) 12 7 2	(21) 9 4.5 .4	(12) 9 6 2	(6) 19 13 4	(5) 15 4 (-6)	(19) 11 4.5 0.5	(9) 9 7 1		
1971	(43) 11 6 2	(26) 11 6 2.5	(17) 12 6 (-3)	(9) 7 3 (-0.7)	(5) 21 9 2.5	N.A.	(18) 12 8 (-0.6)	(9) 11 8 3		
1972	(44) 10.7 5 2.4	(29) 10.6 5.6 3.2	(15) 10.7 3.9 2.3	(9) 6 4 2	(5) 21 10 (-1)	N.A.	(18) 11 4 1	(10) 14 11 3		
1973	(44) 10 7 4	(31) 10 7 4	(13) 10 6 3.5	(9) 6 3 1	(5) 23 12 7	N.A.	(18) 11 7 4	(10) 13 8 5		

N.A. = Not Available

\* Indicates negative working capital and ratio values. See page 14 for a complete explanation.

[ ] See page 13 for an explanation of what figures are enclosed in brackets.

Net-Sales-to-Total-Assets

Table 15: Ratio expressed as "a number to one" (not percentage)

	All Firms	Size		Industrial Classification					
		Large Firms	Medium & Small Firms	Chemicals	Non-metallic Minerals	Food, Beverages & Tobacco	Metal Products	Other (Assembly)	
1960	(12) 2.01 .96 .68	(5) 2.42 1.35 .68	(7) 1.51 1.01 .61	(4) 3.19 1.59 .33	N.A.	(5) 2.42 1.38 .68	N.A.	N.A.	
1963	(15) 1.59 .94 .72	(6) 2.27 1.26 .60	(9) 1.46 .92 .72	(6) 1.68 1.32 .92	N.A.	(5) 2.27 1.24 .60	N.A.	N.A.	
1965	(19) 1.52 1.17 .57	(7) 1.30 .85 .33	(12) 2.05 1.28 .57	N.A.	N.A.	N.A.	(8) .85 .58 .33	(5) 1.52 1.00 .18	
1966	(39) 1.77 1.30 .97	(17) 1.40 1.17 1.00	(22) 1.84 1.38 .72	(10) 2.29 1.80 1.30	(5) 1.74 1.31 1.03	(7) 1.77 1.48 1.06	(11) 1.24 .74 .40	(5) 2.81 1.12 .73	
1967	(23) 1.33 1.07 .89	(10) 1.22 1.08 .90	(13) 1.68 1.07 .60	(4) 2.05 1.37 .98	N.A.	N.A.	(11) 1.17 1.01 .59	(5) 1.36 1.30 .93	
1968	(25) 1.27 1.09 .82	(12) 1.23 1.06 .87	(13) 1.50 1.09 .70	(4) 2.28 1.46 .15	N.A.	N.A.	(12) 1.14 .94 .61	(5) 1.55 1.19 .79	
1969	(60) 1.62 1.10 .95	(31) 1.54 1.06 .96	(29) 1.65 1.17 .91	(13) 3.40 1.26 1.02	(9) 1.12 1.04 .96	(5) 2.17 1.64 .76	(20) 1.53 1.08 .75	(13) 1.53 1.17 1.01	
1970	(54) 1.5 1.04 .83	(33) 1.55 1.00 .85	(21) 1.45 1.11 .76	(12) 2.65 1.54 .93	(7) .99 .94 .79	(5) 3.00 1.58 .85	(20) 1.18 .98 .72	(10) 1.49 1.29 1.01	
1971	(43) 1.46 .97 .69	(26) 1.90 .98 .70	(17) 1.32 1.96 .64	(9) 1.95 1.46 .84	(5) 1.33 .88 .64	N.A.	(18) 1.17 .80 .64	(9) 1.61 1.27 1.03	
1972	(44) 1.45 1.04 .85	(29) 1.87 1.01 .84	(15) 1.26 1.07 .89	(9) 2.57 1.45 .90	(5) 1.65 1.02 .80	N.A.	(18) 1.33 .91 .70	(10) 1.44 1.22 .92	
1973	(45) 1.65 1.17 .98	(32) 1.79 1.11 1.02	(13) 1.55 1.19 .70	(10) 2.29 1.74 1.06	(5) 1.64 1.14 .93	N.A.	(18) 1.31 .97 .76	(10) 1.65 1.30 1.16	

N.A. = Not Available

\* Indicates negative working capital and ratio values. See page 14 for a complete explanation.

| | See page 13 for an explanation of what figures are enclosed in brackets.

Before-Tax-Net-Profits-to-Total-Assets

Table 16: (percentages)

	All Firms	Size		Industrial Classification				
		Large Firms	Medium & Small Firms	Chemicals	Non-metallic Minerals	Food, Beverages & Tobacco	Metal Products	Other (Assembly)
1960	(9) 10 3 2	(4) 32 13 3	(5) 6 2 (-6)	N.A.	N.A.	(4) 15 4 (-6)	N.A.	N.A.
1963	(12) 7 2 2	(4) 20 11 2	(8) 7 2 (-1)	(4) 13 6 2	N.A.	(4) 18 5 (-1)	N.A.	N.A.
1965	(16) 13 4 0.3	(6) 13 4 0.3	(10) 16 6 (-8)	N.A.	N.A.	N.A.	(7) 2 1 (-7)	(5) 25 10 4
1966	(33) 14 6 3	(14) 14 6 3	(19) 11 5 2	(7) 11 6 3	(5) 38 15 2	(5) 23 9 (-0.1)	(10) 6 4 (-8)	(6) 28 12 (-5)
1967	(20) 12 6.5 4	(10) 17 7.5 5	(10) 12 4.5 3	N.A.	N.A.	N.A.	(9) 6.5 5.0 0.5	(5) 24 14 5
1968	(21) 10.5 5 3.5	(11) 11 7 4	(10) 9 4 (-3)	N.A.	N.A.	N.A.	(10) 6 4 3	(5) 24 12 4
1969	(51) 14 5 3	(27) 19 6 4	(24) 10 5 2	(10) 19 4 2	(7) 19 9 6	(4) 33 10 (-4)	(19) 10 5 (-0.2)	(11) 36 5 4
1970	(51) 13 6 3	(30) 17 7 3.5	(21) 10 5 .8	(12) 18 8 5	(6) 23 12.5 3.5	(5) 39 7 (-6)	(19) 11 4 .7	(9) 11 7 1
1971	(43) 12.6 6.3 1.6	(26) 13.1 6.3 2.4	(17) 12.7 5.8 -1.9	(9) 14 6 1	(5) 28 10 2	N.A.	(18) 12.5 6 (-1.5)	(9) 15 9 5
1972	(44) 13.6 5.2 2.6	(29) 14.5 5.7 3.1	(15) 13.3 3.8 2.3	(9) 12.5 4 1.5	(5) 34 12 (-0.5)	N.A.	(18) 13.5 4 .3	(18) 18 7 3
1973	(44) 14 7.5 4	(31) 13 8 5	(13) 15 6 4	(9) 8 6 2	(5) 38 15 7	N.A.	(18) 16 7 3	(10) 19 11 5

N.A. = Not Available

\* Indicates negative working capital and ratio values. See page 14 for a complete explanation.

[ ] See page 13 for an explanation of what figures are enclosed in brackets.

## WHY USE FINANCIAL RATIOS?

How often does the general manager ask himself: "Do I have my company on the right track? Am I really getting this firm to perform at its peak capabilities? How does my firm compare with others in its growth patterns?" The general manager must consider every aspect of the firm as he makes decisions, so it is very important that he put financial understanding into his decisions, along with his knowledge about production, marketing, personnel management, etc.

Financial ratios provide a tool which the general manager can use even without specialized training in accounting, to aid his judgment, helping to improve the firm's performance and bring it closer to its goals.

In examining a firm's balance sheet and income statements, more meaningful information about the firm's "financial health" can be gained by comparing the various items to each other, as well as seeing them in isolation. Examining the firm's financial ratios helps indicate the areas of financial strength and weakness. In assessing his own company, it is helpful for the general manager to be able to compare the pattern of its ratios with average performance by other similar firms. This data is

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available on industries in the U.S.<sup>1</sup> but since inflation rates, credit availability, cost of materials, etc, are often very different, it is most helpful for the Mexican industrialist to compare with other Mexican firms. In addition, since conditions vary over time, appropriate levels for the various financial ratios may also vary. This makes the data presented here, from 1960 through 1973 for manufacturing firms in Monterrey, Mexico, extremely valuable.

The typical values presented for industrial performance on each ratio are not "perfect", or "optimal", but they do provide a benchmark, a guideline, on what the "middle fifty percent" of similar firms are doing. If a company's ratios vary greatly from the typical values, it does not necessarily mean that the company has made a mistake, but it does indicate that the financial officer should investigate very carefully why his firm's position is different and make sure that he can justify his policy in terms of sound financing principles, under the firm's special circumstances.

Please note that these statistics are most valuable when they come from a very large sample. Since this data comes from a small sample, reliability may vary widely, but the averages do indicate a reasonable order of magnitude for such ratios for Mexican firms in the various industries.

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1. Comparable data for some ratios for various U.S. industries can be found in Annual Statement Studies, by The Robert Morris Associates, Research Department, Philadelphia National Bank Building, Philadelphia, Pennsylvania 19107; and also in Key Business Ratios, by Dun & Bradstreet, Inc., Industry Studies Department, 99 Church Street, New York, New York 10007.

The ratios presented here are the first 14 "cause-and-effect" ratios for a complete system of analysis discussed in detail in the book The Meaningful Interpretation of Financial Statements: The Cause-and-Effect Ratio Approach, by Donald E. Miller.<sup>1</sup> In addition, two other ratios have been calculated corresponding to those presented in Consideraciones Sobre La Rentabilidad de Las Inversiones Industriales en Mexico, from Compañía General de Aceptaciones, S.A.<sup>2</sup>

Data was collected from the firms in 1970 and again 1974, under the sponsorship of the Monterrey Institute of Technology, the Foreign Area Fellowship Program, and the Program for Policy on Science and Technology in Developing Nations, at Cornell University.<sup>3</sup>

The author wishes to thank all of the businessmen who gave very generously of their valuable time. Hopefully, in the future, as more firms participate, the accuracy and usefulness of this data will be increased.

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1. American Management Association, Inc., New York, New York, 1966. It was revised in 1972. This book is available in Spanish and English at the library of the Monterrey Institute of Technology and it is strongly recommended that it be used with this report to fully understand the uses of these ratios and their limitations.

2. 1a. Convención Mundial de Ingeniería Química, by Lic. Eugenio Garza Botello and C.P. Salvador F. Albo, Compañía General de Aceptaciones, S.A., Departamento de Estudios Económicos, Monterrey, N.L., for the years 1961 to 1964. The same format has been used here in order to make these data as consistent as possible with that report. It should be emphasized, however, that the earlier study was based on firms distributed over all Mexico, while this one deals exclusively with companies located in Monterrey, N.L.

3. The original study was for a doctoral dissertation in economics at Cornell University, United States Joint Ventures and National Manufacturing Firms in Monterrey, Mexico: Comparative Styles of Management, by Loretta Louise Good, August, 1972, available in several University libraries in Mexico.

All of the ratios are not equally important. Therefore, they have been divided into two groups: which can be roughly categorized as ratios pointing up "causes", i.e. relationships and financial forces which directly influence the entire operation of the firm, thereby causing the effects reflected in the second group of "effect" ratios. This latter group also give important information about the financial structure of the firm and its competitive position by illuminating some important effects of various financial forces at work in the company.

#### THE 9 "EFFECT" RATIOS: DEFINITIONS AND IMPORTANCE

The nine "effect" ratios are:

1. Current ratio (current-assets-to-current-liabilities).
2. Current-liabilities-to-net-worth.
3. Total-liabilities-to-net-worth.
4. Inventory-to-working-capital.
5. Trade-receivables-to-working-capital.
6. Long-term-liabilities-to-working-capital.
7. Net-profit-to-net-worth.
8. Net-sales-to-fixed-assets.
9. Net-sales-to-working-capital.

1. Current ratio. (see Miller, p. 20)

Computation: Divide total current assets by current liabilities. The number is expressed as "times" or as a number to one (e.g. 2.4-to-1) rather than as a per cent.

This ratio helps point up the general adequacy of the company's working capital (i.e. current assets minus current liabilities) and helps to indicate the firm's ability to meet daily payment obligations. How does the firm stand, for example, if all its current liabilities were to suddenly fall due tomorrow? A word of warning is in order, though. It has become a custom to regard a 2-to-1 current ratio as the cut-off point between "sound" and "unsound" management, but this should not be considered an

inflexible, infallible rule. The ratio, by itself, is not an adequate test since it measures only the quantity of current assets and not their quality. Solvency may be threatened by slow-moving, unsaleable inventory and doubtful receivables even when the current ratio is over 2-to-1. It is important to use the other ratios together with the current ratio when making a financial analysis, but other factors being equal, a higher current ratio indicates a higher degree of liquidity.

2. Current-liabilities-to-net-worth. (see Miller, p. 26)  
Computation: Divide all current liabilities by the net worth (i.e. the owners' share of the firm) and express as a per cent.

This ratio shows the share of the company subject to claims by debtors in relation to the share belonging to the owners. "What is owed to what is owned." It indicates something about the degree of operating freedom which the firm enjoys. With an unusually high debt ratio, managers may be more cautious and creditors may force the company to take excessively conservative actions which may inhibit its long-run growth.

3. Total-liabilities-to-net-worth. (see Miller, p. 26)  
Computation: Divide total liabilities (current plus long-term debt) by net worth, and express as a per cent.

This debt ratio is similar to number two above. Because of their early maturity, a large proportion of current debt is more pressing in terms of time. However, long-term debt can create its own kind of problems because it has more inflexible maturity and repayment requirements and specific collateral; failure to pay on time brings definite penalties.

4. Inventory-to-working-capital. (see Miller, p. 30)  
Computation: a) Subtract current liabilities from current assets to get working capital. b) Divide the book-value of inventory by working capital and express as a per cent.

Working capital represents the margin of cash and other current assets over current liabilities and can be negative where current liabilities exceed current assets. Working capital measures the cushion available for meeting current liabilities even if current assets were to be suddenly reduced

by a capital loss or write-off of value or their conversion to fixed assets. Inventory is a very important part of working capital and it may decrease in value rapidly due to factors such as style change, obsolescence, physical deterioration or undetected thefts. In addition, inventories may move very slowly. All of these factors can seriously affect the company's ability to meet its daily commitments to its workers and creditors.

5. Trade-receivables-to-working-capital. (see Miller, p. 33)  
Computation: Divide all trade receivables (accounts, notes, etc.) arising from the company's normal trading activity by the working capital and express as a per cent.

Receivables are a second significant part of working capital and the basic rationale for this ratio is the same as for number four above. If a large proportion of receivables are uncollectable or can be recovered only very slowly, the firm's working capital, and thus its liquidity, may be seriously impaired, endangering the firm's ability to pay off its own debts.

6. Long-term-liabilities-to-working-capital. (see Miller, p. 39)  
Computation: Divide long-term debt by working capital and express as a per cent.

If working capital is positive, a ratio over 100% indicates that long-term debt has been used for financing fixed assets. A low ratio might indicate that the firm has untapped sources of long-term financing available to it.

7. Net-profit-to-net-worth. (see Miller, p. 44)  
Computation: Divide before-tax net profit<sup>1</sup> by net worth and express as a per cent.

This ratio shows the owners' share from the year's operations in relation to their capital contribution. Note that a very high ratio here does not necessarily indicate desirable circumstances since an abnormally low net worth can make even modest profits look impressive.

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1. Miller used after-tax net profit; however, before-tax net profit was used here in order to get greater consistency since tax rates and deductions may vary according to the firm's size and industrial classification, etc.

8. Net-sales-to-fixed-assets. (see Miller, p. 47)  
Computation: Divide net sales by fixed assets (depreciated) and express as a number to one (e.g. 8.1-to-1).

This ratio measures the efficiency of the utilization of resources tied up in fixed assets. A high value indicates efficient use of fixed assets, but a high value may also result from the firm renting a large proportion of its facilities. If the ratio is abnormally low, analysis should consider such factors as the age of the fixed assets and the recent rate of growth of sales. If sales are growing and the investment was made recently, a low ratio may not be serious. On the other hand, if the investment was made several years ago and sales have still not grown adequately, the expansion may not have been justified.

9. Net-sales-to-working-capital. (see Miller, p. 51)  
Computation: Divide annual net sales by working capital (i.e. current assets minus current liabilities and express as a number to one.

Working capital reflects the cycle of assets from inventories to receivables to cash. A given level of sales will require an adequate margin of working capital in order to meet regular obligations (creditors, payroll, taxes etc.) smoothly. Increasing sales may result in working capital deficiencies.

#### THE 5 "CAUSAL" RATIOS: DEFINITIONS AND IMPORTANCE

The nine ratios discussed above show the effects of financial forces on the firm's operation. The next five ratios are causal inasmuch as they determine the financial balance and are important indicators of sources of potential problems. Changes in these relationships create effects which are reflected in the first nine ratios.

These five causal ratios are:

10. Fixed-assets-to-net-worth.
11. Collection period.
12. Net-sales-to-inventory.
13. Net-sales-to-net-worth.
14. Net-profit-to-net-sales.

10. Fixed-assets-to-net-worth. (see Miller, p. 57)

Computation: Divide net fixed assets by net worth and express as a per cent.

Every company has only a limited amount of capital to work with.

This ratio shows the extent to which the owners' capital is tied up in fixed - i.e. non-liquid, permanent, depreciable assets. When fixed assets are larger than net worth, the difference is financed by debt. As the percentage of fixed assets rises relative to a given level of net worth, working capital will fall, since less capital is available to meet daily obligations or make other investments.

11. Collection period. (see Miller, p. 63)

Computation: a) Divide the year's credit-sales (i.e. all net sales minus those for cash) by 365, to get credit-sales-per-day. b) Divide all receivables (accounts, notes, etc.) from regular transactions by credit-sales-per-day. The answer is the collection period expressed in days.

When considered in relation to the firm's terms of sale, its collection period helps measure the efficiency of its credit and collection system. If the ratio is abnormally high, a large percentage of the year's sales is still on the books, hurting liquidity and perhaps indicating a large proportion of uncollectable accounts. However, if the collection period ratio is very small, it may indicate a loss of potential sales volume due to unnecessarily strict credit policies.

12. Net-sales-to-inventory. (see Miller, p. 69)

Computation: Divide annual net sales by the book value of inventory and express as a number to one.

This ratio approximates a measure of the physical turnover of inventory. A higher ratio indicates more intensive use of the inventory and perhaps a greater freshness, sale-ability and higher liquidating value of the inventory.

This is true since the actual value of inventories may decline significantly and rapidly due to such factors as physical deterioration, obsolescence, changes of season (demonstrated by post-Christmas sales), etc.

Slow-moving inventory, reflected in a low ratio, ties up working capital and may also raise the firm's costs, for insurance, storage, etc.

13. Net-sales-to-net-worth. (see Miller, p. 77)

Computation: Divide annual net sales by net worth and express as a number to one.

This ratio measures the intensity of use of stockholders' capital.

If a high turnover of sales to investment is the result of a large amount of debt, this may be risky. The overtrader (i.e. a firm which increases sales greatly relative to a low level of investment) is in a very inflexible position and is therefore very vulnerable to any sudden changes in the business environment such as a strike, loss of a major account, fire, price war, etc. On the other hand, a very low ratio may indicate undertrading - i.e. that the firm either has excessive capital resources or inadequate sales volume to maximize returns from the capital tied up in the firm.

14. Net-profits-to-net-sales. (see Miller, p. 91)

Computation: Divide annual before-tax net profit by annual net sales and express as a per cent. Generating profit is the reason for selling; this ratio measures the result.

Two more ratios have been added for comparability with the Aceptaciones study.<sup>2</sup>

15. Net-sales-to-total-assets.

Computation: Divide annual net sales by total assets and express as "times" or a number to one rather than as a per cent.

16. Before-tax-net-profits-to-total-assets.

Computation: Divide before-tax-net-profit by total assets and express as a per cent.

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1. Miller uses after-tax profits. See footnote 1, page 6.

2. See footnote 2, page 3 for the full reference.

Both of these ratios help indicate the relative efficiency with which the firm is using all the assets available to it. Sales-to-assets is a common way to look at "turnover", (similar to number 13). Profits of course are the firm's reason for operating. They are vital to the firm's continuing growth and are a measure of how well all the firm's resources have been managed.

A complete analysis of the company's financial health can be made using the ratios outlined above in a system of cause-and-effect analysis. Miller provides an excellent discussion (beginning p. 128) of some problems firms often encounter and various corrective means which might be applied. Such an appraisal should be made periodically and regularly so that the firm's officers can make sure that the company's current financial situation and its trends are actually in accord with their objectives for the firm. Also, it is wise to use financial analysis to study the probable effects of different alternatives when policy decisions are being made.

#### HOW RATIOS ARE CALCULATED

All of the 47 firms included in the sample have manufacturing plants located in metropolitan Monterrey, N.L., Mexico. They all began manufacturing prior to 1966. They range in size from annual sales (in 1969) of one million pesos (80 thousand dollars) to 1,500 million pesos (120 million dollars), with an average firm size of 19 million pesos (1.5 million dollars).

Values were computed for each financial ratio for each firm for each year. The ratios were then sorted within each year into groups, according to the size and main product line of the firm. Within each group, the values for a ratio were then arranged in descending numerical order, from highest down to lowest. The figure which falls in the middle of the list of ratio values is the median.<sup>1</sup> The figure half way between the median and the highest of the ratio values is the upper quartile. The ratio halfway between the median and the lowest value is the lower quartile.

The median shows the "middle ground" or a typical value of a ratio for all the firms in that category. It is used instead of a regular numerical average because an average is too easily distorted by the presence of a few extreme values at either end of the ranking. The two quartiles help the analyst see the "spread" or range of values, since by definition, the "middle fifty percent" of the firms fall between the upper and lower quartiles. So if a firm's ratio values fall outside this range they might be considered "unusual."

In the tables which follow, within each category, the top number in each category is the upper quartile, the middle number is the median and the bottom number is the lower quartile. The number to the left of the upper quartile, in parentheses, is the number of firms included in that category. For example, in Table 1, for All Firms in 1960, the value of the current ratio which fell in the middle of the group (the median) was 2.90. The value one-quarter of the way up the ranking was .96 and the value

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1. If the number of firms in the group is even, the median is the average of the middle two values.

three-quarters of the way up the ranking was 4.60. There are eleven firms included in the category.

Note however, that the figures within brackets were computed differently. A category of less than seven firms is too small to generate meaningful medians and quartiles. Therefore, whenever only six, five or four firms were available in any category,<sup>1</sup> a simple numerical average (i.e. the sum of all the values divided by the number of values included) was calculated and presented as the middle item within any category in brackets. The top and bottom numbers within the brackets are the range of the values in the category. The top number is the highest value of that ratio for all the firms included; the bottom number is the smallest value. Thus all the values in the category fall between the top and bottom numbers and not just the middle fifty percent as is true for the quartiles. As in the other cases, the number in parentheses to the left of the upper quartile is the number of firms included in that category. To illustrate, in Table 1, for Large Firms in 1960, the average value of the current ratio is 3.45; the highest of the five ratios was 4.60 and the lowest was .80.

Please note, in addition, that for ratios numbers 4, 5, 6 and 9, it is impossible to generate meaningful averages when some firms within the group have negative working capital and thus negative values for the ratios. For example, as working capital falls relative to a fixed level of inventories, the ratio of inventories to working capital rises.

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1. Not available (N.A.) is entered for any category with three or fewer responses.

When working capital falls still further and is negative, the relationship between inventory and working capital continues to move in the same direction, continuing to worsen in some judgmental sense. Thus the negative values of the ratio are ranked above the very high positive values generated as the working capital approaches zero. However, the numerical values of the ratio move in the opposite direction, i.e. the absolute value of the negative numbers gets smaller and smaller as the size of the working capital deficit continues to grow, relative to the same given level of inventories. Thus it is impossible to make any meaningful numerical combination of negative values with the positive values at the upper end of the rankings for these ratios. Therefore, if the value of the quartile is a negative number, an asterisk (\*) has been entered to indicate that the value (and those of the 25% of the responses ranked above that point) involved negative working capitals, indicating a more extreme position but making any numerical comparison meaningless.

The following categories were used:

All Firms: This includes every firm for which there was data in any given year.

Size:

Large Firms: Any firm which had net sales in that year of 20 million pesos (\$1,600,000.00) or more. The Aceptaciones study defines large firms as those with net worth over 10 million pesos (\$80,000.00). Net sales were used here as this was the only datum available for all firms. Comparisons revealed that the division generated by these two criteria was exactly the same, with the exception of three firms, so the two classifications are quite comparable.

Medium and Small Firms: All firms with net sales for that year of less than 20 million pesos (\$1,600,000.00).

**Industrial Classification:**

Chemicals: manufacture of chemical substances and products, including pharmaceutical products, plastics, poliesters, pigments, solvents, paints, enamels, adhesives, etc.

Non-metallic Minerals: includes refractory products (ceramics, brick, etc.) glass products and asbestos products.

Food, Beverages, Tobacco: includes the manufacture of cigarettes, beer, soft drinks, and various food items.

Metal Products: includes metal working, foundries and mills of iron, copper and steel, and the manufacture of machinery, industrial structures, transport equipment, etc.

Other (Assembly): includes firms which assemble small non-machinery items with various component parts, such as gauges, filters, batteries, etc.