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Chapter 9

Security Markets and Business Cycles

SUMMARY

From 1873 to 1970 the U.S. economy experienced twenty-three recessions or contractions in business activity and twenty-three expansions. With rare exceptions, the recessions were accompanied by a decline in stock prices. Moreover, there have been few sustained or substantial swings in stock prices that have not been closely associated with swings in the business cycle. An understanding of this association, therefore, is clearly of concern to anyone interested in the stock market.

The bond market also is closely attuned to the business cycle. Yields on corporate, municipal, and U.S. government bonds—as well as other interest rates—have nearly always risen during the later stages of upswings in business and fallen during downswings. Bond prices, of course, have moved in the opposite direction. As a rule, prosperity is good for stock prices but bad for bond prices, while depression is bad for stock prices and good for bond prices.

This does not mean, however, that a turn for the worse in business and in stock prices always occurs at the same time. Typically, the turn in stock prices occurs prior to the turn in business activity. Hence stock prices are said to lead the swing in the business cycle, and stock price indexes are "leading indicators." At the peak of the business cycle, it is characteristic that stock prices have already been declining for some months, and at the trough of the business cycle,

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stock prices usually have already started to rise. Bond yields, on the other hand, frequently continue to decline for some months after a business upswing has begun and occasionally continue to rise after a business recession has begun. Bond yields and other interest rates are generally classified as coincident or lagging indicators.

Business cycles also have marked influences on the volume of new issues of stocks and bonds and on the repayment and refunding of bonds. Rising stock prices and falling bond prices tend to encourage the issuance of common stock and to discourage bond financing, so a shift toward stock and away from bonds tends to occur during a business upswing. The opposite movements characterize the contraction phase of the business cycle.

A wide variety of factors, summed up in the term *business cycle*, bring about or are related to the regularities in the behavior of the securities markets just described. Among the factors associated with the regularities in the behavior of stock prices during business cycles, probably the most significant are profits and interest rates. Declines in the level or rate of growth of profits or in factors portending such declines—for example, declines in profit margins or in new orders—during the late stage of a business cycle expansion alter appraisals of common stock values and hence tend to produce a decline in stock prices before the downturn in business. At this stage also, a restricted supply of money and credit and the accompanying higher interest rates tend to lower capital values and may cause postponement of plans to exploit potentially profitable investment opportunities, make common stocks a less attractive security to hold, and diminish incentives to borrow for that purpose. Hence, these changes as well as those in profits depress stock prices in the later stages of business expansions. Both sets of factors operate to produce the "lead" in stock prices. Opposite changes occur during business contractions and help to explain the tendency for stock prices to begin to rise while business activity as a whole is still depressed.

But a wide variety of other factors play upon the market—shifts in investor confidence, fears of inflation, prospects for higher taxes or stiffer government regulation, changes in margin requirements, the flow of funds from abroad, a strike in a major industry, the failure of a large enterprise—and these make the underlying regularities more difficult to observe and to predict. Moreover, developments in the securities markets have repercussions of their own. A rise in capital values can lift the propensity of consumers to spend and encourage enterpreneurs to embark on new ventures; a collapse in capital values can do the opposite. Hence there is a feedback from the markets to business.

DEFINITION AND CHARACTERISTICS OF BUSINESS CYCLES

Business cycles, according to a definition formulated in 1946 by Wesley C. Mitchell and Arthur F. Burns, are

> a type of fluctuation found in the aggregate economic activity of nations that organize their work mainly in business enterprises; a cycle consists of expansions occurring at about the same time in many economic activities, followed by similarly general recessions, contractions, and revivals which merge into the expansion phase of the next cycle; this sequence of changes is recurrent but not periodic; in duration business cycles may last from more than one year to ten or twelve years; they are not divisible into shorter cycles of similar character with amplitudes approximating their own.[1]

This definition resulted from extensive observation of economic data for a number of countries over periods ranging back to the late eighteenth century and up to the 1930s. Studies of more recent data have, for the most part, confirmed the continued existence of business cycles conforming to the definition, and the chronology of cycles has been extended down to date. However, secular shifts in the character of economic activity, such as the shift toward greater employment in service industries, including government; the creation of new institutions such as bank deposit insurance and unemployment insurance; and the attention given by government to the use of fiscal and monetary policy to modify the business cycle, particularly to offset any tendency toward recession, have led to long-term changes in the character of the cycle. In general, cyclical fluctuations in recent decades, both in the United States and abroad, have been milder, with the contraction phase often characterized by a reduced rate of growth in aggregate economic activity rather than by an absolute decline. Hence the term *growth cycle* has come to be applied to these milder fluctuations. This shift has generally been accompanied by a higher rate of inflation during the expansion phase of the cycle, often extending into the contraction phase.

Chronologies of business cycles have been constructed for a number of countries. The one in common use for the United States was developed by the National Bureau of Economic Research, Inc. On an annual basis, it extends from 1834 to 1970 and covers thirty-two expansions and thirty-two contractions. The monthly and quarterly chronology begins in 1854 and covers twenty-seven cycles. The latest contraction extended from November 1969 to November 1970. (For later data see Appendix Table A-1.)

Table A-2 gives a record of the chief characteristics of all of the business cycle contractions (recessions) in the United States during the past sixty years. Most of the contractions have lasted about a year or less. Only two were substantially longer, the eighteen-month contraction during 1920–1921 and the forty-three-month contraction during 1929–1933. These intervals (the top line of the table) represent the consensus among a number of different measures of economic activity, some of which are also shown in the table.

Business contractions vary in length and depth. In the Great Depression after 1929, gross national product fell by nearly half, and even after allowance for the accompanying fall in the price level, the drop was nearly one-third. None of the contractions since then, or for that matter few before then, have approached this magnitude. The declines in real GNP have ranged from 1 to 4 percent. Similarly, the unemployment rate, which by 1933 had climbed to about 25 percent, has not gone higher than eleven percent in subsequent recessions.

Severe business contractions have wide repercussions throughout the economy, affecting not only production and employment, but also commodity prices, profits, interest rates, wages, stock prices, and many other aspects of economic life. Mild contractions are more scattered in their effects. This phenomenon of diffusion is illustrated in the bottom line of the table, in terms of the percentage of industries, out of those that cover the entire nonfarm sector, in which employment declined. Even in the milder contractions, like those of 1926–1927, 1960–1961, and 1969–1970, the percentage of industries registering declines ranged from seventy-one to eighty-three. In the severe contractions of 1920–1921, 1929–1933, and 1937–1938, the percentage reached as high as ninety-seven to one hundred, virtually encompassing all industries. These pervasive movements naturally have a vital bearing on conditions in security markets.

The growth cycle concept referred to above has not yet come into wide use in the United States, but it may do so if recessions continue to become milder and if concern about even the mildest continues to mount. Recent research has identified eight growth cycles during 1948–1970. Five of the periods of slowdown overlap the business cycle recessions of 1949, 1954, 1958, 1961, and 1970, beginning one or two quarters earlier but ending at about the same time. These five, of course, were the more serious episodes. The other three milder slowdowns occurred in 1951–1952, 1962–1963, and 1966–1967, interrupting the business cycle expansions of 1949–1953 and 1961–1969. A ninth slowdown appears to have begun in the spring of 1973 (see Chapter 5 and Appendix Table A-4).

During the five slowdowns that overlapped business cycle recessions, gross national product in constant dollars declined, though not in every quarter, at average rates of decline ranging from −0.5 percent per year in the mildest to −2.5 percent per year in the sharpest. In the other three slowdowns, real GNP continued to grow, in most quarters, at rates that averaged about 2.5 percent per year in 1951–1952, 3.5 percent in 1962–1963, and 3 percent in 1966–1967. During the eight intervening upswings, on the other hand, growth rates ranged from 4 to nearly 12 percent and averaged 6 percent per year. As will be seen, even the milder slowdowns in economic growth have had significant effects on security markets.

STOCK PRICES AND BUSINESS CYCLES

The chronology of business cycles in Table 9–1 makes it easy to answer the question of whether stock prices are higher at the top of a boom than at the bottom of a recession. The answer, surprisingly, is "most of the time but not always." On a few occasions, most recently in 1953-1954 and 1960-1961 [and 1982], Standard & Poor's index of 500 common stock prices was higher at the bottom of the business cycle contraction than it was when the recession began. The same was true of the Dow-Jones Industrials Index. In most cases, as Table 9–1 shows, the general level of stock prices has been much higher at the top of a boom than at the bottom of a recession. The average of twenty-two periods of business expansion, 1873–1970, shows the index rising 35 percent, or at an annual rate of 12 percent. The average of twenty-three periods of business contraction shows the index falling 8 percent or at 2 percent annual rate.

Clearly it is of importance from the investor's point of view to know when the turns in the business cycle occur. Since 1948 the four periods of business cycle expansion witnessed increases of 54, 54, 52, and 34 percent in the Standard & Poor's index. By contrast, during the five periods of business contraction the index never rose as much and on two occasions dropped around 10 percent. The average rate of appreciation during the expansions was 12 percent per year; during the contractions, only 4 percent.

The general correspondence between stock prices and business cycles does not mean that knowledge of the business cycle turns would enable one to pick out all the significant declines in stock prices. For example, substantial declines occurred in 1962 and 1966, when no business cycle contraction is identified (see Figure 9–1). In both cases, however, slowdowns in economic growth did occur. The sharp decline in the market during 1973 also corresponds with a

Table 9–1. Changes in Standard and Poor's Index of Common Stock Prices During Business Cycles, 1873–1970.

Business Cycle		*Index Standing*[a] *(1941–1943 = 10) at*		*Percentage Change During*	
Trough	*Peak*	*Trough*	*Peak*	*Contraction*[b]	*Expansion*[c]
December 1870	October 1873		4.4		
March 1879	March 1882	3.8	6.0	−14	58
May 1885	March 1887	4.5	5.9	−25	31
April 1888	July 1890	5.3	5.7	−10	8
May 1891	January 1893	5.1	5.8	−11	14
June 1894	December 1895	4.5	4.6	−22	2
June 1897	June 1899	4.4	6.4	−4	45
December 1900	September 1902	7.1	9.1	11	28
August 1904	May 1907	7.5	8.4	−18	12
June 1908	January 1910	8.0	10.4	−5	30
January 1912	January 1913	9.5	9.6	−9	1
December 1914	August 1918	7.6	8.0	−21	5
March 1919	January 1920	8.6	9.1	8	6
July 1921	May 1923	6.9	9.2	−24	33
July 1924	October 1926	9.5	13.5	3	42
November 1927	August 1929	17.0	28.5	26	68
March 1933	May 1937	5.9	15.4	−79	161
June 1938	February 1945	10.4	13.8	−32	33
October 1945	November 1948	16.4	15.6	19	−5
October 1949	July 1953	15.8	24.3	1	54
August 1954	July 1957	30.8	47.3	27	54
April 1958	May 1960	42.7	56.1	−10	31
February 1961	November 1969	62.0	94.3	11	52
November 1970		86.3		−8	
Average, 1873–1970				−8	35
Average, 1873–1948				−12	32
Average, 1948–1970				4	48

Table 9–1. continued

Business Cycle		Length (in months) of		Annual Rate (in percent) of Change During	
Trough	Peak	Contraction[b]	Expansion[c]	Contraction[b]	Expansion[c]
December 1870	October 1873				
March 1879	March 1882	65	36	−3	16
May 1885	March 1887	38	22	−9	16
April 1888	July 1890	13	27	−9	3
May 1891	January 1893	10	20	−13	8
June 1894	December 1895	17	18	−16	1
June 1897	June 1899	18	24	−3	20
December 1900	September 1902	18	21	7	15
August 1904	May 1907	23	33	−10	4
June 1908	January 1910	13	19	−5	18
January 1912	January 1913	24	12	−5	1
December 1914	August 1918	23	44	−12	1
March 1919	January 1920	7	10	14	7
July 1921	May 1923	18	22	17	17
July 1924	October 1926	14	27	3	17
November 1927	August 1929	13	21	24	35
March 1933	May 1937	43	50	−35	26
June 1938	February 1945	13	80	−30	4
October 1945	November 1948	8	37	30	−2
October 1949	July 1953	11	45	1	12
August 1954	July 1957	13	35	25	16
April 1958	May 1960	9	25	−13	14
February 1961	November 1969	9	105	15	5
November 1970		12		−8	
Average, 1873–1970		19	33	−2	12
Average, 1873–1948		21	29	−3	12
Average, 1948–1970		11	52	4	12

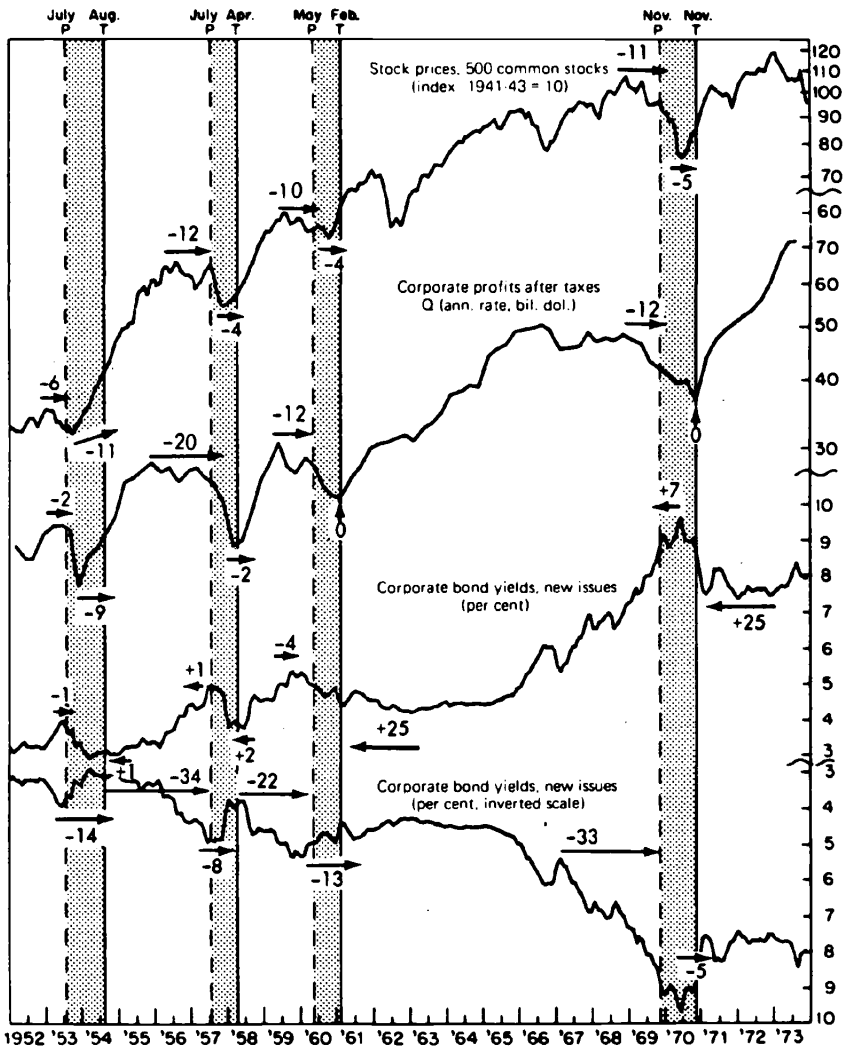
[a]Three month average centered on business cycle peak or trough month.

[b]From peak on preceding line to trough.

[c]From trough to peak.

Source: National Bureau of Economic Research, Inc.

Figure 9–1. Stock Prices, Profits, and Bond Yields, 1952–1973.



Note: Shaded areas are business recessions. Numbers and arrows indicate length of leads (-) and lags (+) in months from business cycle peaks and troughs.

Source: Standard & Poor's Corporation; U.S. Department of Commerce; First National City Bank of New York; and U.S. Treasury Department.

slowdown in growth. The only instances since 1948 of an economic slowdown where there was no substantial decline in stock prices were in 1951-1952 [and 1980].

In short, with these exceptions, the market has reflected all the slowdowns in the economy since 1948, and sustained declines in the market have not occurred at other times.[2]

The reason for most of the exceptions to the rule of higher stock prices at the peak than at the trough of the business cycle is not that stocks were not depressed by the business recession, but rather that they began to decline sooner and to recover earlier than business activity as a whole. For example, in 1953–1954, the Standard & Poor's index reached its highest monthly average (twenty-six) in January 1953, six months before the business cycle peak in July, by which time the index had dropped to twenty-four. The decline in the index continued for only two more months, reaching bottom in September 1953 at twenty-three. From then on it rose vigorously, so that by the time the August 1954 trough in the business cycle had arrived the index was thirty-one, nearly 30 percent higher than its level at the previous business cycle peak. The January-September 1953 decline in the index was evidently associated with the business recession but occurred much earlier (see Figure 9–1).

Table 9–2 shows that this tendency for stock prices to lead the business cycle is quite characteristic. Since 1873, it has happened at eighteen of the twenty-three business cycle peaks and at seventeen of the twenty-three troughs. Since 1948 there has been no exception to the rule. The average lead is around five or six months, but there have been wide variations around the average. Table 9–2 also shows that there have been only two occasions since 1873 when a business recession occurred but no cyclical decline in stock prices was associated with it. One was during the recession that briefly interrupted the boom of the 1920s, in 1926–1927; the other was in the short "reconversion" recession after World War II, in 1945. In both instances the decline in business activity was mild [as it was in 1980].

Does the systematic lead in stock prices mean that the stock market forecasts turns in the business cycle or that it is reacting to other developments that also lead? Possibly there are elements of both, but it is worth noting that two factors bearing on stock prices may help to account for the lead: profits and interest rates. Table 9–3 pulls together some relevant information on profits. Although the turning points in profits and in stock prices do not occur at precisely the same time (the leads would be identical if they did), the tendency is clearly in that direction.[3] It seems reasonable to suppose that promptly available information and astute guesses about profit

Table 9–2. Leads and Lags of Common Stock Price Index at Business Cycle Peaks and Troughs, 1873–1970.

Business Cycle		Lead (–) or Lag (+) (in months) at		Business Cycle		Lead (–) or Lag (+) (in months) at	
Peak	*Trough*	*Peak*	*Trough*	*Peak*	*Trough*	*Peak*	*Trough*
October 1873	March 1879	–17	–21	January 1920	July 1921	–6	+1
March 1882	May 1885	–9	–4	May 1923	July 1924	–2	–9
March 1887	April 1888	+2	+2	October 1926	November 1927	n.s.	n.s.
July 1890	May 1891	–2	–5	August 1929	March 1933	+1	–9
January 1893	June 1894	–5	+9	May 1937	June 1938	–3	–2
December 1895	June 1897	–3	–10	February 1945	October 1945	n.s.	n.s.
June 1899	December 1900	–2	–3	November 1948	October 1949	–5	–4
September 1902	August 1904	0	–10	July 1953	August 1954	–6	–11
May 1907	June 1908	–8	–7	July 1957	April 1958	–12	–4
January 1910	January 1912	–1	–18	May 1960	February 1961	–10	–4
January 1913	December 1914	–4	0	November 1969	November 1970	–11	–5
August 1918	March 1919	–21	–15				

	Summary					
	1873–1970		*1873–1945*		*1948–1970*	
	Peaks	*Troughs*	*Peaks*	*Troughs*	*Peaks*	*Troughs*
Median lead, in months	–5	–5	–3	–6	–10	–4
Average lead, in months	–6	–6	–5	–6	–9	–6
Longest lead, in months	–21	–21	–21	–21	–12	–11
Shortest lead (or longest lag), in months	+2	+9	+2	+9	–5	–4
Number of						
Leads six months or longer	9	9	5	8	4	1
Leads five months or shorter	9	8	8	4	1	4
Exact coincidences	1	1	1	1	0	0
Lags	2	3	2	3	0	0

n.s.—No specific cycle.

Source: Standard & Poor's index of 500 common stocks, industrials, rails, and utilities. For 1873-1958, leads and lags are from *Business Cycle Indicators*, ed., G.H. Moore, (New York: NBER, 1961), pp. 674, 677. For 1948-1970, *Business Conditions Digest*, June 1973, p. 115.

Table 9–3. Leads and Lags of Corporate Profits and Stock Prices at Business Cycle Peaks and Troughs, 1921–1970.

Business Cycle		Lead (–) or Lag (+), in Months, at Business Cycle Peaks and Troughs			
		Corporate Profits after Taxes		Stock Price Index, Standard & Poor's 500	
Peak	Trough	Peak	Trough	Peak	Trough
	July 1921		–2		+1
May 1923	July 1924	0	+1	–2	–9
October 1926	November 1927	–2	0	n.s.	n.s.
August 1929	March 1933	0	–7	+1	–9
May 1937	June 1938	–6	–1	–3	–2
February 1945	October 1945	–12	+1	n.s.	n.s.
November 1948	October 1949	–6	–5	–5	–4
July 1953	August 1954	–2	–9	–6	–11
July 1957	April 1958	–20	–2	–12	–4
May 1960	February 1961	–12	0	–10	–4
November 1969	November 1970	–12	0	–11	–5

Summary

	1921–1970		1921–1945		1948–1970	
	Corporate Profits	Stock Prices	Corporate Profits	Stock Prices	Corporate Profits	Stock Prices
Median lead, in months	–2	–5	–1	–2	–6	–6
Average lead, in months	–5	–6	–3	–3	–7	–7
Longest lead, in months	–20	–12	–12	–9	–20	–12
Shortest lead (or longest lag) in months	+1	+1	+1	+1	0	–4
Number of						
Leads six months or longer	8	7	3	2	5	5
Leads five months or shorter	6	8	3	3	3	5
Exact coincidences	5	0	3	0	2	0
Lags	2	2	2	2	0	0

n.s. No specific cycle.

Source: Standard & Poor's index of 500 common stocks, industrials, rails and utilities. For 1873-1945 leads and lags are from *Business Cycle Indicators*, ed. G.H. Moore, (Princeton: Princeton University Press, 1961), pp. 674, 677. For 1948-1970, *Business Conditions Digest*, June 1973, p. 115.

trends would influence the market and help to account for its propensity to lead the business cycle. Since other leading indicators such as new orders, housing starts, defense contracts, and construction contracts also have a bearing upon profit prospects, they also influence the thinking of investors about the value of equities and contribute to the lead of stock prices.

Although increases in profits are likely to have a favorable effect on stock prices, increases in interest rates are likely to have an unfavorable effect. The higher the discount rate applied to future earnings, the lower the capital value of the equity. The higher the yield on bonds, the more attractive they become as an alternative to holding common stocks. Higher interest rates and the accompanying reduced availability of credit may diminish the propensity of investors to borrow in order to buy stocks. Higher interest rates increase the cost of doing business, notably the cost of holding inventory and of accounts receivable, and hence may adversely affect profit margins in certain trades. Thus, increases in interest rates tend to depress stock prices, and the sharper the rise, the greater this effect is likely to be.

Interest rates often do not begin to rise, or do not begin to rise rapidly, for some months after a business upswing gets underway. Often they rise fastest in the late stages of the upswing, as a result of restrictions on the supply of money and credit. Such a development can depress the market even though business activity itself is still expanding. If this surge in interest rates is coupled with a profit squeeze that also antedates the business downturn, as frequently happens, stock prices can drop sharply even while business is good and getting better.

A similar sequence of events can be described during a business cycle contraction to account for upturns in stock prices prior to the upturn in business. The fall in interest rates helps the market for stocks, and if the customary early upturn in profits also occurs, optimism among investors in common stocks is doubly justified even though business activity is still depressed and sliding downward.

BOND PRICES, INTEREST RATES, AND BUSINESS CYCLES

Among the interrelated factors that pull interest rates and bond yields upward during a business expansion are (1) the rising demand for business credit, both for operating purposes and for capital investment; (2) the rising demand for mortgage credit, both residential and nonresidential; (3) the rising demand for consumer credit; (4) the widening expectation of an increase in the rate of inflation,

which makes lenders reluctant to lend at the same interest rate and borrowers more willing to pay a higher rate; and (5) the sluggish response of the supply of lendable funds to these pressures. During a business cycle contraction, all or most of these factors operate in reverse and bring interest rates down.

Certain types of interest rates reflect these forces more promptly and in larger degree than other types. Short-term rates on marketable securities such as treasury bills, federal funds, and commercial paper are the most sensitive. New issue yields on corporate bonds are more sensitive than yields on outstanding issues. Bank rates on business loans, mortgage rates, and rates on consumer loans are relatively sluggish. Not only do they typically move in a narrower range, they usually begin their moves later. As a rule, returns on securities traded in the open market move earlier, more frequently, and by larger amounts than rates on sparsely traded debt instruments.

Table 9–4 illustrates some of these differences for treasury bills and corporate bond yields. Bill yields have usually turned a month or two before or after the business cycle peak or trough, while yields on outstanding bonds (high grade) have usually turned later, especially at troughs. Yields on new issues of corporate bonds (shown in Figure 9–1) usually turn earlier than those on outstanding issues and hence at about the same time as bill rates. The basis point change from the peak to the trough of the business cycle has generally been much larger for bills than for bonds, as the table shows.

Although it is customary to look upon interest rates as being pulled up by a rising demand for funds operating against a sluggish supply during a cyclical expansion and as being pushed down by a declining demand during a contraction, it is also possible to look at them in a different way. Interest payments are a part of the cost of doing business, and an increase in rates can act as a deterrent to new investment. The cost of holding inventories and of accounts receivable is particularly sensitive to interest changes. High rates may make an industrial or commercial building project look less profitable and cause plans to be cut back or canceled. Tight money and the accompanying high mortgage rates have a particularly prompt and substantial depressing effect on new housing starts. Although high yields on bonds enhance their attractiveness as far as investors are concerned, they have the opposite effect on borrowers, and new issues of bonds may be postponed in the belief that yields will go lower.

From this point of view—that is, looking at the cyclical effects of changes in interest rates rather than their causes—it is useful to compare upturns in rates with subsequent downturns in business and downturns in rates with subsequent upturns in business.

Table 9–4. Leads and Lags and Rates of Change in Treasury Bill Rates and Corporate Bond Yields During Business Cycles, 1920–1970.

Business Cycle		Lead (–) or Lag (+), in Months, at Business Cycle			
		Trough		Peak	
Trough (1)	Peak (2)	Treasury Bill Rate (3)	Corporate Bond Yield, Moody's Aaa (4)	Treasury Bill Rate (5)	Corporate Bond Yield, Moody's Aaa (6)
March 1919	January 1920		–1	+5	+5
July 1921	May 1923	+13	+14	–2	–1
July 1924	October 1926	+1		–11	
November 1927	August 1929	–2	+5	–3	+1
March 1933	May 1937	+35[a]	+46[a]	–1[a]	–1[a]
June 1938	February 1945	+31[a]	+30[a]		–35[a]
October 1945	November 1948		+6		–9
October 1949	July 1953		+8	–1	–1
August 1954	July 1957	–2	+1	–1	+1
April 1958	May 1960	+2	+2	–5	–4
February 1961	November 1969	–2	+25[b]	+2	+7
November 1970		+15	+25		
Average, 1920–1970		+4	+9	–2	0

Table 9–4. continued

Business Cycle		Lead (–) or Lag (+), in Months, of Bond Yields versus Bill Rates at		Change in Bill Rates and Bond Yields, in Basis Points per Month, during Business Cycle			
				Contraction		Expansion	
Trough (1)	Peak (2)	Trough (7)	Peak (8)	Bills (9)	Bonds (10)	Bills (11)	Bonds (12)
March 1919	January 1920		0				3.9[a]
July 1921	May 1923	+1	+1	2.4	1.8	–4.8	–4.2
July 1924	October 1920			–16.4	–1.5	5.9	–1.0
November 1927	August 1929	+7	+4	–3.4	–1.7	9.3	1.4
March 1933	May 1937	+11[a]	0[a]	–10.7	–0.3	–1.0	–2.6
June 1938	February 1945	–1[a]		–4.6	–0.8	0.4	–0.7
October 1945	November 1948			0.0	–0.4	2.1	0.0
October 1949	July 1953		0	–0.6	–1.9	2.4	1.5
August 1954	July 1957	+3	+2	–9.9	–3.3	7.8	3.2
April 1958	May 1960	0	+1	–26.4	–3.7	8.0	3.3
February 1961	November 1969	+27	+5	–0.8	–2.4	4.7	3.0
November 1970		+10		–16.3	3.7		
Average, 1920–1970		+8	+2	–8.7	–1.0	3.5	0.4

[a]Excluded from average.

[b]This comparison ignores the minor rise in the series from September 1960 to September 1961.

Source: Phillip Cagan, "Changes in the Cyclical Behavior of Interest Rates," in *Essays on Interest Rates*, vol. II, ed. Jack M. Guttentag, (New York: National Bureau of Economic Research 1971), pp. 23–32. Bill rates are seasonally adjusted except 1931–1947; bond yields are seasonally adjusted 1948–1961 only. Updated 1969–1973 on basis of unadjusted data. The lag of bond yields at March 1933 trough (forty-six months) is included because the turn is comparable with that in bill rates.

For example, the peak in corporate bond yields in June 1970, which is treated in Table 9–4 as a lag of seven months behind the November 1969 business cycle peak, can also be looked on as a lead of five months before the November 1970 business cycle trough. Since bond prices move inversely to bond yields, this is equivalent to comparing the trough in bond prices with the trough in business. From some points of view this is a simpler way to put it, and Table 9–5 is drawn up on this basis. It shows not only that bond prices lead the business cycle but also that their leads are substantially longer than those of stock prices. Hence bond prices also lead stock prices. The leads vary greatly in length, averaging around a year at peaks and a half year at troughs.[4]

The average sequence during 1920–1970 that emerges from the records presented in Tables 9–4 and 9–5 is as follows:

	Months
From business cycle trough to bond yield trough (bond price peak)—Table 9-4, column 4	9
From bond yield trough to stock price peak—Table 9-5, column 8	15
From stock price peak to business cycle peak—Table 9-5, column 6	6
From business cycle peak to bond yield peak—Table 9-4, column 6	0
From bond yield peak to stock price trough—Table 9-5, column 7	6
From stock price trough to business cycle trough—Table 9-5, column 4	5

Although the order in which these turning points in financial markets and in business activity have occurred has been followed with considerable fidelity, the length of the intervals has varied enormously. Hence, the average intervals are of little or no value in pinpointing a future turning point. Moreover, as the blank spaces in the tables indicate, turning points in bond yields, stock prices, and business cycles do not always match, in which case the sequence cannot even be recorded. This means, of course, that many other factors play a part in the financial markets. Nevertheless, the sequence has occurred often enough over a long period—it can be traced back to the 1870s—and has survived severe disturbances like the Great Depression of the 1930s and the economic controls of World War II. Thus, one can be reasonably confident that it reflects persistent tendencies in the adjustment of financial markets to economic conditions.

Table 9–5. Leads and Lags of Corporate Bond Prices and Stock Prices During Business Cycles, 1920–1970.

Business Cycle		Lead (–) or Lag (+), in Months, at Business Cycle				Lead (–) or Lag (+) in Months, of Bond Prices versus Stock Prices at	
		Trough		Peak			
Trough (1)	Peak (2)	Corporate Bond Prices (3)	Stock Prices (4)	Corporate Bond Prices (5)	Stock Prices (6)	Trough (7)	Peak (8)
March 1919	January 1920			–11	–6		–5
July 1921	May 1923	–13	+1	–8	–2	–14	–6
July 1924	October 1926	–15	–9			–6	
November 1927	August 1929			–16	+1		–17
March 1933	May 1937	–9	–9	–4	–3	0	–1
June 1938	February 1945	–14	–2			–12	
October 1945	November 1948				–5		
October 1949	July 1953		–4	–37	–6		–31
August 1954	July 1957	–14	–11	–34	–12	–3	–22
April 1958	May 1960	–8	–4	–23	–10	–4	–13
February 1961	November 1969	–13	–4	–33	–11	–9	–22
November 1970		–5	–5			0	
Average, 1920–1970		–11	–5	–21	–6	–6	–15

Source: Based on Tables 9-4 and 9-6. The peaks and troughs in bond prices correspond to the troughs and peaks in bond yields, respectively.

THE VOLUME OF STOCK AND BOND FINANCING DURING BUSINESS CYCLES

The most comprehensive study of corporate bond financing during business cycles was conducted during the late 1940s and early 1950s by W. Braddock Hickman for the National Bureau of Economic Research. He covered the period 1900 to 1938 and drew the following conclusions regarding the relationships of bond to stock financing over the various stages of the business cycle:

> While bond extinguishments (repayments plus refundings) usually rise through the expansion phase of the cycle and fall through the contraction phase, bond offerings are usually inverted, rising during most of the contraction phase and falling during most of the expansion. The net change in outstandings—the difference between offerings and extinguishments—consequently shows an inverse relationship to the rise and fall of general business activity. . . .
>
> The conclusion that, on balance, corporations obtain an increasing volume of funds through the bond market during periods of contraction and a decreasing volume during periods of expansion leads to the question, Where, then, do corporations obtain funds to meet the increasing monetary requirements of expansion phases? Among the alternative sources of capital funds employed by corporations, a principal one during the period studied was the stock market. The behavior of stock offerings shows that corporations typically obtain an increasing volume of funds in the stock market during expansion stages, when net bond financing declines, and a decreasing amount during contraction stages, when net bond financing expands. Stock and bond financing thus appear to complement each other over the various stages of the cycle. . . .
>
> From analysis of the cyclical movements in the net-change series and its components in relation to bond and stock prices, it appears that both the new-money component and total offerings tend to be directly associated with bond prices, while both repayments and total extinguishments are associated with stock prices (and stock offerings). Since the relation between bond and stock prices during business cycles is complex, and since the price factors do not play with equal strength on the components of net change in bond financing, no simple formula in terms of bond or stock prices seems adequate to explain the behavior of the net change. In general, however, when the ratio of stock to bond prices turns downward during the contraction stages of the business cycle, corporations tend to shift their financing from the stock to the bond market; and conversely, when the ratio of stock to bond prices turns upward during expansion stages, corporations shift from the bond to the stock market.[5]

Since 1938 there has been a vast growth in the volume of stock and bond financing, a sharply rising trend in stock prices and bond

yields, and a fall in bond prices. To some extent these trends obscure the cyclical movements, especially because the business cycle contractions have been short. Nevertheless, Table 9–6 suggests that many of Hickman's conclusions regarding the behavior of the markets before 1938 have remained valid.

Common stock offerings rose during each of the five business expansions from 1946 to 1970 and fell in two of the contractions (1957–1958 and 1969–1970). Offerings of preferred stock (which Hickman did not distinguish) have behaved in the manner he described for bonds. They declined in three of the expansions and rose in four of the contractions, thus conforming inversely to the business cycle. The shift toward common and away from preferred stock financing during the business upswing and the reversal during the downswing appears to reflect cyclical shifts in investor confidence, with prosperity favoring the riskier security and recession favoring the safer.

Bond offerings, on the whole, have not shown as much inverse conformity to the cycle since 1946 as Hickman found for the earlier period. Nevertheless the average volume of offerings at the six business troughs was higher than the average at the five peaks. This was also true of preferred stock offerings, and from this point of view they belong with bonds. The ratio of common stock to bond offerings, therefore, usually rose during business expansions and fell during contractions.

In terms of the annual average figures used in Table 9–6, common stock prices declined in only two of the five business contractions. Corporate bond yields declined in all but one contraction, so bond prices rose in all but one. The ratio of stock to bond prices, dominated by the larger movements in stock prices, conformed positively to the business cycle as a rule.

We end up, then, with a picture resembling Hickman's description, with corporate financing shifting from stocks toward bonds as the price ratio of stocks to bonds becomes less favorable for stocks during the contraction phase of the business cycle and back toward stocks as the price ratio becomes more favorable for stocks during the expansion phase of the cycle. A similar and even more decisive cyclical shift occurs in the relative volume of offerings of common and preferred stock, with preferred stock taking on the character of bonds in this context. It seems fair to say, therefore, that the record of past experience in security markets during business cycles can serve broadly to illuminate current developments and prospects and can contribute to a better understanding of the factors that have a significant bearing on the outcome of security investments.

Table 9–6. Stock and Bond Prices and the Volume of Offerings During Business Cycles, 1946–1970.

Business Cycle		Corporate Securities Offered for Cash ($ millions)						Common Stock Price Index, S&P's 500 1941–1943 = 10 at		Corporate Bond Yield, Moody's Aaa (percent) at		Corporate Bond Price S&P's AAA (dollars) at	
		Common Stock at		Preferred Stock at		Bonds and Notes at							
Trough	Peak	Trough	Peak	Trough	Peak	Trough	Peak	Trough	Peak	Trough	Peak	Trough	Peak
1946	1948	891	614	1127	492	4882	5973	17	16	2.53	2.82	123	118
1949	1953	736	1326	425	489	4890	7083	15	25	2.66	3.20	121	112
1954	1957	1213	2516	816	411	7488	9957	30	44	2.90	3.89	117	101
1958	1960	1334	1664	571	409	9653	8081	46	56	3.79	4.41	103	95
1961	1969	3294	7714	450	682	9420	18348	66	98	4.35	7.03	95	69
1970		7240		1390		30315		83		8.04		62	
Average, 1946–1970		2451	2767	796	497	11108	9888	43	48	4.04	4.27	104	99
Conformity Index[a]		+40		−40		+20		+20		+80		−70	

Business Cycle		Ratio, Common to Preferred Stock Offerings at		Ratio, Common Stock to Bond Offerings at		Ratio, Preferred Stock to Bond Offerings at		Ratio, Common Stock Price Index to Bond Price at	
Trough	Peak	Trough	Peak	Trough	Peak	Trough	Peak	Trough	Peak
1946	1948	0.79	1.25	0.18	0.10	0.23	0.08	0.14	0.14
1949	1953	1.73	2.71	0.15	0.19	0.09	0.07	0.12	0.22
1954	1957	1.49	6.12	0.16	0.25	0.11	0.04	0.26	0.44
1958	1960	2.34	4.07	0.14	0.21	0.06	0.05	0.45	0.58
1961	1969	7.32	11.31	0.35	0.42	0.05	0.04	0.69	1.42
1970		5.21		0.24		0.05		1.34	
Average, 1946–1970		3.15	5.09	0.20	0.23	0.10	0.06	0.50	0.56
Conformity Index[a]		+60		+40		−90		+30	

[a]Number of positively conforming movements minus number of inversely conforming movements divided by the total (10). Positively conforming movements are increases from business cycle trough to following business cycle peak and decreases from peak to following trough. Inversely conforming movements are the opposite. If all movements conform positively the index is + 100; if all conform inversely, −100.

Source: Securities and Exchange Commission, Standard & Poor's Corporation, and Moody's Investors Service.

NOTES TO CHAPTER 9

1. Wesley C. Mitchell and Arthur F. Burns, *Measuring Business Cycles* (New York: National Bureau of Economic Research, 1946).

2. For further analysis of the relation between stock prices and growth cycles see Geoffrey H. Moore, "Stock Prices and the Business Cycle," *The Journal of Portfolio Management*, 1, 3 (Spring 1975): 59–64.

3. The correlation between the length of lead in stock prices and in profits, based on the figures in Table 9–3, is +0.7. This means that about half the variation in the length of leads in stock prices is associated with corresponding variations in the length of leads in profits.

4. The correlation between the length of lead in stock prices and in bond prices, based on the figures in Table 9–5, is +0.4. The relationship is not so close as that between the leads in stock prices and profits (see n. 3).

5. W. Braddock Hickman, *The Volume of Corporate Bond Financing since 1900* (New York: National Bureau of Economic Research, 1953), pp. 132–34.

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