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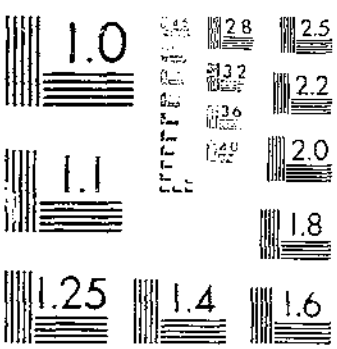

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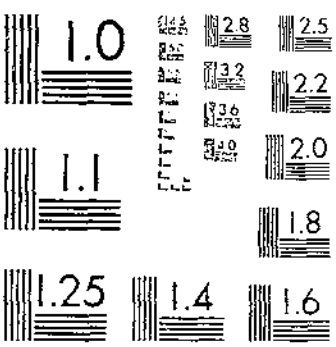

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RELATION OF SPOT COTTON PRICES TO PRICES OF FUTURES CONTRACTS AND PROTECTION AFFORDED BY TRADING IN FUTURES[1,2]

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INTRODUCTION

FUTURES TRADING IN COTTON MARKETING

Futures trading has become an integral part of the cotton-marketing system of the present day. The extent to which trading in futures enters into the merchandising of cotton is indicated by reports showing that merchants generally make use of futures contracts as hedges against losses from changes in prices of spot cotton (*5*, *6*, *7*, *18*).[4] Cotton manufacturers make use of the futures market to some extent in obtaining hedges against losses from changes in prices of spot cotton

[1] Received for publication July 6, 1937.

[2] Authority for the publication of results of studies made in connection with the administration of the United States Cotton Futures Act is contained in sec. 19 of this act, which states that "the Secretary of Agriculture is hereby directed to publish from time to time the results of investigations made in pursuance of this act."

[3] Credit is due coworkers for assistance in the tabulation of the data and in the preparation of the results for publication; and to O. Wright Hoffman, Frederick V. Waugh, Joel F. Hembree, Maurice R. Cooper, and others for helpful suggestions.

[4] Italic numbers in parentheses refer to Literature Cited, p. 64.

and of cotton goods, but apparently in recent years they have been buying increased proportions of their cotton "on call",[5] and by so doing they leave the responsibility of hedging largely to merchants. Small local buyers and farmers, as a general rule, do not hedge their cotton. But most of them sell promptly, and by so doing pass on the risks from price changes to the larger dealers. The importance of futures trading in cotton from the view point of producers grows out of its relationship to the breadth and liquidity of the market for cotton, to the margins of costs necessary for merchandising the crop, and to the stability and level of cotton prices.

It is generally maintained that without futures trading, cotton merchants could not buy the large volumes of cotton sold by farmers during the harvesting period and fill the spinners' orders during the remainder of the season without assuming increased merchandising costs (*1*, *6*). Cotton growers normally market most of their crop from September to December (*16*). Spinners usually are not disposed to buy their whole year's requirements during this short period (*6*). Consequently, cotton merchants ordinarily buy more cotton during the harvesting season than they sell to spinners during this period.

Holding cotton from the time it is ready for market until it is needed by spinners involves the risk of losses from price declines, as well as the possibility of gains from price advances. Furthermore, spinners may sell yarns and cotton goods in advance of the purchase of raw cotton for use in their manufacture. This operation, when practiced, results in the risk of losses from probable advances in the prices of cotton between the date of selling the yarns and goods and the time when the cotton is needed by the mills. Cotton merchants and spinners usually specialize in merchandising raw cotton and in manufacturing cotton goods, respectively, and generally they are not in a favorable position to assume the risks from price changes. Consequently, they make use of the futures market in direct hedging, or indirectly in buying and selling on call. To some extent, farmers also sell on call, thus making an indirect use of the futures market.

The fear of loss and the possibility of gain from changes in prices motivate futures trading in cotton. Risks from changes in prices of spot cotton are inherent in the holding of cotton from the time it is harvested until it is needed by mills. The relative amounts of these risks are indicated by data showing that during some seasons changes in prices of Middling ⅞-inch spot cotton in New Orleans over 8-week periods, for example, amounted to 25 percent or more of the average price for the season 20 percent or more of the time. These changes in prices over relatively short periods may result in losses many times greater than the costs of merchandizing the cotton (*6*, *14*).

Trading in cotton futures consists either in assuming these risks as speculators or in offsetting them as hedgers. The term "speculation",[6]

[5] An "on call" transaction is one wherein the seller (usually a merchant or a farmer) agrees to deliver a specified quantity of cotton of specified description and the buyer (usually a spinner, but sometimes a merchant when a farmer or another merchant does the selling) agrees to receive the cotton within a designated period, with the price to be derived by adding to or subtracting from the price of a specified futures contract a specified number of points previously agreed upon by the seller and by the buyer. The period within which the price must be fixed is specified in the contract. The time within this period when the price is fixed may be decided by the buyer—"buyer's option." Such a contract protects the buyer against a loss arising from changes in basis, and allows him to fix the price when he considers it advisable. "Seller's option" means that the seller has the right to decide when the price shall be fixed.

[6] The term "speculation", as used in this bulletin, includes the kind of trading designated as "speculation", "manipulation", and "trading on price movement or movement trading", by Irwin (*11*).

in common business usage, is generally applied to the field of ventures, the outcome of which is relatively uncertain, and hence, from which profits or losses are likely to be large. In futures trading it is applied particularly to attempts to make profits by voluntarily assuming the risk from changes in prices. In buying and selling cotton futures contracts, speculators assume the hazards of changes in cotton prices with the hope of profits.

The success of the speculator largely depends upon his ability to forecast changes in cotton prices and this, in turn, necessitates to a considerable extent his correct evaluation of supply and demand factors. Speculators, through their transactions, make offsetting risks available to cotton merchants on the one hand and to manufacturers on the other. These offsetting risks are not confined exclusively to the transactions of speculators. Cotton merchants may offset their risks by selling futures contracts to or by buying futures contracts from other merchants or manufacturers who have opposite risks.

Hedgers include principally cotton merchants and cotton manufacturers who buy and sell cotton futures as a means of transferring to speculators, and others willing to assume it, the risk involved in subsequent changes in spot-cotton prices. Cotton merchants mainly sell futures contracts (short hedges) to protect spot purchases against possible declines in prices before the cotton is sold and the price is fixed, although at times they may make sales of spot cotton for forward delivery at fixed prices and buy futures (long hedges) to protect themselves against a possible rise in prices before the actual cotton is purchased. Manufacturers, on the other hand, may buy futures contracts as a hedge against a possible rise in the prices of spot cotton, when they have sold finished goods ahead and are not able or not disposed to purchase simultaneously the actual cotton required. Manufacturers may also sell futures against a possible decline in cotton prices, when the cotton is purchased at fixed prices before the manufacture of the goods for subsequent sale.

Hedging, then, might be considered a form of insurance in which the insured is usually a cotton merchant or a cotton manufacturer, and the insurer is usually a speculator who is more or less specialized in risk taking, or is a merchant or manufacturer who has opposite risks.

OBJECTIVES OF STUDY

The objectives of this study were (1) to show the relationship between prices of spot cotton and prices of futures contracts, (2) to determine to what extent futures trading affords protection from changes in prices of spot cotton by offsetting the risks from price changes through hedging transactions, (3) to indicate the influence of various factors on the spot-futures-price relationship and protection afforded by futures as hedges, (4) to indicate the effects of trading in futures on fluctuations in prices of spot cotton, and (5) to give some indications of the effects of trading in futures on prices to producers.

METHOD OF PROCEDURE AND SCOPE OF STUDY

Data on the relationship between prices of spot cotton and prices of futures contracts were confined to (1) quoted prices for Middling ⅞-inch spot cotton at New Orleans, Houston, Galveston, Dallas, Mem-

phis, Mobile, Savannah, Charleston, Norfolk, and New York, and at Carolina and New England mill points; (2) spot prices of American Middling, Egyptian Sakellaridis, Egyptian Uppers, and Indian Oomra, at Liverpool; (3) closing prices of New York and New Orleans futures contracts; and (4) prices of Liverpool futures contracts for American, Egyptian, and Indian cottons on Friday of each week, for a series of years ended with the season 1935–36.

Detailed analysis to show the extent of protection from changes in prices of spot cotton afforded by futures contracts as hedges were largely confined to quoted prices of Middling ⅞-inch, Low Middling ⅞-inch, and Good Middling ⅞-inch spot cotton in New Orleans on Friday of each week, for the seasons 1920–21 to 1935–36, inclusive; Middling 1-inch spot cotton in New Orleans on Friday of each week for the seasons 1927–28 to 1935–36, inclusive; prices of Middling 1⅛-inch spot cotton in Memphis on Friday of each week for the seasons 1929–30 to 1935–36, inclusive; and closing prices of New York and New Orleans futures contracts on Friday of each week for the seasons 1920–21 to 1935–36, inclusive. Data on prices of Middling 1-inch spot cotton in New Orleans were not available prior to the season 1927-28, and data on prices of Middling 1⅛-inch spot cotton in Memphis were not available prior to the season 1929–30. The spot-cotton prices used were selected to represent a wide range of grades and staple lengths and were presented to show the extent to which the security of hedges varied with the grade and staple length of the cotton.

Data on changes in "basis" [7] for Middling ⅞-inch spot cotton at New Orleans, Houston, Savannah, Memphis, Carolina mill points, New England mill points, and Liverpool, calculated from near-month [8] New York futures contracts and from near-month Liverpool futures contracts for American cotton, for the season 1930–31 to 1935–36, inclusive, are presented to give some indications of the variations in security of hedges from one market to another.

Prices used for American markets were the quotations at the close of the futures markets at 3 p. m., eastern standard time. Prices of Liverpool futures contracts used were those prevailing at the close of the Liverpool futures market which is at 11 a. m., eastern standard time. Spot-price quotations for American, Egyptian, and Indian cotton in Liverpool were made at about 12:30 p. m., Liverpool time, which corresponds to about 7:30 a. m., eastern standard time.

[7] The term "basis", as employed in this bulletin, means the difference or spread between the price of spot cotton of a specified quality in a given market and the price of specified futures contracts. This meaning is believed to have grown out of the practice of expressing prices of spot cotton in relation to futures prices. For the purposes of calculating and of quoting prices, Middling has, by common practice over many years, been taken as the "basis grade"; prices of higher grades being expressed as premiums over the price of Middling, and prices of lower grades being similarly expressed as discounts. In the course of time, prices of Middling came to be stated in terms of futures, as, for example, 10 points on October, New York, meaning that the price of Middling was 10 points higher than the price of New York, October contracts. From this development, it was but a short step to apply the term "basis" to the difference or spread between the prices of Middling spot cotton and of futures, and then to the spread between prices of spot cotton of other grades and prices of specified futures contracts. The term "basis" is used in literature on cotton marketing when referring to (1) the grade, as Middling, from which premiums and discounts for other grades are calculated, and (2) the differences or spreads between the prices of specified futures contracts and prices of spot cotton in specified markets at specified times (*a*) for any designated grade and staple length, and (*b*) for Middling ⅞-inch only.

[8] The "near-active month", as used in this bulletin, refers to the nearest of the 6 active delivery months (October, December, January, March, May, and July) not in the period of their maturity.

In much of the detailed analysis adjustments were made in changes in spot-cotton prices by subtracting the costs of storage, insurance, and interest for carrying spot cotton from one period to another. The costs of storage were taken from tariff schedules in effect for commercial cotton warehouses in New Orleans. Interest was calculated at the prevailing rate in the New Orleans market. Insurance was calculated at 25 cents per $100 valuation per year. The data presented to show the variations in security of hedges from market to market were not adjusted for carrying charges. The available information, however, indicates that the differences in costs of carrying spot cotton from market to market were not great enough to affect materially the differences in hedge protection shown.

The data used were confined to the quotations on Friday of each week. The quotations on Fridays are thought to represent a fairly typical cross section of the prices from time to time in the markets studied. It is realized that closing prices on other days vary from those of Friday, and that prices during the day may vary considerably from those at the close. Furthermore, the use of the closing price on Friday does not reflect all variations in prices registered on the cotton futures exchanges nor the prices at which spot cotton was sold in the specified markets. Consequently, the results obtained from the use of these data represent averages, and may show considerably more or less hedge protection than was actually obtained by an individual in making specific transactions in these markets during the period covered by this study.

Obviously, those who were adept in predicting changes in prices of spot cotton and in basis were able to obtain more hedge protection than the results of this study show. On the other hand, those who were inapt in predicting price changes may have obtained less hedge protection than the average results shown in this study. It should be realized, also, that for those whose costs of carrying spot cotton were unusually low, the losses would have been less and the gains greater from hedging spot cotton by the sale of futures contracts than those indicated by the data presented in this bulletin.

The number of observations used in the analyses generally amounted to one each week, except for the bank holiday in 1933 when the markets were closed. When the markets were closed for holidays on Fridays, price quotations for Thursdays were generally used. Analyses were made to show differences calculated from data on prices of spot cotton and of futures contracts on Fridays separated by 8-week periods. Simple averages of these differences were calculated, and no attempt was made to use weights based on estimates of the volume of hedges. Data on the duration of hedges are lacking and these periods were arbitrarily selected. Results of analyses, however, showed that during the 7-year period 1926–27 to 1932–33, inclusive, the changes in adjusted basis for Middling ⅞-inch spot cotton in New Orleans represented on the whole about the same proportion of the corresponding changes in prices of spot cotton, adjusted for carrying charges, over 8-week periods as over 2-, 4-, 12-, 16-, 24-, and 32-week periods. Most of the detailed analyses of data on basis relate to prices of futures contracts for the near-active months,[9] but analyses of data on

[9] For example, calculations for periods ended in July, August, and September were based on prices of October futures; those ended in October and November were based on December futures, etc.

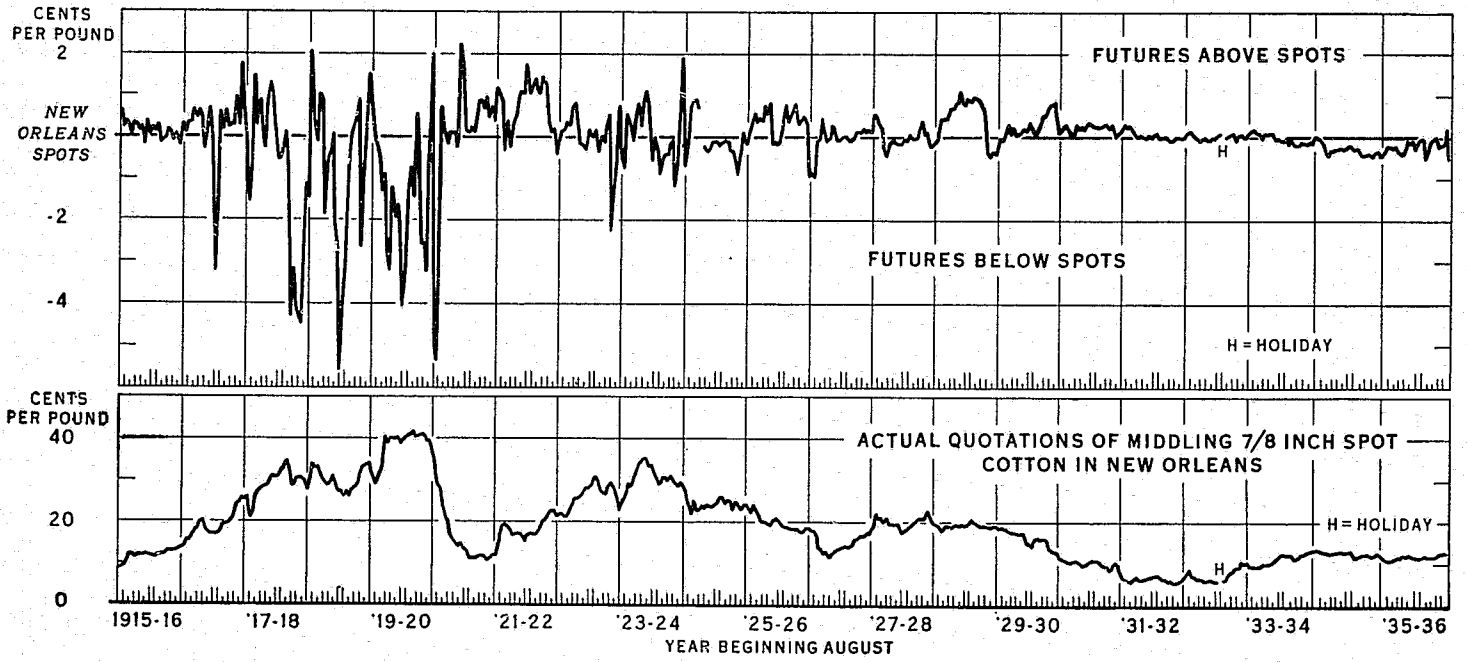

FIGURE 1.—SPREAD BETWEEN PRICES OF MIDDLING 7/8-INCH SPOT COTTON IN NEW ORLEANS AND PRICES OF NEW YORK FUTURES CONTRACTS FOR THE NEAR-ACTIVE MONTH, AND PRICES OF MIDDLING 7/8-INCH SPOT COTTON IN NEW ORLEANS, BY WEEKS, SEASONS 1915–16 TO 1935–36.

Changes in basis were unusually great from 1917 to 1921 when prices were high. The decline in prices following the season 1923–24 was associated with marked decreases in changes in basis. Since provisions for southern delivery on New York futures contracts in their present form became effective in 1930, basis changes have been relatively small.

basis in relation to prices of futures contracts for the more distant months were shown as a basis for comparison. In addition, data on gains and losses from transferring hedges are shown.

The period 1920–21 to 1935–36 on the whole shows considerably more regularity in the relationship between prices of spot cotton and of futures contracts than was shown for the period 1915–16 to 1919–20 (fig. 1). Consequently, the extent of protection afforded by hedging during the period 1920–21 to 1935–36, as shown in this study, is greater than would have been shown by a similar analysis for the period 1915–16 to 1919–20. This point is to be remembered in connection with the findings in this bulletin.

RELATION OF PRICES OF SPOT COTTON TO PRICES OF FUTURES CONTRACTS

The usefulness of futures trading in cotton marketing largely depends upon the relationship between prices of spot cotton and prices of futures contracts (*18*). The extent to which losses from changes in prices of spot cotton can be offset by the use of futures contracts as hedges and the adjustments in cotton prices from market to market and from one period to another, brought about by means of futures trading, as well as the dependability of futures price quotations as a basis for buying and selling spot cotton, largely depend upon the extent to which changes in prices of spot cotton are associated with similar changes in prices of futures contracts. Consequently, data showing the extent to which changes in prices of spot cotton are associated with similar changes in prices of futures contracts serve as a background for the data on protection from fluctuations in prices of spot cotton afforded by futures contracts as hedges.

The large swings in prices of spot cotton are generally associated with more or less similar changes in prices of cotton futures contracts for the near-active month (fig. 2). The fact that prices of spot cotton and of futures contracts are both largely determined by the same group of factors, together with the fact that futures contracts can be converted into spot cotton at the date of maturity of the futures contract if either the seller or the buyer so desires (although in actual practice only a very small proportion of the futures contracts is liquidated by the delivery of cotton), largely accounts for the larger and principal changes in prices of spot cotton being associated with more or less similar changes in prices of futures contracts. These prices, however, do not always change by the same amounts or in the same direction. Therefore, the spread between prices of spot cotton of a specified grade and staple length in a given market and prices of a specified futures contract vary considerably from time to time.

The spread between prices of Middling ⅞-inch spot cotton in New Orleans and prices of New York futures contracts, especially for the more distant months, showed rather wide changes over relatively short periods, particularly during the seasons 1920–21 to 1926–27 (fig. 3).

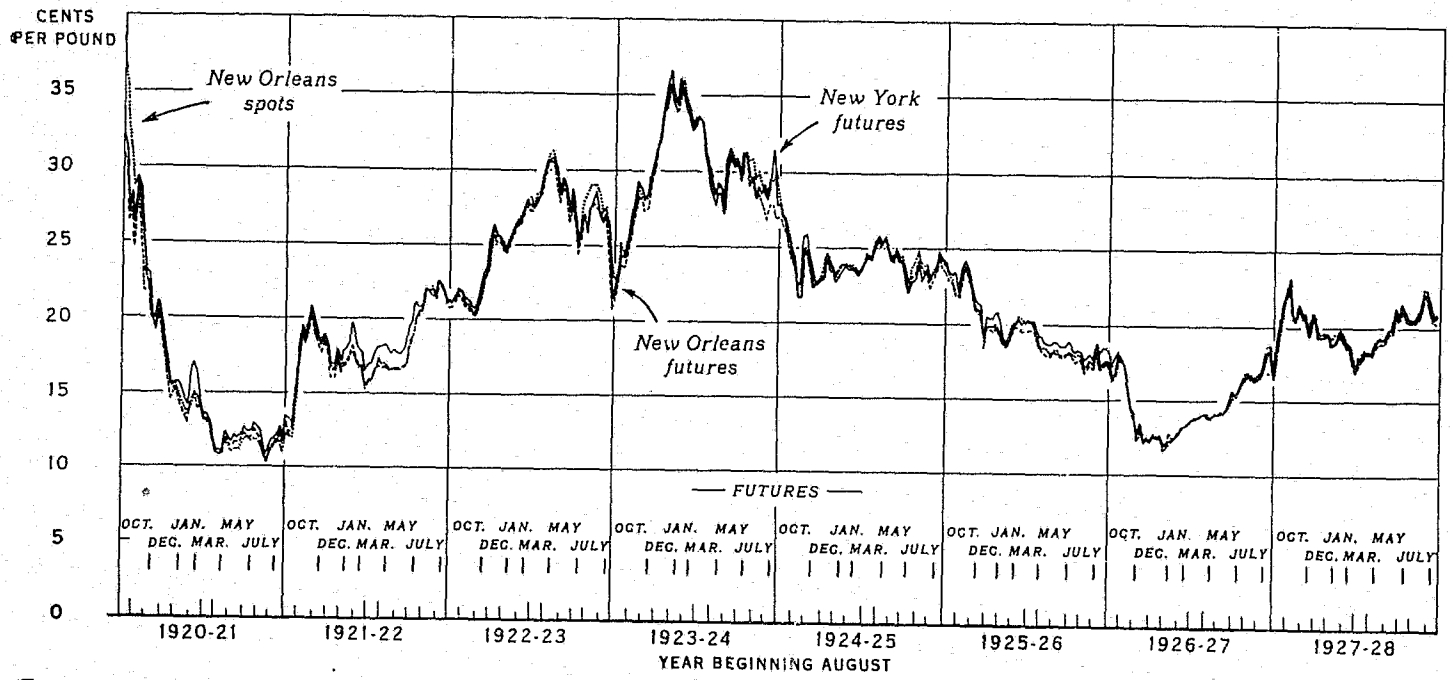

FIGURE 2.—PRICES OF MIDDLING 7/8-INCH SPOT COTTON IN NEW ORLEANS AND CLOSING PRICES OF NEW YORK AND NEW ORLEANS FUTURES CONTRACTS FOR THE NEAR-ACTIVE MONTHS ON FRIDAYS, SEASONS 1920–21 TO 1935–36.

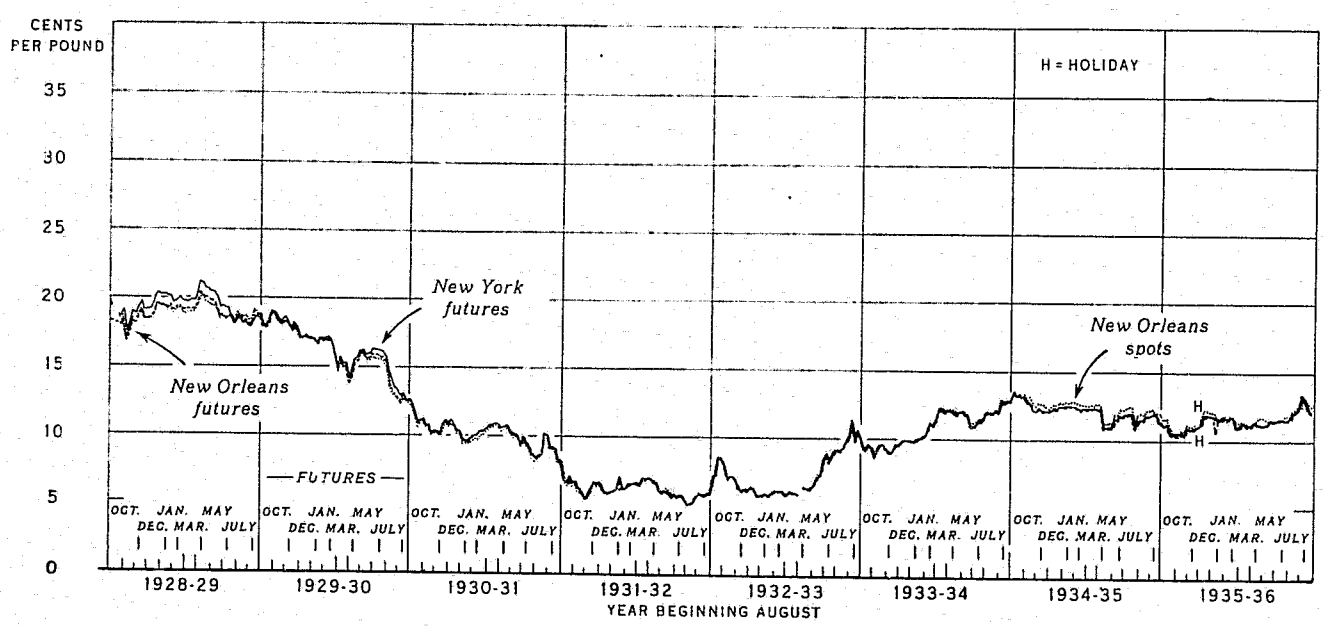

FIGURE 2.—Continued.

The large changes in prices of spot cotton were generally associated with more or less similar changes in prices of cotton futures contracts. From 1930-31 to 1933-34, the basis changes were relatively small. From 1933-34 through 1935-36, prices of spot cotton were high in relation to prices of futures contracts.

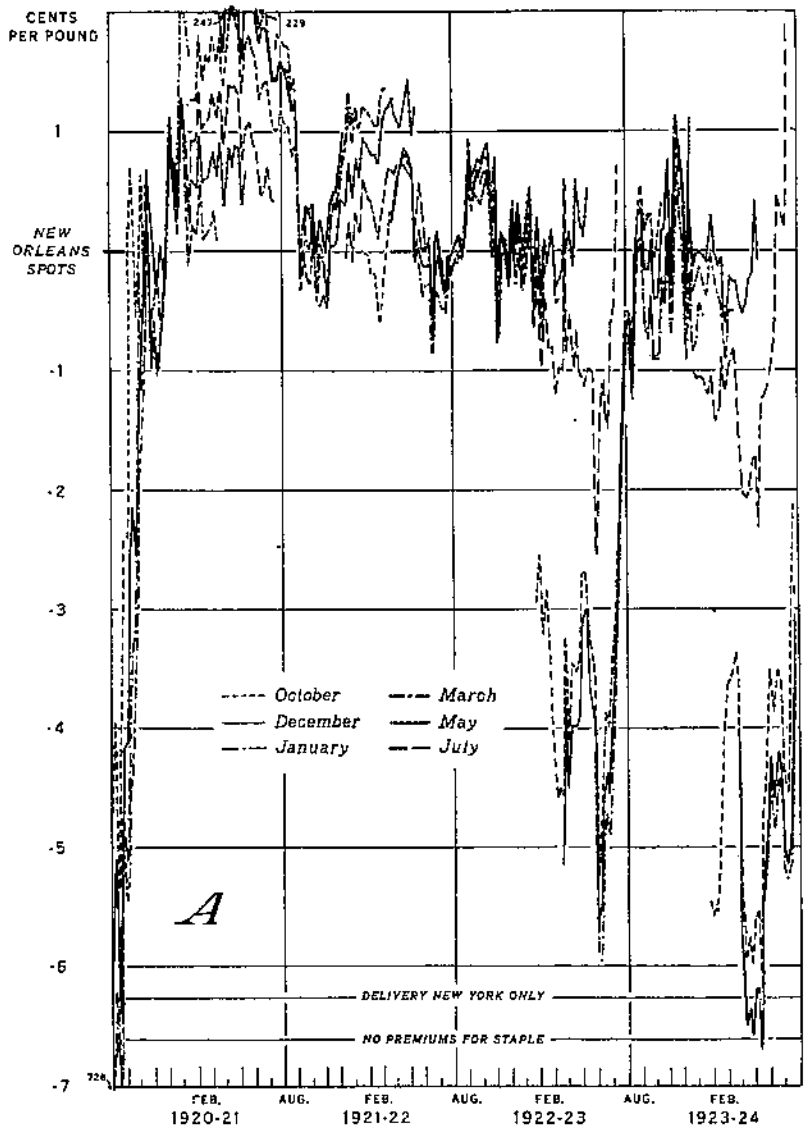

FIGURE 3.—VARIATIONS IN CLOSING PRICES OF NEW YORK FUTURES CONTRACTS FOR VARIOUS DELIVERY MONTHS FROM PRICES OF MIDDLING 1⅛-INCH SPOT COTTON IN NEW ORLEANS ON FRIDAYS, SEASONS 1920-21 TO 1935-36. (IN FOUR PARTS.)

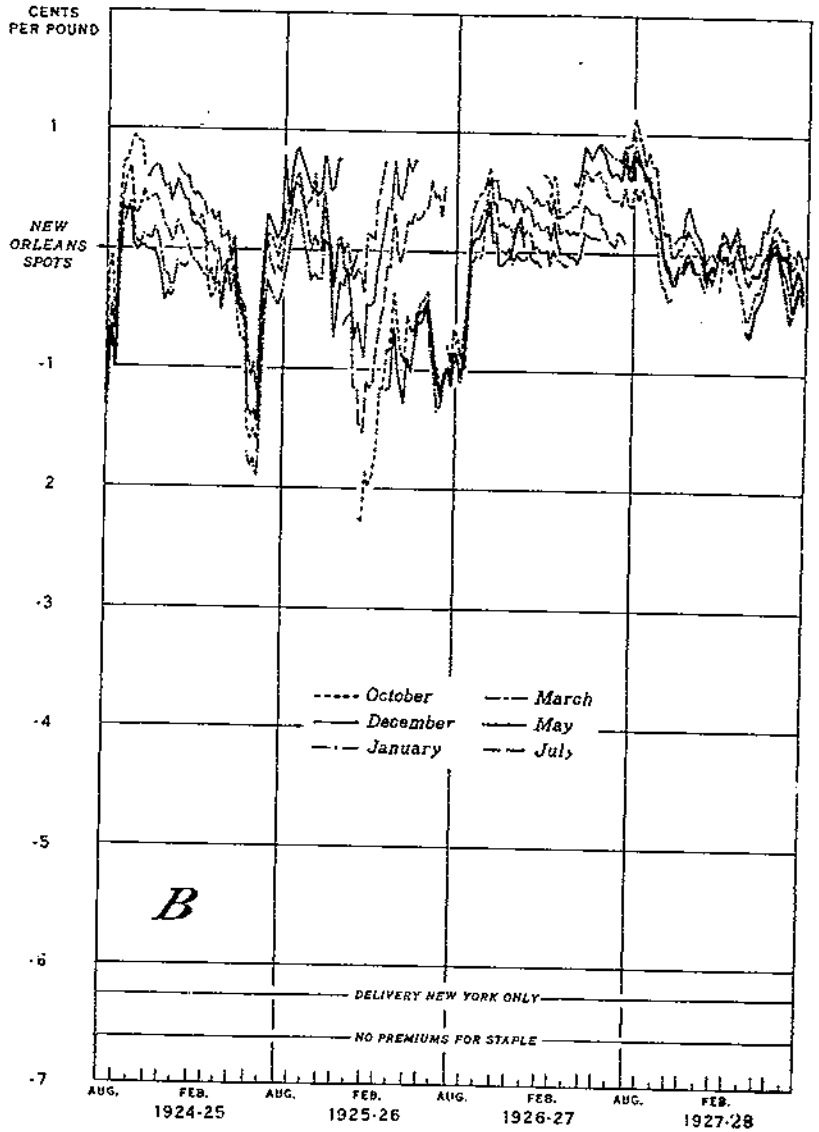

FIGURE 3.—Continued.

Prices of New York futures contracts varied irregularly in relation to prices of spot cotton in New Orleans from 1920–21 through 1929–30. Following the irregularities resulting from the "squeeze" of May and July contracts in 1930, and continuing up to 1934, prices of New York futures contracts for the most part were above prices of spot cotton in New Orleans by amounts approximately equal to the cost of carrying spot cotton to date of maturity of the contracts, but in 1934 prices of futures contracts declined considerably in relation to prices of spot cotton, and continued relatively low through the season 1935–36.

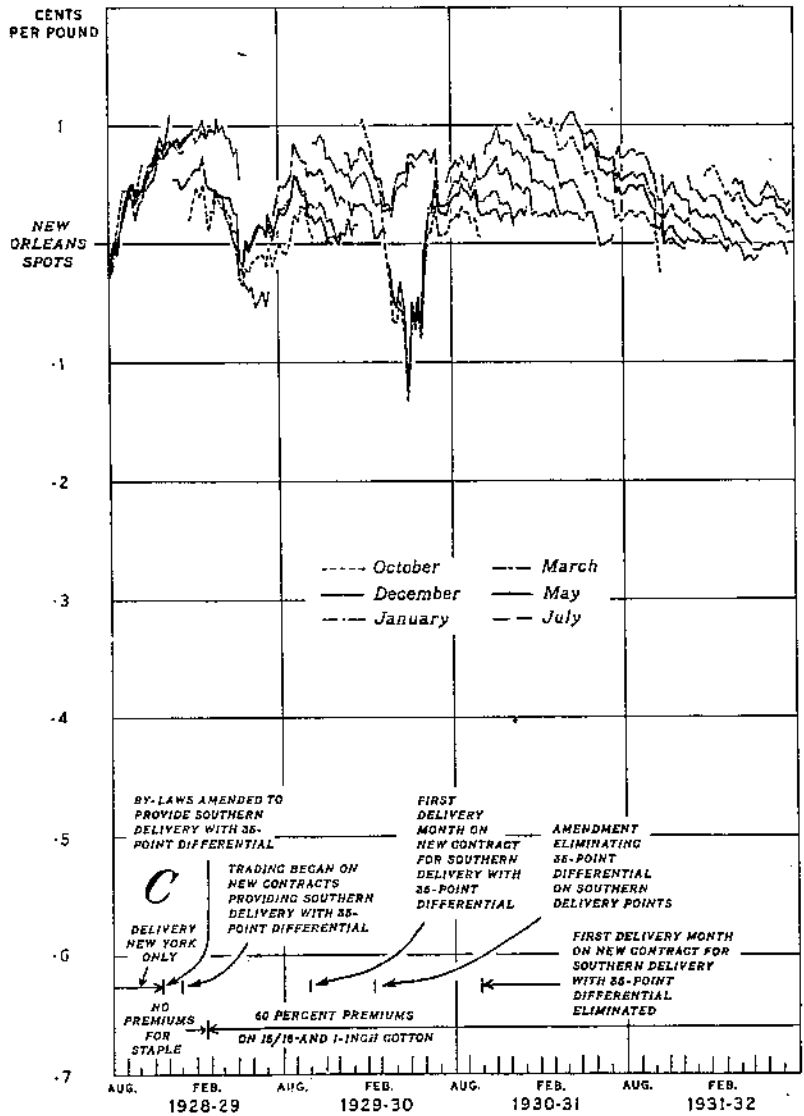

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FIGURE 3.—VARIATIONS IN CLOSING PRICES OF NEW YORK FUTURES CONTRACTS FOR VARIOUS DELIVERY MONTHS FROM PRICES OF MIDDLING 1⅛-INCH SPOT COTTON IN NEW ORLEANS ON FRIDAYS, SEASONS 1920–21 TO 1935–36; A, 1920–21 TO 1923–24; B, 1924–25 TO 1927–28; C, 1928–29 TO 1931–32; D, 1932–33 TO 1935–36.

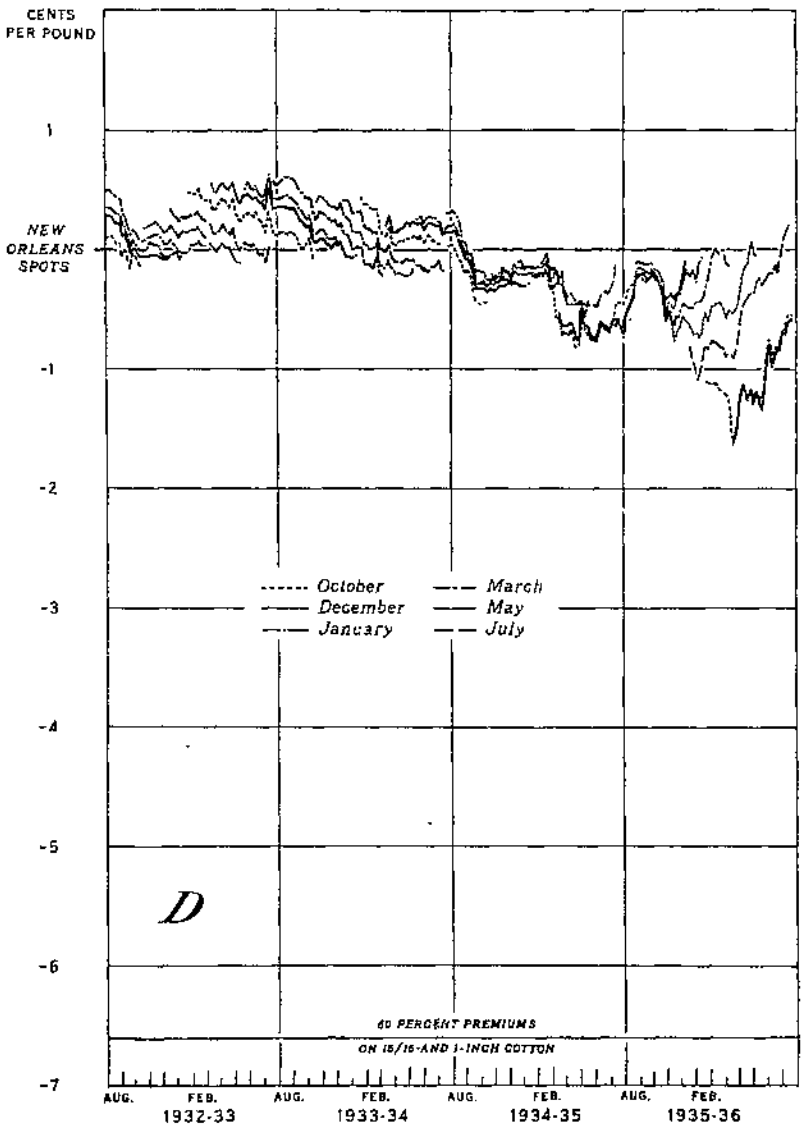

FIGURE 3.—Continued.

Prices of New York futures contracts varied irregularly in relation to prices of spot cotton in New Orleans from 1920–21 through 1929–30. Following the irregularities resulting from the "squeeze" of May and July contracts in 1930, and continuing up to 1934, prices of New York futures contracts for the most part were above prices of spot cotton in New Orleans by amounts approximately equal to the cost of carrying spot cotton to date of maturity of the contracts, but in 1934 prices of futures contracts declined considerably in relation to prices of spot cotton, and continued relatively low through the season 1935–36.

Considerable changes also occurred during the season 1928–29, and the "squeeze" [10] of May and July contracts in 1930 largely accounted for the changes shown from March through June of that year. From the time provisions for southern delivery [11] on New York futures contracts in their present form became effective during the early part of the season 1930–31 through 1933–34, a fairly uniform relationship was maintained between prices of Middling ⅞-inch spot cotton in New Orleans and prices of New York futures contracts. Following the announcement of the 12-cent loan to growers by the Government during the early part of the 1934–35 season, however, prices of futures contracts declined markedly in relation to prices of spot cotton in New Orleans so that by the end of September prices of New York futures contracts for all delivery months were below prices of Middling ⅞-inch spot cotton in New Orleans, and they remained relatively low throughout the 1934–35 season. In August 1935, prices of New York futures contracts did not decline so much as prices of Middling ⅞-inch spot cotton in New Orleans, but in October prices of futures contracts declined in relation to prices of spot cotton in New Orleans and prices of futures contracts for the more distant months continued low in relation to prices of spot cotton in New Orleans throughout the 1935-36 season.

The changes in spread between prices of Middling ⅞-inch spot cotton in New Orleans and prices of New York futures contracts were generally associated with more or less similar changes in the corresponding basis for Middling ⅞-inch cotton in New Orleans, calculated from New Orleans futures contracts (fig. 2). The spreads between spot prices of Egyptian Sakellaridis Fully Good Fair, Egyptian Uppers Fully Good Fair, and American Middling at Liverpool, and prices of Liverpool futures contracts for the respective growths also showed substantial changes over relatively short periods, particularly prior to the season 1927–28 (fig. 4). The Liverpool basis for Egyptian Sakellaridis, Egyptian Uppers, and American Middling advanced markedly during the last half of 1929–30 as New York futures for May and July deliveries were being squeezed. Early in the season 1930–31, the Liverpool basis for Egyptian and American cotton declined substantially and then remained relatively stable for the most part to the season 1934–35. During the season 1934–35, the Liverpool basis for Egyptian, Indian, and American cotton advanced and continued relatively high throughout most of the season 1935–36.

[10] A "squeeze" is a term used to describe a situation in the market in which more cotton is expected to be called for, in settlement of maturing futures contracts, than is readily available for that purpose at the point or points of delivery, with the result that prices of contracts in the month or months maturing or about to mature are raised above prices of contracts for more distant months. They may also advance in relation to prices of spot cotton not readily available for delivery on futures contracts. As a result of the squeeze of New York futures contracts maturing in May and July 1930, for example, prices of these contracts were elevated from considerably below prices of October and December contracts in February to more than 170 points above prices of October and December contracts in May. During the same year, prices of May and July contracts advanced from about 42 and 46 points, respectively, above the average of prices of Middling ⅞-inch spot cotton in the 10 designated markets on Mar. 21 to about 114 and 122 points, respectively, above the 10-market average on May 16, after which the tension of the squeeze was relaxed and the price of July contracts declined to about 63 points above the 10-market average on July 18.

[11] The bylaws of the New York Cotton Exchange were amended in November 1928 to provide for the delivery of cotton on New York futures contracts at specified southern points. The price for cotton delivered at southern points was to be invoiced at 0.35 cent a pound below the contract price. Trading began on the new contract in January 1929, and the first delivery month under this contract was October 1929. The bylaws were further amended by eliminating the 0.35-cent differential in February 1930, and the first delivery month under this contract was October 1930. Norfolk, Charleston, Galveston, Houston, and New Orleans were designated as delivery points for New York futures contracts in November 1929. Savannah and Mobile were added in October 1929.

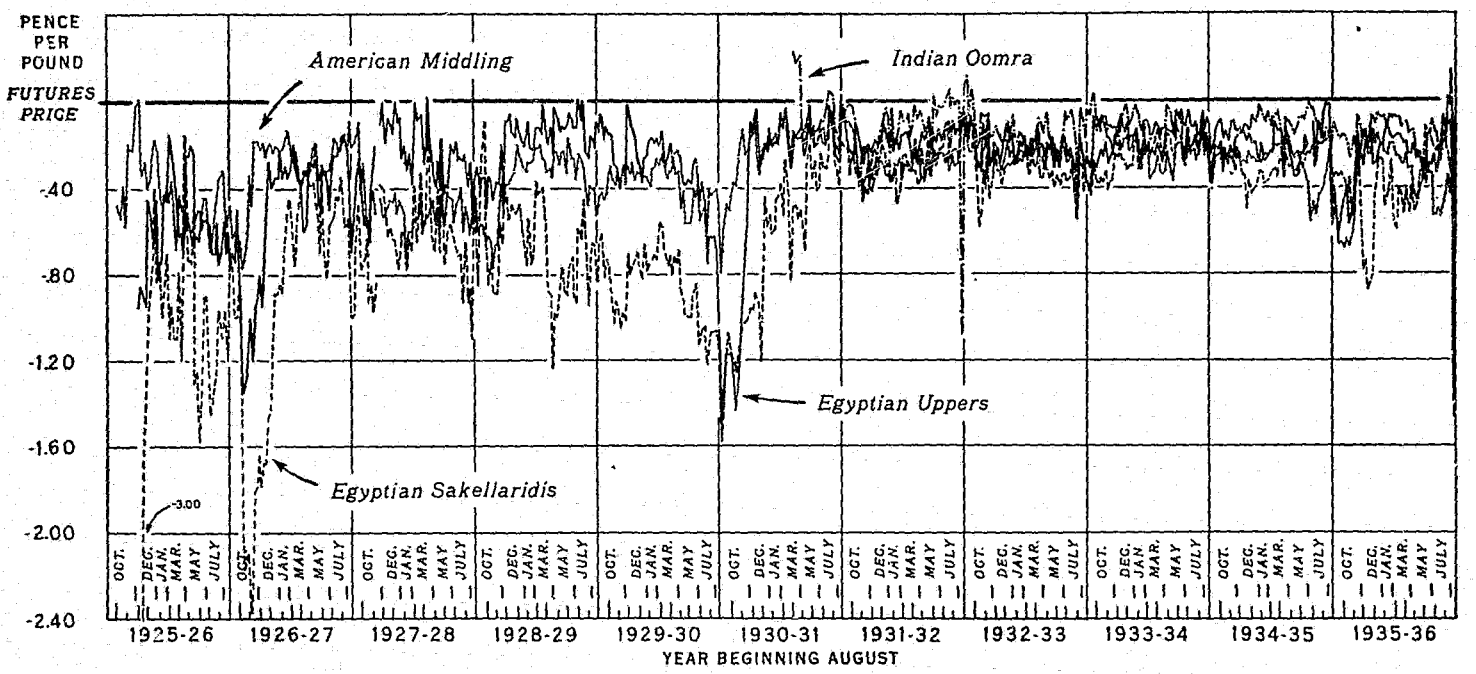

FIGURE 4.—VARIATIONS IN SPOT PRICES OF AMERICAN MIDDLING, EGYPTIAN SAKELLARIDIS, EGYPTIAN UPPERS, AND INDIAN OOMRA IN LIVERPOOL FROM PRICES OF LIVERPOOL FUTURES CONTRACTS FOR THE NEAR-ACTIVE MONTH FOR THE RESPECTIVE GROWTHS ON FRIDAYS, SEASONS 1925-26 TO 1935-36.

Changes in Liverpool basis for American Middling were generally associated with somewhat similar changes in Liverpool basis for Egyptian and Indian cotton.

The advances and declines in prices of Middling ⅞-inch spot cotton in New Orleans over 1-week periods during the seasons 1924–25 to 1935–36, inclusive, were on the average about the same as the corresponding changes in prices of New York futures contracts for the near-active month, but considerable deviations in the spread between prices of spot cotton and prices of futures contracts were noted. During these 12 years the advances in prices over 1-week periods averaged 0.34 cent a pound for Middling ⅞-inch spot cotton in New Orleans and 0.32 cent for near-month New York futures contracts, but the corresponding changes in basis averaged 0.07 cent. Declines in prices over 1-week periods during these 12 years averaged 0.37 cent for Middling ⅞-inch spot cotton in New Orleans and 0.35 cent for near-month New York futures contracts, but the corresponding changes in basis averaged 0.08 cent.

The advances and the declines in prices over 1-week periods, and also the corresponding deviations in spread between prices of spot cotton and prices of futures contracts, were on the whole much greater during the 6-year period ended with the season 1929–30 than during the 6-year period ended with 1935–36. These differences are no doubt largely accounted for by the fact that the price level was substantially higher in the former period than in the latter (*8*), although provisions for southern delivery on New York futures contracts in their present form, which became effective in 1930, no doubt tended to reduce changes in basis.

The average deviation in spread between prices of Middling ⅞-inch spot cotton in New Orleans and prices of near-month New York futures contracts over 1-week periods, not adjusted for carrying charges, amounted on the average to about 20 percent of the corresponding changes of prices of spot cotton during the 6-year period ended with 1929–30, and to a somewhat smaller proportion during the latter 6-year period. Such deviations in spread mean that not all gains and losses from changes in prices of spot cotton could have been offset by the use of New York futures contracts as hedges.

PROTECTION AFFORDED BY FUTURES AS HEDGES

Cotton futures contracts are used extensively in connection with merchandising the cotton crop as a means of securing protection against losses from changes in prices of spot cotton (*5*, *6*, *7*, *15*). Hedges against such losses are obtained by offsetting sales or purchases of cotton futures contracts. When the movements of prices of spot cotton and of futures contracts are parallel, the merchant who hedged the purchase of spot cotton by the sale of futures contracts will lose on his "spots" as prices decline, but his losses from a decline in prices of spot cotton will be counterbalanced by his gains from changes in prices of futures contracts. On the other hand, as prices advance, his gains on spots will be offset by losses on futures contracts. The hedge under such conditions offsets both losses and gains resulting from changes in the general level of spot-cotton prices.

Although the large swings in prices of spot cotton are generally associated with more or less similar changes in prices of cotton futures contracts, as previously indicated (fig. 2), they do not always move up and down to the same extent. Consequently, the spread between prices of spot cotton and prices of futures contracts does not remain

constant. An examination of figure 3 shows a number of instances in which substantial changes in basis occurred over relatively short periods. For example, from August 3 to September 7, 1928, prices of New York futures contracts for October delivery advanced from 0.13 cent a pound below to 0.44 cent above the quoted prices of Middling ⅞-inch spot cotton in New Orleans. From August 10 to October 5, 1934, prices of New York futures contracts for October delivery declined from 0.04 cent above to 0.45 cent below the quoted price of Middling ⅞-inch spot cotton in New Orleans. Substantial changes in basis during short periods also occurred in March, August, and October 1935, and in a number of instances in 1936.

As shown later in this bulletin, a number of factors are responsible for the failure of the two series of prices to move parallel. With an abundant supply of cotton available in the markets, a rise in prices of spot cotton in relation to prices of futures contracts by an amount sufficient to equal the cost of carrying spot cotton is normally expected, particularly within the cotton season (*13*). Changes in the relative supply-and-demand situation from time to time bring about irregular changes in the basis. The risks from changes in basis are not offset by the normal hedge procedure, and they may be responsible for substantial losses on the part of cotton merchants who may hedge invariably, but who fail to anticipate correctly the changes in basis. A practical consideration then, in connection with the usefulness of futures contracts as hedges against losses from changes in prices of spot cotton, is concerned with determining how changes in prices of spot cotton compare with changes in basis.

Much of the data on changes in prices of spot cotton and on changes in basis used in making comparisons were adjusted for costs of carrying spot cotton. Consequently, the differences shown are largely confined to irregular changes resulting from changes in the relative demand-and-supply situation. The extent of protection afforded by futures contracts as hedges depends upon the amounts of the losses involved and upon the proportion of these losses that may be offset by the use of future contracts as hedges. The amounts of the losses as well as of the gains involved on market interests in spot cotton are indicated by data on changes in prices of spot cotton. Data on changes in basis indicate the amounts of the gains and losses that would have resulted from changes in prices of spot cotton hedged by futures contracts. Differences between changes in prices of spot cotton and changes in basis indicate the amounts of gains and losses from changes in prices of spot cotton that could have been offset by the use of futures contracts as hedges, plus any additional gains or losses as a result of prices of spot cotton moving in opposite directions from prices of futures contracts, or of prices of futures contracts advancing more or declining more than prices of spot cotton.

RISKS FROM CHANGES IN PRICES OF SPOT COTTON

Data on quoted prices of Middling ⅞-inch spot cotton in New Orleans on Fridays during the seasons 1920–21 to 1935–36, inclusive, show rather large changes over 8-week periods, after adjustments were made for the costs of carrying spot cotton (table 1). The maximum differences between quoted prices on Fridays separated by 8-week periods varied from 14.23 cents a pound in 1920–21 to 1.57 cents

in 1934–35. The proportion of the average price for the season represented by these maximum differences varied from 86 percent in 1920–21 to 13 percent in 1934–35.

These deviations for 8-week periods, averaged 1.67 cents a pound during this 16-year period (table 1). The average deviations by seasons varied from 4.89 cents a pound in 1920–21 to 0.59 cent in 1935–36. The proportion of the average price for the season represented by these average deviations amounted to 10 percent for the 16-year period, varying from 30 percent in 1920–21 to 5 percent in 1935–36.

Changes in prices of spot cotton over 8-week periods were unusually great during the season 1920–21, when quoted prices of Middling ⅞-inch cotton in New Orleans dropped from 38.50 cents a pound on August 2 to 13.50 cents on December 28. These changes were also relatively great during the season 1923–24 and 1927–28, when the price level also was higher, than during most of the seasons covered by this report. Following the season 1927–28 changes in prices of spot cotton over 8-week periods decreased with the decline in cotton prices, and the changes continued much smaller than in earlier years to the end of the season 1935–36. The amounts of these changes were generally substantially greater from June to October, when changes in crop prospects were greatest, than during any other part of the season (tables 3 and 4).

The changes in quoted prices of Low Middling ⅞-inch cotton in New Orleans were very similar to, but were on the whole slightly less than, those for Middling ⅞-inch cotton; and those for Good Middling ⅞-inch cotton and Middling 1-inch cotton in New Orleans and Middling 1⅛-inch cotton in Memphis were very similar to, but were on the whole slightly greater than, those for Middling ⅞-inch cotton in New Orleans for the same periods (table 1).

These changes in price included both advances and declines, and represented both gains and losses on holdings of spot cotton. During the seasons 1920–21 to 1935–36, inclusive, differences between the quoted prices of Middling ⅞-inch cotton in New Orleans on Fridays separated by 8-week periods, adjusted for carrying charges, showed declines for almost 60 percent of the time; and the average decline was substantially greater than the average advance (table 7). The excess of losses over gains shown for the 16-year period was largely accounted for by the downward trend in cotton prices during most of the seasons included (fig. 1).

Although the gains and losses from changes in prices of spot cotton are compensating in nature over a long period, the risks of loss on long interests in spot cotton from declines in prices over short periods were great enough to affect materially the costs of marketing. Differences between the quoted prices of Middling ⅞-inch spot cotton in New Orleans, on Fridays separated by 8-week periods, adjusted for carrying charges, showed maximum losses on such interests that varied from 14.23 cents a pound in 1920–21 to 1.57 cents a pound in 1934–35. The seasonal average of losses shown for 8-week periods varied from 5.60 cents in 1920–21 to 0.56 cent in 1934–35.

Although during the period 1920–21 to 1935–36, inclusive, the advances in prices of Middling ⅞-inch spot cotton in New Orleans over specified periods were on the whole substantially less than the declines, the advances were great enough in many instances to account for

substantial losses on short interests in spot cotton. These gains, and also the losses, were on the whole greatest near the beginning and toward the end of the seasons (table 8).

The proportions of the time that differences between the quoted prices of Low Middling ⅞-inch, Good Middling ⅞-inch, and Middling 1-inch spot cotton at New Orleans and of Middling 1⅛-inch spot cotton at Memphis on Fridays separated by 8-week periods, adjusted for carrying charges, showed declines and advances, and the amounts of these declines and advances were on the whole about the same as the corresponding changes in prices of Middling ⅞-inch spot cotton in New Orleans (tables 7 and 8).

RISKS FROM CHANGES IN BASIS

The alternative to taking the gains and suffering the losses from changes in prices of spot cotton as previously shown was to hedge the long and short interests in spot cotton by offsetting sales and purchases of cotton futures contracts. With such a hedged position, the net gains and losses from changes in prices are largely confined to changes in the basis, but substantial changes in basis occurred in many instances during relatively short periods (fig. 3).

AMOUNTS OF THE CHANGES IN BASIS

During the seasons 1920–21 to 1935–36, inclusive, the maximum changes in adjusted [12] basis for Middling ⅞-inch spot cotton in New Orleans, calculated from near-month New York futures contracts over 8-week periods varied from 7.99 cents a pound in 1920–21 to 0.19 cent in 1932–33 (table 1). The proportion of the average price for the season represented by these maximum differences varied from 48 percent in 1920–21 to 2 percent in 1933–34.

The average changes in adjusted basis for Middling ⅞-inch spot cotton in New Orleans, calculated from the closing prices for near-month New York futures contracts over 8-week periods, amounted to 0.51 cent for the period 1920–21 to 1935–36, inclusive (table 1). The average changes by seasons varied from 1.87 cents a pound in 1920–21 to 0.07 cent in 1932–33. The proportion of the average price of Middling ⅞-inch spot cotton in New Orleans during the season represented by these average changes amounted to 3 percent for the 16-year period and varied from 11 percent in 1920–21 to about 1 percent in 1933–34.

Changes in the adjusted basis for Middling ⅞-inch spot cotton in New Orleans, calculated from the closing prices of near-month New Orleans futures contracts, were on the whole about the same as those for the same periods calculated from the corresponding New York futures contracts (table 1).

During the 16-year period ended with the season 1935–36, the failure of prices of futures contracts to advance and to decline as much as the corresponding changes in prices of spot cotton adjusted for carrying charges accounted for about 70 percent, and advances and declines in prices of futures contracts by amounts greater than the corresponding changes in prices of spot cotton adjusted for carrying charges accounted for about 22 percent of the total changes in adjusted basis for Middling ⅞-inch spot cotton in New Orleans over

[12] Adjusted for the cost of carrying spot cotton.

8-week periods adjusted for carrying charges and calculated from near-month New York futures contracts. The remainder, amounting to about 8 percent of the total changes in basis during this 16-year period, was accounted for by prices of futures contracts changing in the opposite direction from that of prices of spot cotton adjusted for carrying charges. These proportions varied considerably from season to season, and from one part of the season to another (table 14).

Changes in adjusted basis for Middling ⅞-inch spot cotton in New Orleans were unusually large during the season 1920–21, when the quoted prices of Middling ⅞-inch spot cotton in that market declined from 38.50 cents a pound on August 2 to 13.50 cents on December 28; and they were also greater during the seasons 1923–24 and 1924–25, when the level of cotton prices was also relatively high, than during most of the seasons covered by this report. From 1923 to 1932 changes in basis decreased with the decline in cotton prices. Since 1932, changes in basis have increased with the advance in cotton prices, and during the 1935–36 season were on the whole larger than for any other season since provisions for delivery on New York futures contracts in their present form became effective in 1930.

Changes in adjusted basis for Middling ⅞-inch cotton in New Orleans over 8-week periods, varied somewhat irregularly from one part of the season to another; but for most of the years from 1920 to 1936 these changes in basis were greater from June to October than during any other part of the season (tables 3 and 4). As previously indicated, changes in crop prospects and in prices of spot cotton were also greatest during this time of the year.

Changes in adjusted basis for Middling ⅞-inch spot cotton in New Orleans over 8-week periods, calculated from near-month New York futures contracts, were generally somewhat less than those calculated from futures contracts for delivery in more distant months (table 5). The differences between these changes in adjusted basis were particularly noticeable when they were calculated from futures contracts that matured in different seasons. During the seasons 1920–21 to 1935–36, inclusive, changes in adjusted basis for Middling ⅞-inch spot cotton in New Orleans over 8-week periods ended in March and April, averaged 0.27 cent a pound when calculated from New York futures contracts for delivery in May and 0.56 cent when calculated from New York futures contracts for delivery in October (table 5).

Changes in adjusted basis for Low Middling ⅞-inch, Good Middling ⅞-inch, and Middling 1-inch cotton in New Orleans, and for Middling 1⅛-inch cotton in Memphis over 8-week periods, were on the whole very similar to, but averaged somewhat greater than, those for Middling ⅞-inch cotton in New Orleans as previously indicated (table 1).

Changes in basis at New Orleans in recent years were apparently fairly typical of those at other markets (table 2). During the 6 years, 1930–31 to 1935–36, inclusive, changes in basis for Middling ⅞-inch spot cotton over 8-week periods, calculated from near-month New York futures contracts and not adjusted for the costs of carrying

spot cotton, averaged 0.20 cent at New Orleans, 0.21 cent at Houston, 0.23 cent at Savannah, 0.25 cent at Memphis, 0.26 cent at Carolina and New England mill points, and 0.33 cent at Liverpool. When calculated from prices of near-month Liverpool futures contracts for American cotton, these changes in basis averaged 0.27 cent at New Orleans and at Houston, 0.29 cent at Savannah, 0.32 cent at Memphis and at New England mill points, 0.33 cent at Carolina mill points, and 0.26 cent at Liverpool. In making these calculations, Liverpool prices were converted to United States money at the current rate of exchange, but no adjustments were made for the influence of changes in rate of exchange on basis.

Differences in time to which the price quotations apply (p. 4) may account for at least a part of the differences in the average change in basis shown for Middling ⅞-inch spot cotton in Liverpool calculated from New York futures contracts and the corresponding changes in basis shown for various American markets. These differences in time may also account for at least a part of the differences in average change in basis shown for specified markets calculated from Liverpool futures contracts for American cotton. The conversion of Liverpool prices to United States money, along with changes in the rate of exchange, no doubt augmented the changes in basis shown for the Liverpool market calculated from New York futures, and for all markets in the United States calculated from Liverpool futures.

GAINS AND LOSSES FROM THE CHANGES IN BASIS

Changes in adjusted basis over 8-week periods, represented both gains and losses on long interests in spot cotton hedged by the sale of futures contracts, generally referred to as a long-basis position. The analyses were made primarily from the point of view of a long-basis position, but it is recognized, of course, that the gains and losses on long-basis positions have as their counterpart losses and gains, respectively, on short interests in spot cotton hedged by the purchase of futures contracts, generally referred to as a short-basis position. Except for adjustments made for carrying charges, the amounts of the gains and losses shown on long-basis positions are the same as the losses and gains, respectively, on short-basis positions.

Adjusting the changes in basis for the costs of carrying spot cotton over specified periods, as was done in most of the data presented in this bulletin, reduced the gains and increased the losses shown on long-basis positions, and increased the gains and reduced the losses shown on short-basis positions by amounts equivalent to the costs of carrying spot cotton.

The proportions of the time that changes in adjusted basis for Middling ⅞-inch spot cotton in New Orleans over 8-week periods would have resulted in gains and in losses on long-basis positions, and the average amounts of these gains and losses, varied considerably from one season to another (table 7).

For the period 1920–21 to 1935–36, inclusive, these changes in adjusted basis would have resulted in losses on long interests in spot cotton hedged by the sale of near-month New York futures

contracts about two-thirds of the time, and the average loss would have been substantially greater than the average gain. These losses over 8-week periods averaged 0.67 cent a pound for the 16 years and varied from 2.33 cents in 1920–21 to 0.08 cent in 1932–33 and in 1933–34; whereas the gains over 8-week periods averaged only 0.22 cent a pound for the 16 years and varied from 0.63 cent in 1920–21 to 0.05 cent in 1932–33 and 1935–36. Such losses and gains were unusually large in 1920 and were relatively large in 1924; but from 1924 to 1933 they decreased with the decline in cotton prices. During the season 1935–36 the proportion of the time losses would have been sustained on long interests in spot cotton hedged by the sale of near-month New York futures contracts was unusually large, and the average amount of the loss that would have been sustained was substantially larger than for any other season since provisions for southern delivery on New York futures contracts in their present form became effective in 1930.

The gains and the losses from changes in adjusted basis for Middling ⅞-inch spot cotton in New Orleans over 8-week periods, calculated from near-month New York futures contracts, were on the whole greatest near the beginning and toward the end of the seasons, when changes in prices of spot cotton were also greatest (table 8). These gains and losses from changes in adjusted basis, calculated from near-month New York futures contracts, were on the whole somewhat less than those calculated from New York futures contracts for more distant months (table 9).

During the seasons 1920–21 to 1935–36, inclusive, changes in adjusted basis for Middling ⅞-inch spot cotton in New Orleans over 8-week periods ended in March and April, for example, showed losses on long-basis position which averaged 0.42 cent a pound when calculated from contracts for delivery in May, and 0.93 cent when calculated from contracts for delivery in October. The gains shown on long-basis positions from these changes in basis averaged 0.08 cent a pound when calculated from contracts for delivery in May and 0.50 cent when calculated from contracts for delivery in October.

Changes in adjusted basis for Middling ⅞-inch spot cotton in New Orleans, calculated from closing prices of New Orleans futures contracts during the seasons 1920–21 to 1935–36, inclusive, showed that losses would have been sustained on long interests in spot cotton, hedged by the sale of near-month New Orleans futures contracts for a slightly larger proportion of the time, but that the average loss would have been somewhat less than that calculated from prices of near-month New York futures contracts (table 7).

The gains and the losses from changes in adjusted basis for Low Middling ⅞-inch, Good Middling ⅞-inch and Middling 1-inch spot cotton in New Orleans, and for Middling 1⅛-inch spot cotton in Memphis, over 8-week periods, were generally about the same or somewhat greater than those previously shown for Middling ⅞-inch spot cotton in New Orleans for the same period (tables 7, 8, and 9).

The proportions of the time that changes in basis would have resulted in gains and in losses on long-basis positions and the average

amounts of these gains and losses for the New Orleans market were fairly typical of those for Houston, Savannah, Memphis, Carolina mill points, New England mill points, and for Liverpool (table 10).

PRICE RISKS VERSUS BASIS RISKS

A comparison of the changes in prices of spot cotton with changes in basis indicates the extent to which gains and losses from changes in prices could have been reduced by the use of futures contracts as hedges. Data showing no changes in adjusted basis indicate that the gains and losses from changes in prices of spot cotton, adjusted for carrying charges, could have been completely offset by the use of futures contracts as hedges. Changes in adjusted basis by amounts less than the corresponding changes in prices of spot cotton, adjusted for carrying charges, mean that gains and losses from changes in prices could have been reduced but not completely offset by the use of futures contracts as hedges. Changes in adjusted basis by amounts as great as or greater than the corresponding changes in prices of spot cotton indicate that no reductions in gains and losses from changes in prices could have been made by the use of futures contracts as hedges.

PRICE RISKS GENERALLY GREATER THAN BASIS RISKS

Generally a large proportion of the gains and losses from changes in prices of spot cotton could have been hedged by the use of futures contracts. The data analyzed show that changes in adjusted basis were generally substantially less than the corresponding changes in prices of spot cotton adjusted for carrying charges (table 1, figs. 5, 6, 7, and 8). During the 16-year period 1920–21 to 1935–36, taken as a whole, the changes in adjusted basis for Middling ⅞-inch spot cotton in New Orleans over 8-week periods, calculated from near-month New York futures contracts, averaged about 30 percent as large as the corresponding changes in prices of Middling ⅞-inch spot cotton in New Orleans adjusted for carrying charges. The proportions by seasons varied from 59 percent in 1935–36 to about 6 percent in 1932–33 (table 11).

Following provisions for southern delivery on New York futures contracts in their present form, in 1930, hedge protection afforded by New York futures contracts increased markedly (table 11). With the marked advance in basis following the announcement of the 12-cent loan by the Government to growers early in the season 1934–35, however, the usefulness of futures contracts in hedging long interests in spot cotton decreased substantially, and during the season 1935–36 the average change in adjusted basis calculated from New York futures contracts for the near-active month represented a larger proportion of the corresponding changes in prices of Middling ⅞-inch spot cotton in New Orleans, adjusted for carrying charges, than for any other season since 1920. The average change in prices of Middling ⅞-inch spot cotton in New Orleans over 8-week periods, adjusted for carrying charges, however, was smaller in 1935–36 than in any other season covered by this study (table 1).

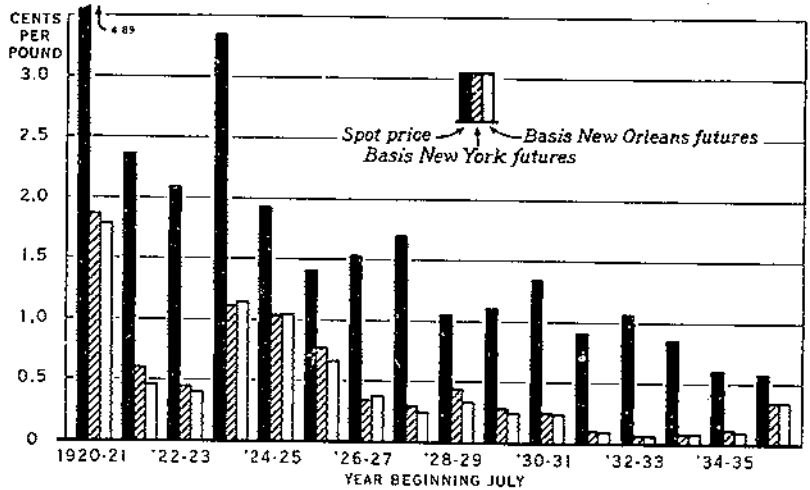

FIGURE 5.—AVERAGE CHANGE IN PRICES OF MIDDLING ⅞-INCH SPOT COTTON IN NEW ORLEANS, ADJUSTED FOR CARRYING CHARGES, AND IN ADJUSTED BASIS, OVER 8-WEEK PERIODS, SEASONS 1920-21 TO 1935-36.

The changes in adjusted basis, calculated from near-month New York futures contracts, averaged about 36 percent of the corresponding changes in prices of Middling ⅞-inch spot cotton, adjusted for carrying charges, during the 16-year period and varied from 6 percent in 1932-33 to 59 percent in 1935-36.

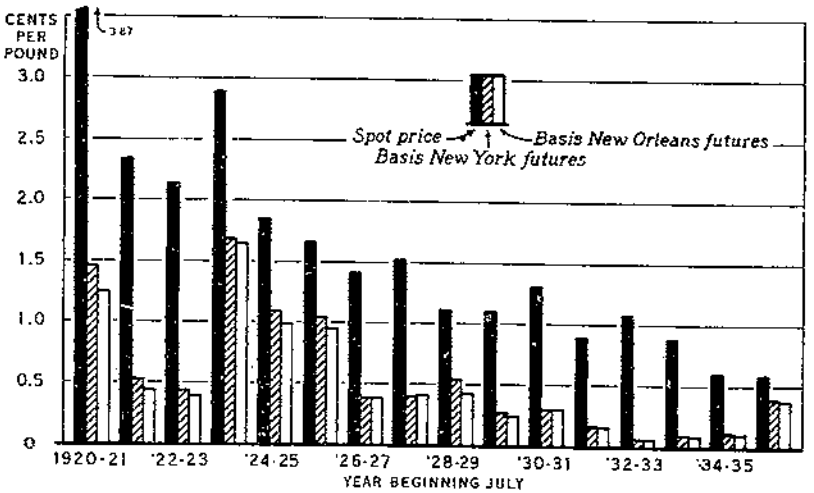

FIGURE 6.—AVERAGE CHANGE IN PRICES OF LOW MIDDLING ⅞-INCH SPOT COTTON IN NEW ORLEANS, ADJUSTED FOR CARRYING CHARGES, AND IN ADJUSTED BASIS OVER 8-WEEK PERIODS, SEASONS 1920-21 TO 1935-36.

The changes in adjusted basis, calculated from near-month New York futures contracts, averaged about 36 percent of the corresponding changes in prices of Low Middling ⅞-inch spot cotton, adjusted for carrying charges, during the 16-year period, and varied from 6 percent in 1932-33 to 68 percent in 1935-36.

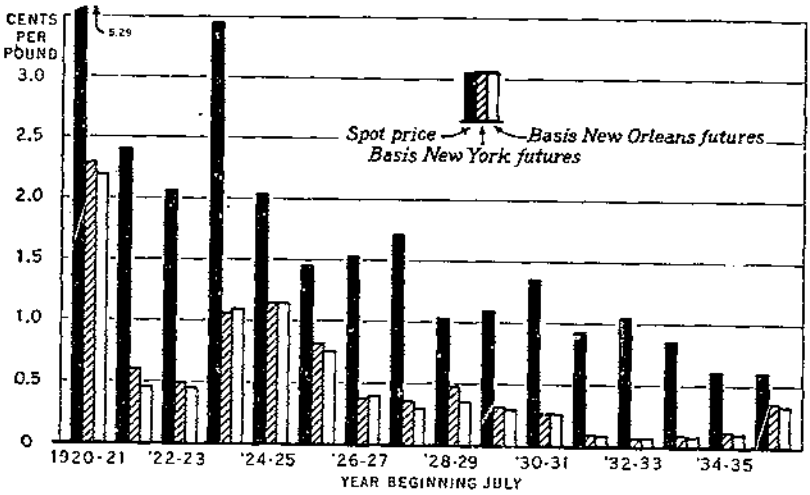

FIGURE 7.—AVERAGE CHANGE IN PRICES OF GOOD MIDDLING ⅞-INCH SPOT COTTON IN NEW ORLEANS, ADJUSTED FOR CARRYING CHARGES, AND IN ADJUSTED BASIS OVER 8-WEEK PERIODS, BY SEASONS, 1920–21 TO 1935–36.

The changes in adjusted basis, calculated from near-month New York futures contracts, averaged about 32 percent of the corresponding changes in prices of Good Middling ⅞-inch spot cotton, adjusted for carrying charges, during the 16-year period and varied from 7 percent in 1932–33 to 57 percent in 1935–36.

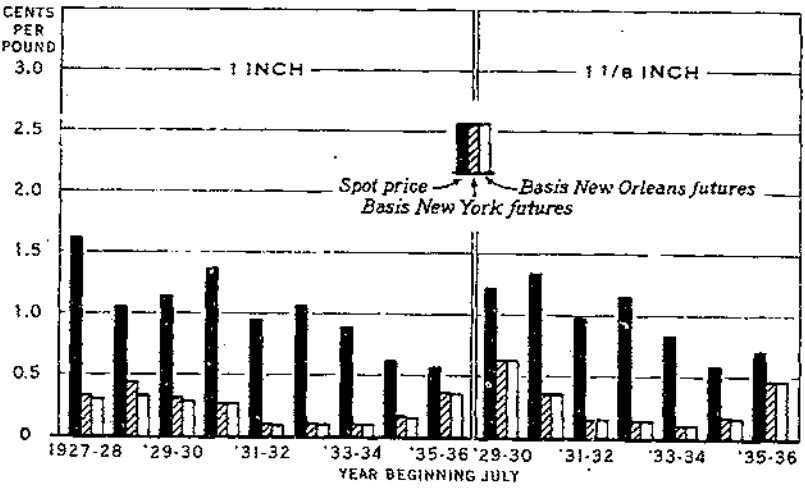

FIGURE 8.—AVERAGE CHANGE IN PRICES OF MIDDLING 1-INCH SPOT COTTON IN NEW ORLEANS AND OF MIDDLING 1⅛-INCH SPOT COTTON IN MEMPHIS, ADJUSTED FOR CARRYING CHARGES, AND IN ADJUSTED BASIS OVER 8-WEEK PERIODS, SEASONS FOR SPECIFIED NUMBER OF YEARS ENDED WITH 1935–36.

The changes in adjusted basis, calculated from near-month New York futures contracts, averaged 24 percent of the corresponding changes in prices of Middling 1-inch spot cotton, adjusted for carrying charges, during the 9-year period, and varied from 10 percent in 1932–33 to 63 percent in 1935–36; and averaged 30 percent of the corresponding changes in prices of Middling 1⅛-inch spot cotton, adjusted for carrying charges during the 7-year period, and varied from 12 percent in 1933–34 to 66 percent in 1935–36.

Changes in adjusted basis for Middling ⅞-inch spot cotton in New Orleans over 8-week periods, calculated from near-month New York futures contracts, represented on the average a somewhat smaller proportion of the corresponding changes in prices of Middling ⅞-inch spot cotton in New Orleans, adjusted for carrying charges, than the corresponding proportions for other grades and staple lengths (table 11). During the 6-year period ended with the season 1935–36, these proportions averaged 18 percent for Middling ⅞-inch and Good Middling ⅞-inch, 22 percent for Low Middling ⅞-inch and 20 percent for Middling 1-inch spot cotton in New Orleans, and averaged 26 percent for Middling 1⅛-inch spot cotton in Memphis. The corresponding proportions based on New Orleans futures contracts were on the whole about the same as those based on New York futures contracts.

Changes in adjusted basis and changes in prices of spot cotton over 8-week periods, adjusted for carrying charges, were on the whole greatest from June to October. These changes in adjusted basis expressed as proportions of the corresponding changes in prices of spot cotton, adjusted for carrying charges, varied somewhat irregularly from one part of the season to another (table 12). For the 16-year period 1920–21 to 1935–36, taken as a whole, these changes in adjusted basis over 8-week periods ended in July, August, and September, represented a somewhat larger proportion of the corresponding changes in prices of spot cotton adjusted for carrying charges than during the remainder of the season. Since provisions for southern delivery on New York futures contracts in their present form became effective in 1930, however, these changes in adjusted basis over 8-week periods ended in July, August, and September, have not represented on the average a larger proportion of the corresponding changes in prices of spot cotton, adjusted for carrying charges, than during the remainder of the season.

Changes in prices of spot cotton were generally more closely associated with changes in prices of futures contracts for the near-active than for the more distant months, with the result that changes in adjusted basis over 8-week periods, calculated from near-month New York futures contracts, were generally somewhat smaller than those calculated from contracts for the more distant months (table 12). These changes in adjusted basis for Middling ⅞-inch spot cotton in New Orleans over 8-week periods, expressed as proportions of the corresponding changes in prices of Middling ⅞-inch spot cotton in New Orleans, adjusted for carrying charges, averaged 30 percent when calculated from New York futures contracts for the near-active months, 32 percent for the second nearest, 38 percent for the third nearest, and 43 percent for the fourth nearest active month.

Hedge protection afforded by futures contracts for the more distant months maturing in another season was generally substantially less than that for contracts maturing in a near month within the same season (table 12). Changes in adjusted basis for Middling ⅞-inch spot cotton in New Orleans over 8-week periods ended during March and April, expressed as proportions of the corresponding changes in prices of Middling ⅞-inch spot cotton in New Orleans, adjusted for carrying charges, averaged 24 percent when calculated from New York futures contracts maturing in May, and averaged 48 percent when calculated from New York futures contracts maturing in October.

Similar comparisons for Low Middling ⅞-inch, Good Middling ⅞-inch, and Middling 1-inch spot cotton in New Orleans, and for Middling 1⅛-inch spot cotton in Memphis also showed that protection afforded by futures as hedges averaged somewhat greater for contracts for the near-active than for the more-distant months (table 12).

A comparison of the changes in basis for Middling ⅞-inch spot cotton at various markets over 8-week periods, calculated from near-month New York and Liverpool futures contracts for American cotton and expressed as proportions of the corresponding changes in prices of Middling ⅞-inch spot cotton at these markets, indicates that the protection afforded by futures contracts as hedges in the New Orleans market was fairly typical of that at other markets (table 13). During the season 1930–31 to 1935–36, inclusive, changes in basis for Middling ⅞-inch spot cotton over 8-week periods, calculated from near-month New York futures contracts, averaged 23 percent of the corresponding changes in prices of spot cotton at New Orleans, compared with 24 percent at Houston, 26 percent at Savannah, 29 percent at Memphis, 30 percent at Carolina and at New England mill points, and 34 percent at Liverpool. When calculated from near-month Liverpool futures contracts for American cotton, these changes in basis averaged 31 percent of the corresponding changes in prices of spot cotton at New Orleans and at Houston, 33 percent at Savannah, 37 percent at Memphis, 38 percent at Carolina mill points, 36 percent at New England mill points, and 27 percent at Liverpool.

As previously indicated, changes in prices of spot cotton and changes in basis represent both gains and losses on long interests in spot cotton (table 7, figs. 9, 10, 11, and 12). During the 16-year period 1920–21 to 1935–36, inclusive, changes in adjusted basis for Middling ⅞-inch spot cotton in New Orleans over 8-week periods, calculated from near-month New York futures contracts, would have resulted in losses on long-basis positions 66 percent of the time, compared with 60 percent from the corresponding changes in prices of spot cotton, adjusted for carrying charges. The amounts of these losses from changes in adjusted basis for the 16-year period, however, averaged only 36 percent of those from the corresponding changes in prices of spot cotton adjusted for carrying charges, and the proportions for the seasons varied from 55 percent in 1935–36 to 8 percent in 1931–32.

The corresponding proportions for cotton of other grades and staples also varied considerably from one season to another, and during the 6-year period ended with the season 1935–36 they averaged 22 percent for Middling ⅞-inch, 21 percent for Good Middling ⅞-inch, and 25 percent for Low Middling ⅞-inch and Middling 1-inch spot cotton in New Orleans, and 30 percent for Middling 1⅛-inch spot cotton in Memphis.

During the 16 years ended with the season 1935–36, the declines in prices of Middling ⅞-inch spot cotton in New Orleans over 8-week periods, adjusted for carrying charges, averaged 1.86 cents a pound, and the corresponding changes in adjusted basis calculated from near-month New York futures contracts averaged 0.67 cent, about 0.61 cent of which represented losses on long basis positions (table 14). Toward the end of one season and during the early part of the next season the declines in prices of spot cotton over 8-week periods, adjusted for carrying charges, and the corresponding changes in adjusted basis were generally substantially greater than during the remainder of the season. Declines in prices of Middling ⅞-inch spot

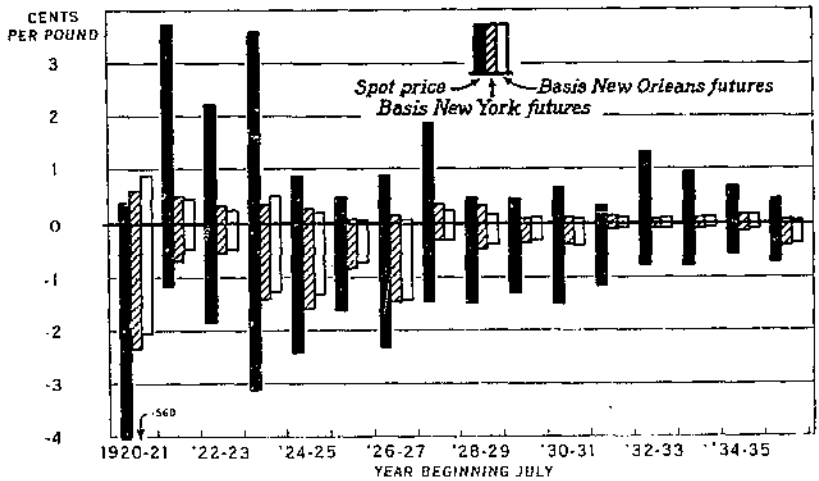

FIGURE 9.—AVERAGE GAINS AND LOSSES FROM CHANGES IN PRICES OF MIDDLING ⅞-INCH SPOT COTTON IN NEW ORLEANS, ADJUSTED FOR CARRYING CHARGES, AND FROM CHANGES IN ADJUSTED BASIS OVER 8-WEEK PERIODS, SEASONS 1920–21 TO 1935–36.

During this 16-year period gains and losses on long-basis positions from changes in adjusted basis averaged 16 and 36 percent respectively of the corresponding advances and declines in prices of spot cotton, adjusted for carrying charges. The proportions, by seasons, showed that the gains varied from 4 percent in 1932–33 to 180 percent in 1920–21. The losses varied from 8 percent in 1931–32 to 35 percent in 1935–36.

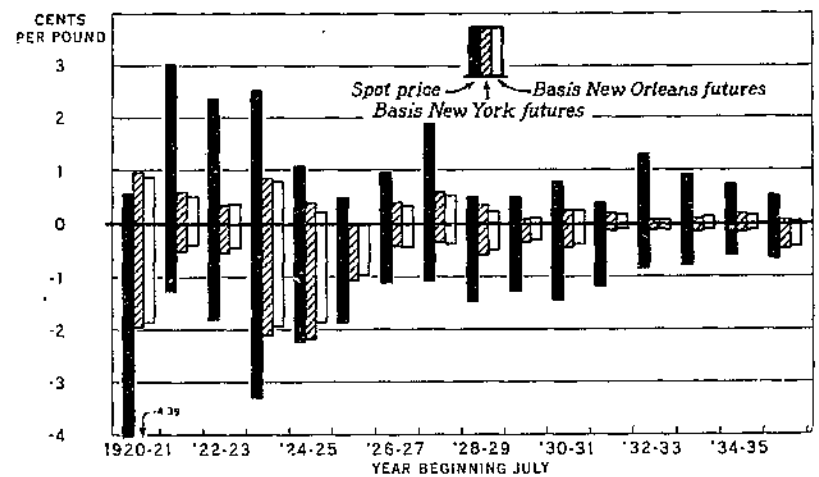

FIGURE 10.—AVERAGE GAINS AND LOSSES FROM CHANGES IN PRICES OF LOW MIDDLING ⅞-INCH SPOT COTTON IN NEW ORLEANS, ADJUSTED FOR CARRYING CHARGES, AND FROM CHANGES IN ADJUSTED BASIS, OVER 8-WEEK PERIODS, SEASONS 1920–21 TO 1935–36.

During this 16-year period, gains and losses on long-basis positions from changes in adjusted basis averaged 20 and 41 percent respectively of the corresponding advances and declines in prices of spot cotton, adjusted for carrying charges. The proportions by seasons showed that the gains varied from none in 1925–26 to 177 percent in 1920–21. Losses varied from 8 percent in 1931–32 to 97 percent in 1924–25.

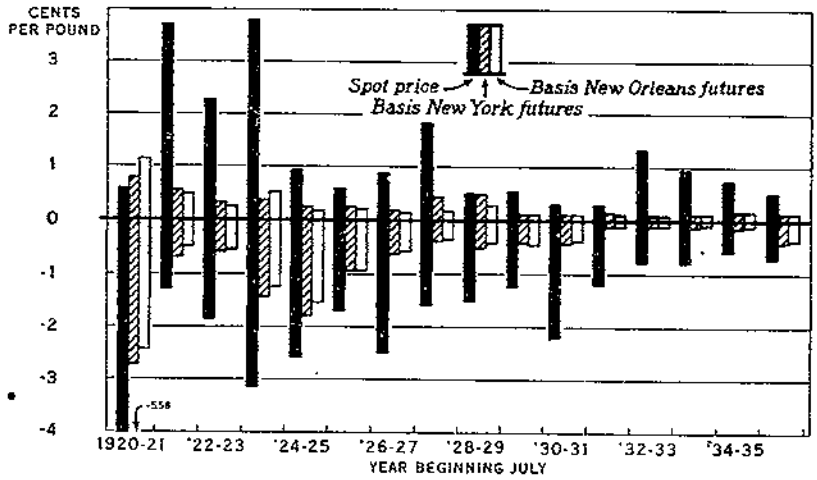

FIGURE 11.—AVERAGE GAINS AND LOSSES FROM CHANGES IN PRICES OF GOOD MIDDLING ⅞-INCH SPOT COTTON IN NEW ORLEANS, ADJUSTED FOR CARRYING CHARGES, AND FROM CHANGES IN ADJUSTED BASIS OVER 8-WEEK PERIODS, SEASONS 1920-21 TO 1935-36.

During this 16-year period gains and losses on long-basis positions from changes in adjusted basis averaged 17 and 38 percent, respectively, of the corresponding advances and declines in prices of spot cotton adjusted for carrying charges. The proportions by seasons showed that the gains varied from 5 percent in 1932-33 to 141 percent in 1920-21. The losses varied from 7 percent in 1931-32 to 70 percent in 1924-25.

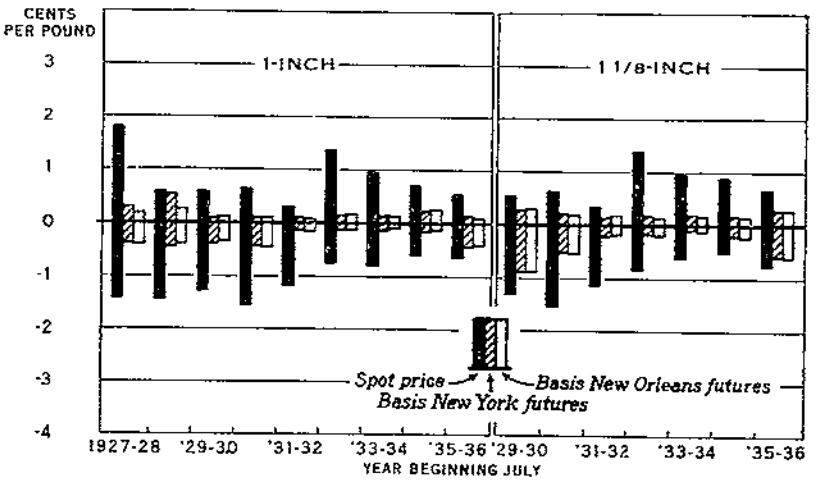

FIGURE 12.—AVERAGE GAINS AND LOSSES FROM CHANGES IN PRICES OF MIDDLING 1-INCH SPOT COTTON IN NEW ORLEANS AND MIDDLING 1⅛-INCH SPOT COTTON IN MEMPHIS, ADJUSTED FOR CARRYING CHARGES, AND FROM CHANGES IN ADJUSTED BASIS OVER 8-WEEK PERIODS FOR 7- AND 9-YEAR PERIODS ENDED WITH 1935-36.

During this 9-year period, gains and losses on long-basis positions from changes in adjusted basis averaged 17 and 27 percent respectively of the corresponding advances and declines in prices of Middling 1-inch spot cotton in New Orleans, adjusted for carrying charges. During the 7-year period ended with 1935-36, gains and losses from long-basis positions from changes in adjusted basis averaged 22 and 38 percent respectively of the corresponding advances and declines in prices of Middling 1⅛-inch spot cotton in Memphis, adjusted for carrying charges.

cotton in New Orleans over 8-week periods ended during July, August, and September, adjusted for carrying charges, averaged 2.29 cents a pound during this 16-year period, and the corresponding changes in adjusted basis, calculated from near-month New York futures contracts, averaged 1.22 cents a pound, about 1.15 cents of which represented losses on long basis positions; whereas, the declines in prices of Middling ⅞-inch spot cotton in New Orleans over 8-week periods ended during the other months in the season, adjusted for carrying charges, averaged 1.70 cents a pound and the corresponding changes in adjusted basis calculated from near-month New York futures contracts averaged 0.45 cent a pound, of which 0.40 cent represented losses on long-basis positions (table 14).

The proportions of the time that changes in adjusted basis would have resulted in gains on long interests in spot cotton hedged by near-month New York futures contracts, and the average amounts of these gains, were substantially less than those from the corresponding changes in prices of spot cotton adjusted for carrying charges (table 7, figs. 9, 10, 11 and 12). During the 16-year period 1920-21 to 1935–36, inclusive, changes over 8-week periods in adjusted basis for Middling ⅞-inch spot cotton in New Orleans calculated from near-month New York futures contracts showed gains on long-basis positions 32 percent of the time, compared with 40 percent from the corresponding changes in prices of spot cotton.

These proportions varied widely from season to season, as well as from one part of the season to another. The amounts of these gains in adjusted basis averaged only 16 percent of those from the corresponding changes in prices of spot cotton, adjusted for carrying charges, during the 16-year period, and the proportions by seasons varied from 180 percent in 1920-21 to 4 percent in 1932-33. The corresponding proportions for cotton of other grades and staples also varied considerably from season to season, and during the 6-year period ended with the season 1935–36 they averaged 12 percent for Middling ⅞-inch and Good Middling ⅞-inch, 18 percent for Low Middling ⅞-inch, and 16 percent for Middling 1-inch spot cotton in New Orleans, and 20 percent for Middling 1⅛-inch spot cotton in Memphis.

The advances in prices of Middling ⅞-inch spot cotton in New Orleans over 8-week periods, adjusted for carrying charges, averaged 1.41 cents a pound during the 16 years ended with the season 1935–36, and the corresponding changes in adjusted basis, calculated from near-month New York futures contracts, averaged 0.28 cent, about 0.19 cent of which represented losses on long-basis positions (table 14). The advances in prices of Middling ⅞-inch spot cotton in New Orleans over 8-week periods, adjusted for carrying charges, and the corresponding changes in adjusted basis, calculated from near-month New York futures contracts, were generally somewhat greater toward the end of one season and during the early part of the next season than during the remainder of the season.

These changes in adjusted basis, however, represented a somewhat smaller proportion of the advances in prices of Middling ⅞-inch spot cotton in New Orleans over 8-week periods, adjusted for carrying charges, toward the end of one season and during the early part of the next season than during the remainder of the season. Advances in prices of Middling ⅞-inch spot cotton in New Orleans over 8-week

periods ended during July, August, and September, adjusted for carrying charges, averaged 1.80 cents a pound during the 16-year period and the corresponding changes in adjusted basis, calculated from near-month New York futures contracts averaged 0.32 cent, about 0.21 cent of which represented losses on long-basis positions; whereas, the advances in prices of Middling ⅞-inch spot cotton in New Orleans over 8-week periods ended during the remainder of the season, adjusted for carrying charges, averaged 1.30 cents a pound, and the corresponding changes in adjusted basis, calculated from near-month New York futures contracts, averaged 0.27 cent, about 0.18 cent of which represented losses on long-basis positions (table 14).

Losses from changes in prices of spot cotton, adjusted for carrying charges, and from changes in adjusted basis at one time, could have been counterbalanced to some extent by gains at other times. During the 16-year period ended with the season 1935–36, the advances in prices of Middling ⅞-inch spot cotton in New Orleans over 8-week periods, adjusted for carrying charges, balanced against the declines gave, on the average, a net loss of 0.54 cent a pound for the seasons taken as a whole, and 0.81 cent for 8-week periods ended during July, August, and September. A balance of the gains and losses on long-basis positions from changes in adjusted basis for Middling ⅞-inch spot cotton in New Orleans over 8-week periods, calculated from near-month New York futures contracts, gave, on the average, for this 16-year period, a net loss of 0.30 cent a pound for the seasons taken as a whole, and 0.49 cent for 8-week periods ended during July, August, and September. The net gains or losses varied considerably from one season to another (table 14).

Data on gains and losses on long-basis positions from changes in basis for Middling ⅞-inch spot cotton over 8-week periods, calculated from near-month New York and Liverpool futures contracts for American cotton, indicate that the protection afforded by futures contracts as hedges against losses from changes in prices of spot cotton in the New Orleans market was fairly typical of that in Houston, Savannah, Memphis, Carolina mill points, New England mill points, and in Liverpool (tables 10 and 15).

BASIS RISKS SOMETIMES AS GREAT AS OR GREATER THAN PRICE RISKS

Although the data previously presented clearly show that changes in adjusted basis were for the most part substantially less than changes in adjusted prices of spot cotton, the use of futures contracts as hedges against changes in prices of spot cotton would have increased the gains and losses from changes in prices during a part of the time since 1920. During the 16-year period 1920–21 to 1935–36, inclusive, gains and losses from changes in adjusted basis for Middling ⅞-inch spot cotton in New Orleans over 8-week periods calculated from near-month New York futures contracts would have exceeded those from changes in prices of Middling ⅞-inch spot cotton in that market, adjusted for carrying charges, about 16 percent of the time, and the proportions by seasons varied from 37 percent in 1935–36 to 2 percent in 1930–31 (table 16). During the 6-year period ended with the 1935–36 season, the corresponding proportions averaged about 12 percent for Middling ⅞-inch, Good Middling ⅞-inch and

Middling 1-inch, and 16 percent for Low Middling ⅞-inch spot cotton in New Orleans; and 19 percent for Middling 1⅛-inch spot cotton in Memphis.

The times when the use of futures contracts as hedges would not have reduced the gains and losses from changes in prices, however, were largely confined to periods during which changes in prices of spot cotton were relatively small as compared with changes during other periods.

The proportions of the time the changes in adjusted basis over 8-week periods exceeded the corresponding changes in quoted prices of spot cotton adjusted for carrying charges varied somewhat irregularly from one part of the season to another as well as from season to season, but on the whole these proportions were smallest during the 8-week periods ended in October and November than during any other part of the season (table 17). Changes in adjusted basis calculated from futures contracts for the more distant months exceeded the changes in quoted prices of spot cotton adjusted for carrying charges for a somewhat larger proportion of the time than those calculated from futures contracts for the near-active month.

GAINS AND LOSSES FROM TRANSFERRING HEDGES

In addition to price risks and basis risks already discussed, risks from transferring futures contracts used as hedges from one futures month to another may also be an important factor in connection with the use of futures contracts as hedges against losses from changes in prices of spot cotton. It is extremely difficult to determine just how large a part transferring futures contracts play in the hedging operations of any given season, but they may be of very great importance, particularly during some seasons, since cotton hedges are carried along for many months after the bulk of the crop moves into sight in the late fall.

Risks from transferring hedges arise from differences between prices of futures contracts for the near months and those for the more distant months. The extent of risk involved in transferring hedges from one contract month to another is indicated by data showing the average amounts by which prices of cotton futures contracts for the more distant months, adjusted for carrying charges [13] differed from prices of contracts for the near months (table 18, fig. 13).

An examination of these data shows that in transferring short hedges from the near to the more distant months considerable losses would have been involved during a large proportion of the time before the season 1930–31, and in some years such losses would have amounted to several cents a pound. On the other hand, some gains on such switching operations would have been made during the last half of the season 1920–21.

[13] Adjustments were based on the prevailing costs of carrying spot cotton in the New Orleans market arrived at as previously indicated. For those whose carrying costs were less than these costs prevailing in New Orleans, the losses on long-basis positions from switching hedges by buying futures contracts for the near-active month and selling simultaneously contracts for the more distant months would have been less than those shown in this analysis.

Differences between prices of cotton futures contracts for the near-active month and those for the more distant months, adjusted for the differences in costs of carrying spot cotton to the date of maturity of futures contracts, were relatively small from the beginning of the season 1930–31 throughout most of the season 1933–34. The losses that would have been involved from transferring short hedges from the near-active month to the more distant months increased considerably in 1934–35, along with the marked advance in prices of spot cotton in relation to prices of future contracts, and such losses would have been substantially larger throughout the season 1935–36 than for any other year since the present form of southern warehouse delivery on New York futures contracts became effective in October 1930.

Losses from transferring short hedges from the near-active month to the more distant months have as their counterpart the gains to those who transfer long hedges from the near-active month to the more distant months, and, except for adjustments made for carrying charges, the amounts of these losses and gains are the same. Adjusting the differences between prices of contracts for the near months and those for the more distant months for the costs of carrying spot cotton increased the losses or decreased the gains shown from transferring short hedges and decreased the losses or increased the gains shown from transferring long hedges from the near month to the more distant months by an amount equivalent to the carrying charges.

On the other hand, such adjustments decrease the losses or increase the gains shown from transferring long hedges from the near-active month to the more distant months by similar amounts. Furthermore, a situation in which great losses would be sustained from switching hedges by buying contracts for the near-active month and selling simultaneously contracts for the more distant months indicates that the quantity of cotton being carried forward by merchants is relatively small, and that normally, relatively few are in a position to necessitate the making of such transfers. Those in a position to do so will make use of the reverse procedure in order to profit by such disparities.

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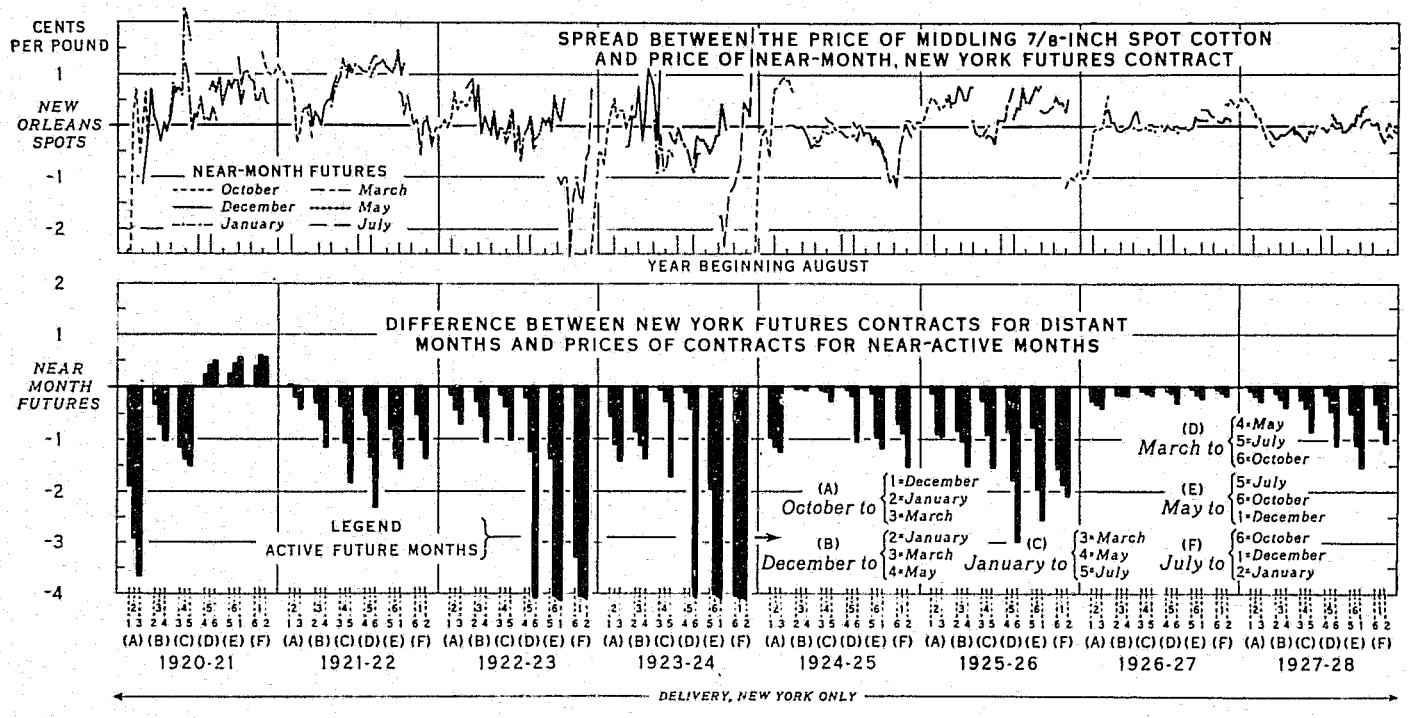

FIGURE 13.—SPREAD BETWEEN PRICES OF MIDDLING 7/8-INCH SPOT COTTON IN NEW ORLEANS AND PRICES OF NEAR-MONTH FUTURES CONTRACTS, AND AVERAGE AMOUNTS BY WHICH PRICES OF NEW YORK FUTURES CONTRACTS FOR THE MORE DISTANT MONTHS, ADJUSTED FOR CARRYING CHARGES, DIFFERED FROM PRICES OF CONTRACTS FOR THE NEAR-ACTIVE MONTH, SEASONS 1920-21 TO 1935-36.

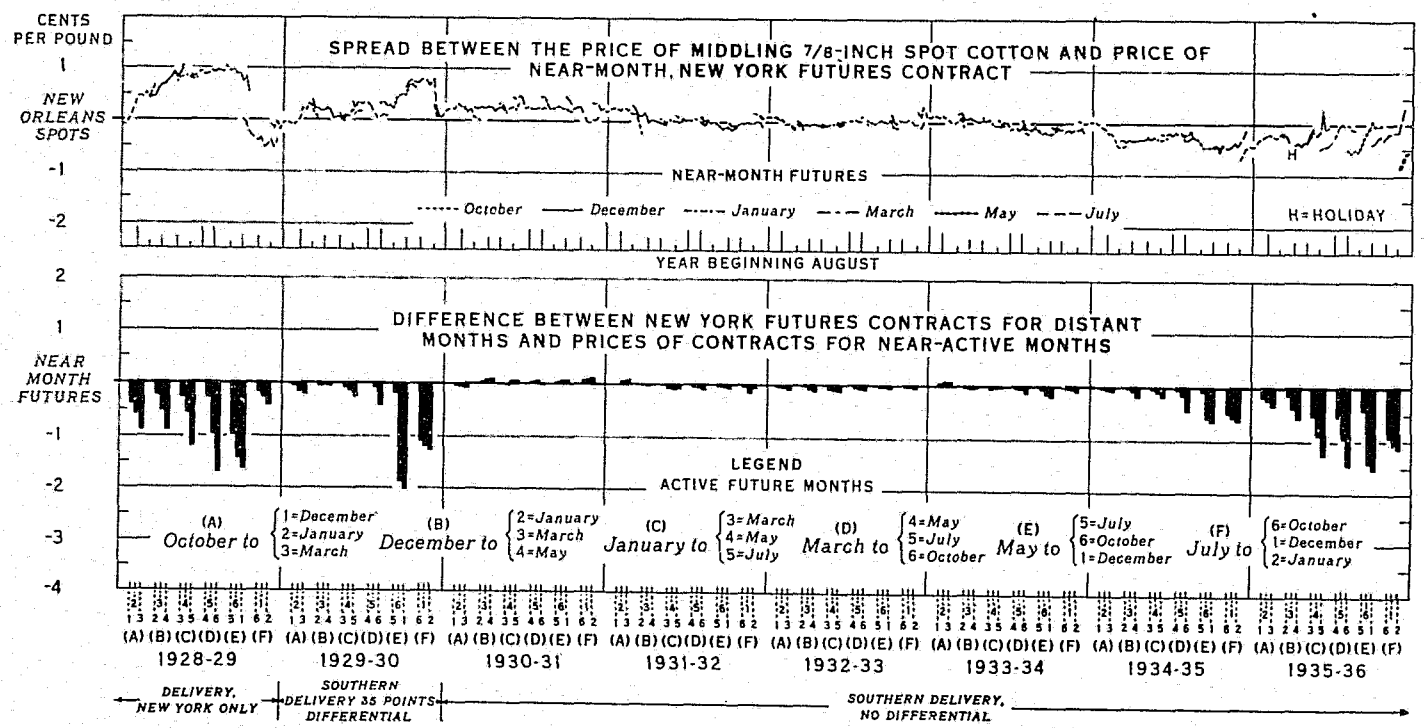

FIGURE 13.—Continued.

Substantial changes in basis and in the differences between prices of New York futures contracts for the near-active month and those for the more distant months, adjusted for carrying charges, prior to the season 1930-31 are indicated, but from the beginning of the season 1930-31 and extending throughout 1933-34, these changes and differences were relatively small. With the advance in basis in 1934 and continuing throughout the season 1935-36, substantial losses would have been sustained from switching hedges by buying near-month futures and selling simultaneously futures contracts for more distant months.

FACTORS AFFECTING THE SPOT-FUTURES PRICE RELATIONSHIPS AND PROTECTION AFFORDED BY FUTURES AS HEDGES

The spread between prices of spot cotton and prices of futures contracts, and changes in these spreads, are largely accounted for by differences in place of delivery and in terms and conditions of sale, differences in date of delivery and differences between the immediate and prospective demand and supply situation, and differences in the quality and classification of the cotton.

DIFFERENCES IN PLACE OF DELIVERY AND IN TERMS AND CONDITIONS OF SALE

Prices of cotton of the same quality in the various market places differ materially, and these differences are reflected in the spread between prices of futures contracts and prices of spot cotton. Cotton prices in surplus-producing areas that are long distances from consuming centers are generally substantially lower than prices of cotton of the same grade and staple length in deficit-producing areas near centers of consumption. Consequently, the spread between prices of New York futures contracts for the near-active months and prices of Middling ⅞-inch spot cotton at specified markets show substantial differences (fig. 14).

For example, on July 3, 1936, prices of Middling ⅞-inch spot cotton at Dallas averaged 0.50 cent a pound lower, and at Memphis 0.04 cent lower, than prices of New York futures contracts for July delivery; whereas prices of Middling ⅞-inch spot cotton at Carolina mill points averaged 1.00 cent higher, at New England mill points 1.54 cent higher, and at Liverpool 2.64 cents higher than prices of New York futures contracts for July delivery. Although the spread between prices of Middling ⅞-inch spot cotton at the various markets and prices of New York futures contracts changed materially from time to time, the basis for Middling ⅞-inch cotton at Dallas and Memphis, calculated from New York futures contracts for the near-active month, was generally substantially lower than that at Carolina and New England mill points, and the basis at Carolina and New England mill points was generally substantially lower than the corresponding basis at Liverpool.

Prices of futures contracts for delivery during the same month in different markets may differ widely and may result in substantial differences in spread between prices of spot cotton in a specified market and prices of futures contracts for delivery in the same month at different markets. For example, prices of Liverpool futures contracts for American cotton for specified months are generally somewhat higher than prices of New York and New Orleans futures contracts after adjustments are made for differences in tare and for differences in foreign exchange value of the currency (fig. 15). During the season 1934–35 prices of near-month Liverpool futures contracts for American cotton averaged 0.80 cent a pound higher than prices of corresponding New York futures contracts after adjustments were made for differences in tare and for differences in foreign exchange value of the currency. These differences in price level in the different futures markets are largely accounted for by differences in place of delivery.

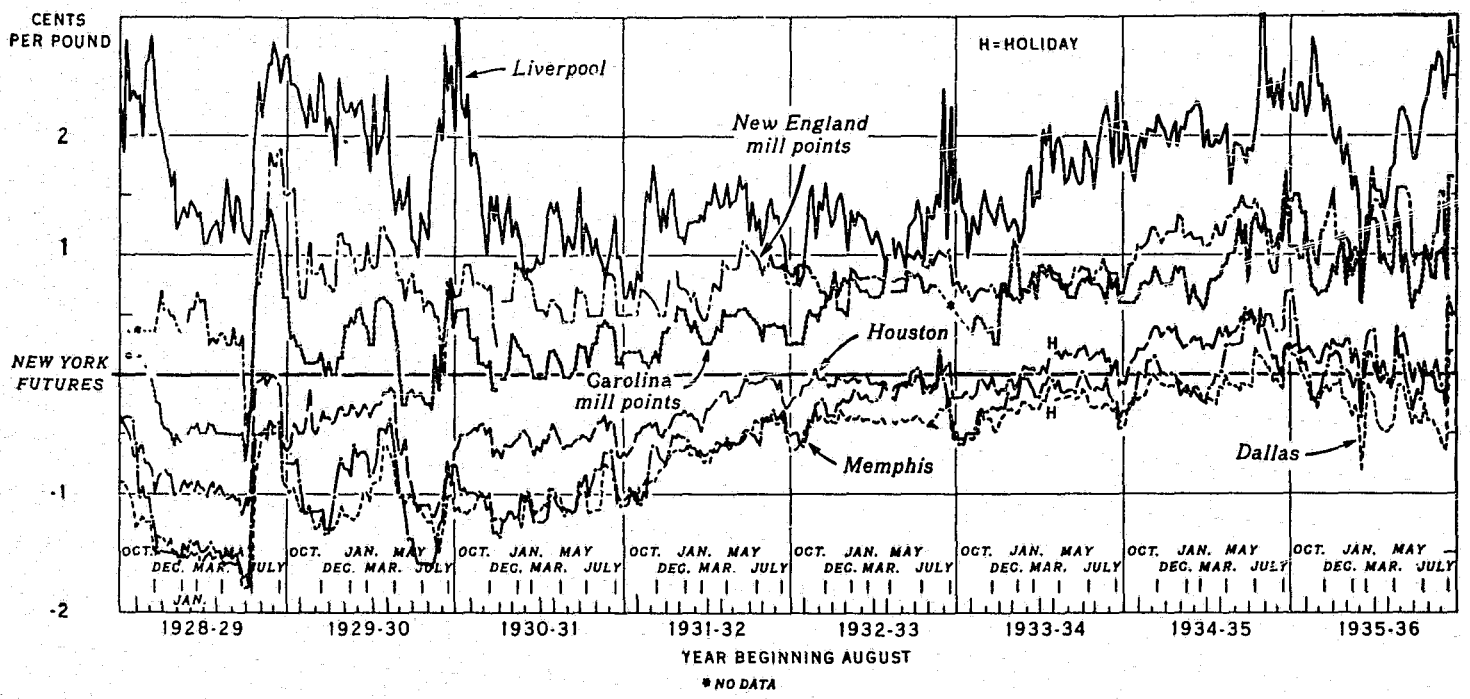

FIGURE 14.—DIFFERENCES BETWEEN PRICES OF NEW YORK FUTURES CONTRACTS FOR THE NEAR-ACTIVE MONTH, AND PRICES OF MIDDLING 7/8-INCH SPOT COTTON IN SPECIFIED MARKETS ON FRIDAYS, SEASONS 1928-29 TO 1935-36.

The spread between prices of New York futures contracts and prices of Middling 7/8-inch spot cotton at the various markets varied considerably from time to time. The basis at Dallas and at Memphis was generally substantially lower than at Carolina and New England mill points, and the basis at Carolina and New England mill points was generally substantially lower than the corresponding basis at Liverpool.

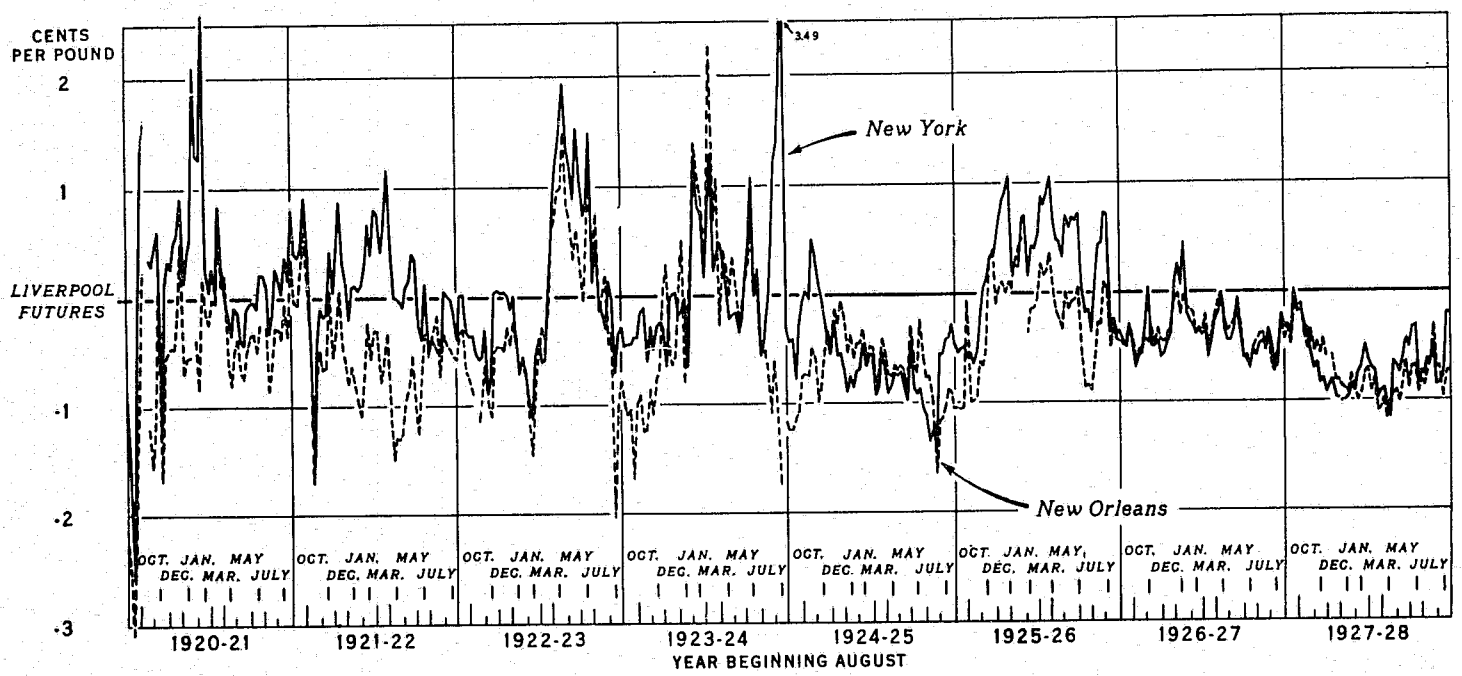

FIGURE 15.—DIFFERENCES BETWEEN PRICES OF LIVERPOOL FUTURES CONTRACTS FOR AMERICAN COTTON AND PRICES OF NEW YORK AND NEW ORLEANS FUTURES CONTRACTS, ON FRIDAYS, ADJUSTED FOR DIFFERENCES IN TARIFF AND FOR DIFFERENCES IN FOREIGN EXCHANGE VALUE OF THE CURRENCY, SEASONS 1920-21 TO 1935-36.

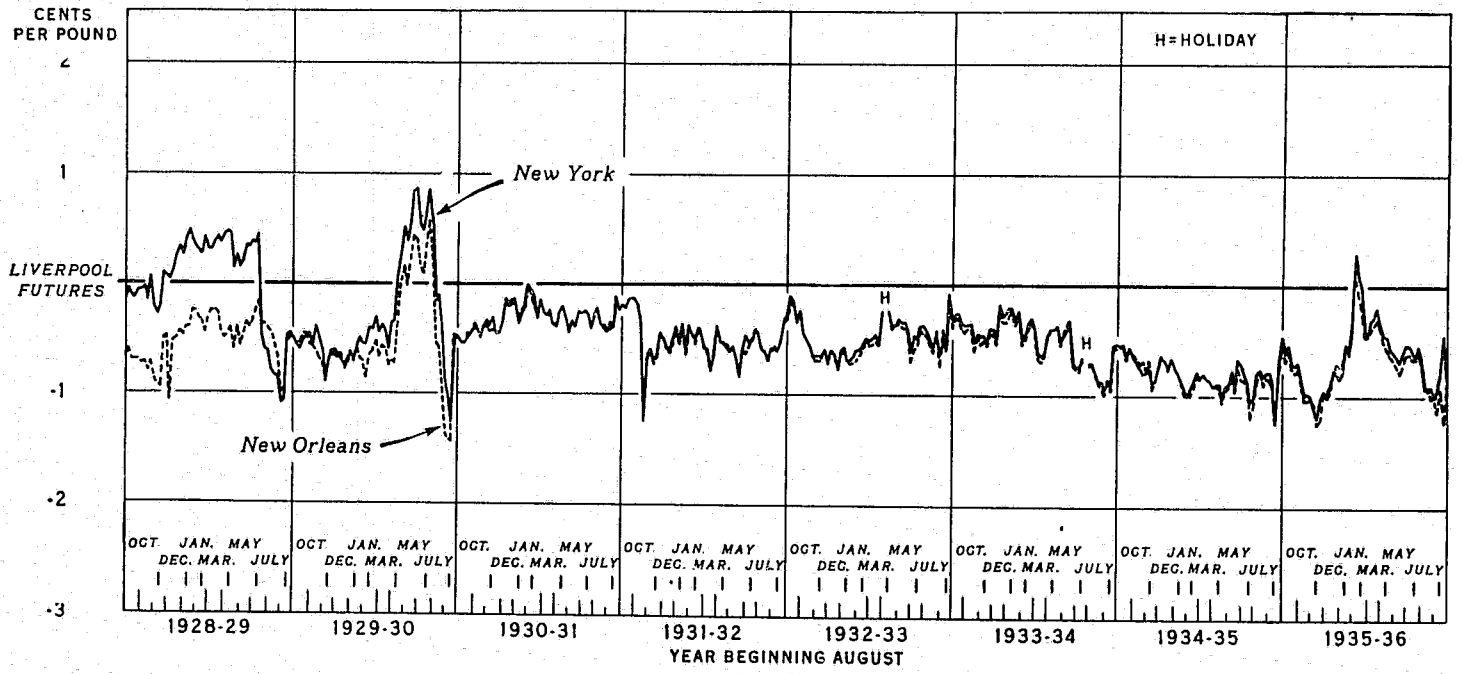

FIGURE 15.—Continued.

From 1920 to 1930 prices of New York and New Orleans futures contracts varied irregularly above and below the corresponding prices of Liverpool futures contracts for American cotton. Since the beginning of the season 1930-31, prices of New York and New Orleans futures contracts have been almost consistently below the corresponding prices of Liverpool futures contracts for American cotton.

Differences in costs in connection with moving cotton to markets at which cotton may be delivered on New York futures contracts, along with differences in values of cotton for merchandising purposes at the various markets, may have also affected differences between prices of spot cotton in the various markets and prices of New York futures contracts. Prior to southern delivery on the New York futures contracts, the extra costs in connection with moving cotton from southern points to New York for the purpose of making deliveries on contracts amounted to about 0.75 or 0.80 cent a pound (*1*). Freight and insurance on cotton from New York to Europe and Japan were about the same as from Savannah, and the expenses from New York warehouses to shipside in New York (including costs of receiving on contract) were about 0.20 cent a pound greater than at Savannah (*1*).

Under such conditions a relative shortage of spot cotton in the New York market for delivery purposes might have resulted in an advance in prices of near-month futures contracts over prices of spot cotton in southern markets, by 0.75 or 0.80 cent a pound, before being checked by the shipment of cotton to New York from southern points; whereas with a surplus of cotton for delivery on futures contracts in the New York market, prices of New York futures contracts for the near months might have declined to as much as 0.20 cent a pound lower than prices of spot cotton in southern markets before being checked by the receipt of cotton on futures contracts for export purposes.

Since provisions were made for southern delivery on New York futures contracts, no additional transportation costs are generally necessary in connection with the delivery of cotton on futures contracts, as a large proportion of the American crop normally moves through the points designated as delivery points for the New York futures contracts. Differences between prices at markets designated as delivery points [14] for the New York futures contracts, along with marked changes in these differences during relatively short periods, however, may at times affect the spread between prices of spot cotton at delivery points and prices of futures contracts. Since provisions for southern delivery on New York futures contracts in their present form became effective in 1930, differences between the basis at the various markets designated as delivery points have frequently amounted to more than 0.50 cent a pound (fig. 16). On May 1, 1931, for example, the quoted price of Middling ⅞-inch cotton at Norfolk was 0.70 cent higher than at Mobile, 0.55 cent higher than at Houston, and 0.41 cent higher than at Savannah,[15] whereas for delivery on New York futures contracts cotton at Mobile, Houston, and Savannah was worth just as much as at Norfolk.

[14] Markets designated as delivery points for New York futures contracts include New York, Norfolk, Charleston, Galveston, Houston, New Orleans, Savannah, and Mobile.

[15] Data on sales in these markets were at times so limited that the official quotations based on such data as were available in the markets may not have always reflected accurately the commercial values of Middling ⅞-inch cotton in these markets.

The probability that cotton tendered in settlement of futures-contract obligations will be delivered at the designated delivery point with the lowest price level may decrease the desirability of the contract from the viewpoint of the purchaser. Adequate supplies of the qualities of cotton most profitable for delivery on futures contracts at the delivery point that has the lowest price level may be necessary for the full effect of differences in prices of spot cotton at various delivery points to be reflected in the basis. Since the differences between prices of spot cotton at the markets designated as delivery points change considerably from time to time, any effect of these differences on basis is most likely to be in evidence near the date of maturity of the futures contract.

Furthermore, uncertainties with regard to where delivery will be made may add additional costs, since merchants generally, and particularly the smaller ones, may not be in position to receive cotton at some points at which it may be delivered without some extra costs. These costs may discourage the receiving of cotton on futures contracts and may also depress prices of futures contracts in relation to prices of spot cotton.

Differences in terms and conditions of sale may also affect the basis materially. The New York futures contract most generally used is essentially a basis Middling ⅞-inch contract. Cotton of any other grade equal to or better than Low Middling and of other staple lengths longer than ⅞ inch, provided the cotton is of good character, may be delivered in settlement of the contract obligation at specified premiums and discounts from the prices specified for Middling ⅞-inch cotton. Those who take cotton on futures contracts must accept whatever combinations of these qualities are offered, regardless of the number or the relative desirability of the qualities included. Many contracts in spot markets, on the other hand, are for specified qualities of cotton and in some cases are for large lots of cotton that are even-running in grade and staple length. Large lots of even-running cotton usually sell at somewhat higher prices than cotton of comparable qualities sold in the same market in small or in mixed lots.

Furthermore, the cost of delivering cotton on futures contracts is usually much greater than the cost of selling spot cotton outright. For example, with rates that prevailed in 1935, the costs of delivering cotton stored in warehouses in New Orleans on New York futures contracts amounted, on the average, to about 0.15 cent a pound more than the costs of selling this cotton on ex-warehouse terms. Sales of spot cotton in Liverpool are made with an arbitrary allowance for tare, whereas spot sales in the United States are made on the basis of gross weights. The tare permitted on cotton compressed to high density for export may amount to as much as 5.3 percent of the gross weight of the bale. These differences in prices as a result of differences in terms and conditions of sale may be reflected in the differences in the spread between prices of spot cotton sold under the various terms and conditions and prices of specified futures contracts (*13*).

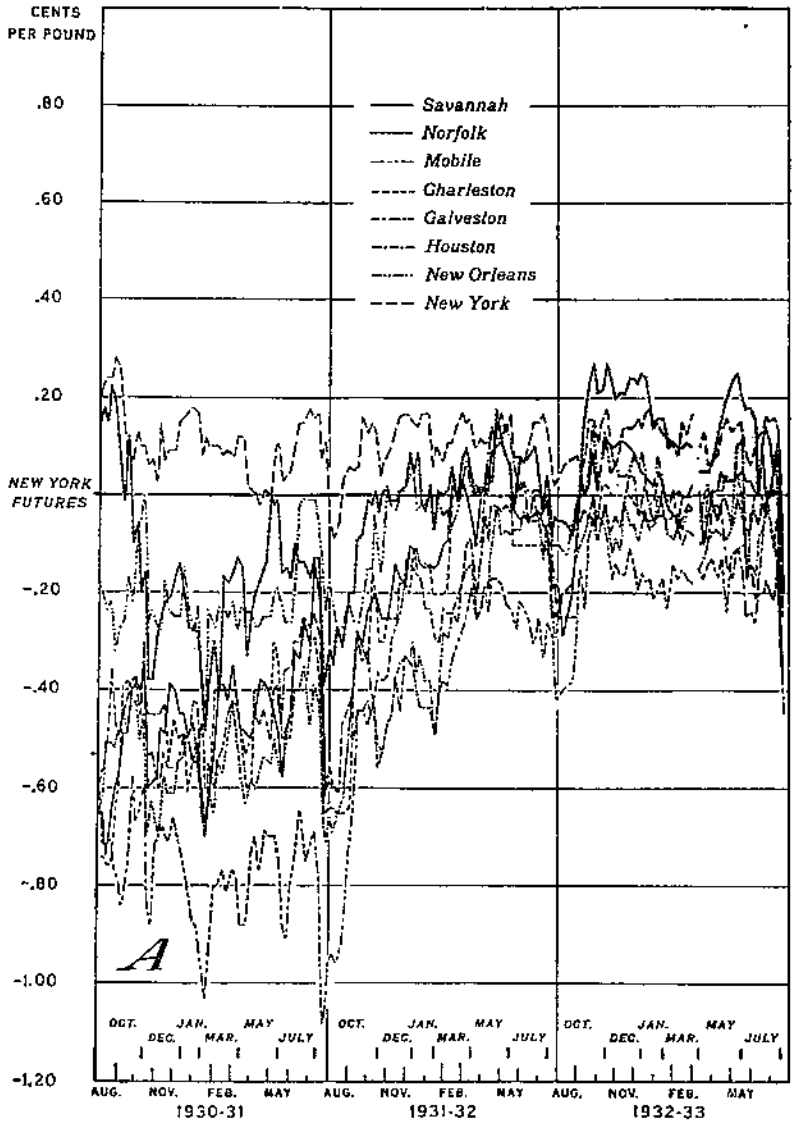

FIGURE 16.—DIFFERENCES BETWEEN THE CLOSING PRICES OF NEW YORK FUTURES CONTRACTS FOR THE NEAR-ACTIVE MONTH AND THE QUOTED PRICES OF MIDDLING ⅞-INCH SPOT COTTON AT MARKETS DESIGNATED AS DELIVERY POINTS FOR NEW YORK FUTURES CONTRACTS, ON FRIDAYS, SEASONS 1930–31 TO 1935–36: A, 1930–31 TO 1932–33; B, 1933–34 TO 1935–36.

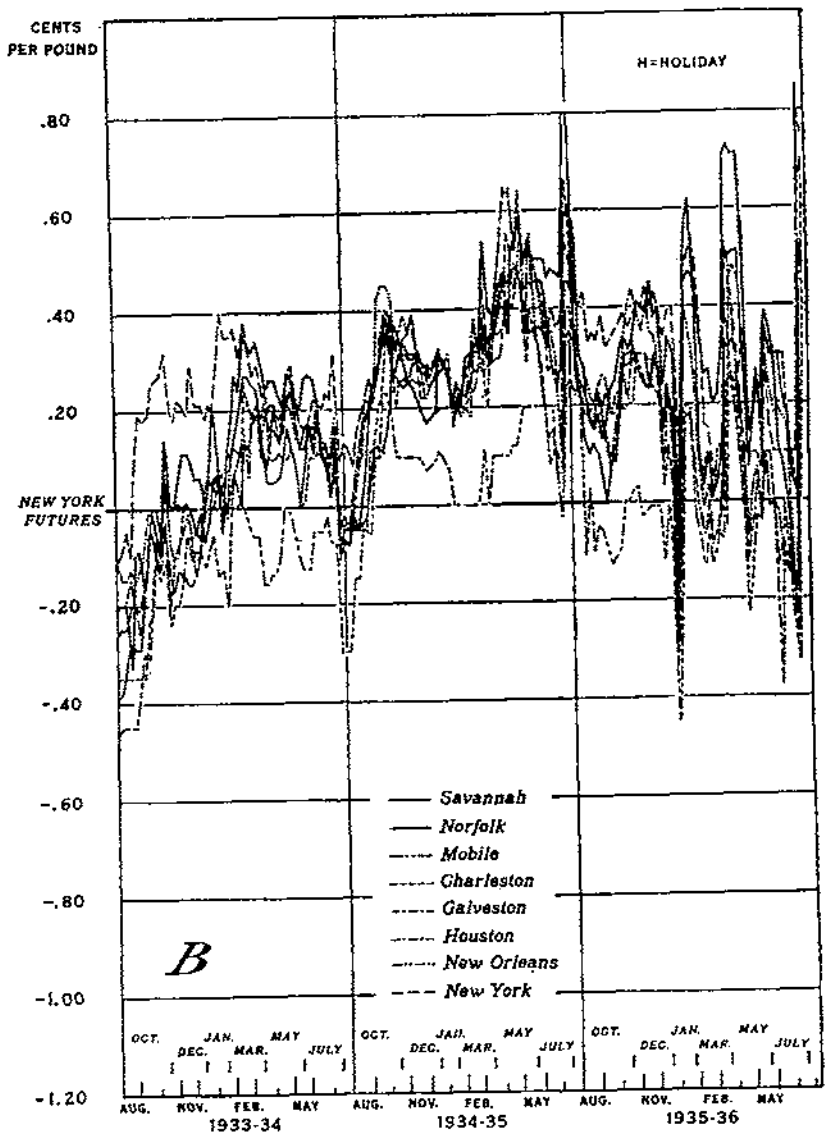

FIGURE 16.—Continued.

Differences between the prices of Middling ⅞-inch spot cotton at the various markets designated as delivery points have frequently amounted to more than 0.5 cent a pound. Such differences may at times affect the spread between prices of spot cotton at delivery points and prices of futures contracts

DIFFERENCES IN DATE OF DELIVERY AND DIFFERENCES BETWEEN THE IMMEDIATE AND THE PROSPECTIVE DEMAND-AND-SUPPLY SITUATION

Differences between prices of Middling ⅞-inch spot cotton at delivery points and prices of futures contracts depend to a considerable extent upon the date of the maturity of the futures contracts, along with differences between the immediate and the prospective demand-and-supply situation. When the available market supplies of spot cotton are large in relation to the demand for cotton, with no significant changes in relative supply-and-demand situation in prospect, prices of spot cotton for immediate delivery tend to advance in relation to prices of cotton futures contracts by amounts approximately equal to the costs (such as storage, insurance, interest, etc.) of carrying spot cotton (*13*). Changes in the relative demand-and-supply situation since 1920, however, have been such that during a large proportion of the time the changes in the spread between prices of Middling ⅞-inch spot cotton at delivery points and prices of New York futures contracts were not even approximately equal to the cost of carrying spot cotton.

Changes in spread between prices of Middling ⅞-inch cotton in New Orleans and prices of New York futures contracts conformed more closely to the costs of carrying spot cotton from the time provisions for southern delivery on the New York futures contracts in their present form became effective in October 1930 to January 1934 than for any other extended period during the last 16 years (fig. 3). As previously indicated, the proportions of the gains and losses from changes in prices of spot cotton adjusted for carrying charges that could have been hedged by the use of futures contracts averaged greater during this period than during any other of equal duration since 1920. From 1930–31 to 1933–34, inclusive, the total physical supply of American cotton was relatively large, the average for the four seasons amounting to 21,255,000 running bales compared with an average for the 5-year period ended with the season 1929–30 of 18,234,000 bales. During the period 1930–31 to 1933–34, inclusive, the quantity of cotton held by the Government and by agencies sponsored by the Government varied from about 1,386,000 bales in August 1930 to about 4,325,000 bales in December 1933. World consumption of American cotton during the four seasons ended with 1933–34 averaged 12,926,000 running bales compared with an average of 14,716,000 bales for the 5-year period ended with 1929–30.

Supplies of spot cotton immediately available in a market abnormally large in relation to demand for cotton, when relatively smaller supplies are anticipated, may depress prices of spot cotton in relation to prices of futures contracts, particularly for the more distant months (*13*). These conditions prevailed in 1930–31 for example, when the world supply of American cotton was almost 1,000,000 bales larger than in the previous season; whereas world consumption of American cotton was almost 2,000,000 bales smaller than in the previous season and smaller than for any other season since 1923–24. The 1930 crop, although somewhat smaller than the preceding crop, was harvested, ginned, and available in the market relatively early and was reported to be higher in grade than either of the two preceding crops. In addition, substantial quantities of cotton received by the Stabilization Corporation on May and July futures contracts in 1930 were sold on the spot during the season 1930–31 and the first part of 1931–32 and replaced by the purchase of futures contracts, particularly for the more distant months.

Furthermore, according to available testimony (*15*), cotton merchants, following the squeeze of the May and July contracts in 1930, were not ready buyers of spot cotton, except at a reduced basis. A combination of these factors resulted in abnormally large market supplies of spot cotton in relation to the demand and accounted in a large measure for the low basis in 1930–31.[16]

The extent to which prices of futures contracts may go above prices of spot cotton at delivery points under such conditions would appear to be limited fairly definitely to an amount equivalent to the costs in connection with carrying spot cotton to date of maturity of the futures contracts, plus the costs of delivery on futures contracts. When prices of futures contracts become higher than prices of Middling ⅞-inch spot cotton at delivery points by an amount appreciably greater than the costs of carrying spot cotton to the date of maturity of the futures contracts plus the costs of delivering it on futures contracts, an inducement is created in the form of assured profits for traders to sell futures contracts for the purpose of making deliveries.

In the New Orleans market, for example, the costs of delivering ex-warehouse cotton on futures contracts in 1935 amounted to about 0.18 cent a pound for cotton compressed to high density in addition to the costs of buying spot cotton on ex-warehouse terms; whereas the cost of selling ex-warehouse cotton on the spot was about 0.03 cent. With these costs, prices of futures contracts would need to be at least 0.15 cent a pound higher than prices of spot cotton in New Orleans plus carrying charges before the differences in prices alone would favor the delivery of cotton on futures contracts in preference to selling it on the spot.

Prices of futures contracts would need to exceed prices of spot cotton plus carrying charges by an amount greater than the costs of buying spot cotton plus the costs of delivering on futures contracts, before assured profits could be obtained by purchasing spot cotton and selling futures contracts for the purpose of making deliveries. Since the costs of buying ex-warehouse cotton in New Orleans in 1935 amounted to about 0.03 cent a pound and costs of delivering ex-warehouse cotton in New Orleans on futures contracts amounted to about 0.18 cent in addition for cotton compressed to high density, prices of futures contracts would have needed to exceed prices of spot cotton in that market by an amount greater than 0.21 cent before traders could have made a profit by purchasing spot cotton and selling futures contracts for the purpose of making deliveries.

Then, from the standpoint of prices alone, with selling and delivering costs that prevailed in 1935, 0.15 cent a pound may be considered the upper limit to which prices of New York and New Orleans futures contracts may normally be expected to advance above prices of Middling ⅞-inch spot cotton in New Orleans, plus carrying charges, before the differences would tend to be checked by the delivery on futures contracts in New Orleans in preference to selling cotton on the spot in that market; and 0.21 cent may be considered the upper limit to which prices of New York and New Orleans futures contracts might normally be expected to advance above prices of Middling ⅞-inch spot cotton in New Orleans, plus carrying charges, before being checked by purchases of spot cotton in that market and the sales of futures contracts for the purpose of making deliveries in New Orleans stimulated by assured profits.

[16] It is recognized that any inaccuracies in the quotations as a result of inadequate data on sales in spot markets, or of other factors, are included in the basis shown.

Since the adoption of southern delivery on New York futures contracts in its present form became effective in 1930, prices of New York and New Orleans futures contracts have not exceeded quoted prices of Middling ⅞-inch spot cotton in New Orleans plus carrying charges by an amount greater than 0.21 cent, except during parts of the seasons 1930–31 and 1931–32 and in January 1936.

A relative shortage of spot cotton immediately available in the market, along with anticipation of relatively larger supplies, tends to raise prices of spot cotton in relation to prices of futures contracts (*13*). The effects of such situations may be particularly noticeable during seasons of small crops and relatively small available supplies, especially if merchants have sold large quantities of this cotton forward. Under such conditions the difficulty of obtaining cotton with which to fulfill their commitments stimulates keen competition on the part of cotton merchants for the available supplies of spot cotton; a shortage of the most desired qualities of cotton stimulates early purchasing of spot cotton on the part of mills; and the advance in prices with short supplies stimulates slow marketing by producers. All of this may tend to advance prices of spot cotton more rapidly than prices of futures contracts, particularly for the more distant months.

These conditions prevailed to a considerable extent in 1934–35, for example, when the total supply of American cotton was about 4,365,000 bales smaller than in the previous season, owing largely to the fact that the 1934 crop was about 3,411,000 bales, or about 26 percent smaller than the 1933 crop. Prices of Middling ⅞-inch spot cotton in New Orleans advanced from 4 points below prices of October New York futures contracts on August 3, 1934, to 43 points above prices of October futures on October 19, and from 31 points below prices of March futures on August 3 to 25 points above prices of March futures on October 19. More or less similar changes were shown in the relationship between prices of spot cotton and prices of futures contracts for delivery during other months.

Price pegging, or other forms of organized control, may result in a relative shortage of supplies of spot cotton immediately available in the market, so that prices of spot cotton may be high in relation to prices of futures contracts, particularly for the more distant months, even when the total physical supply of cotton in existence is relatively large. In 1934–35, for example, the world supply of American cotton was somewhat larger than in 1930–31 when the basis was unusually low, as previously indicated, but the basis in 1934–35 was unusually high as a result of a relative shortage in supplies of spot cotton immediately available in the market—a situation brought about in part by price pegging in the form of a 12-cent loan made available to growers through the Commodity Credit Corporation.

The price-pegging features of the 12-cent loan operated in connection with the short 1934 crop to maintain prices of spot cotton; and the anticipation of a somewhat larger crop in 1935, along with the probability that a 12-cent loan would not be available to growers on the 1935 crop, tended to depress prices of futures contracts, particularly for the new-crop months, with the result that the basis in 1934–35 remained high to the end of the season.

The loan to growers by the Government on cotton produced in 1935 was fixed late in August at 10 cents a pound, and an arrangement was made to make an adjustment payment to growers equal to the differences between 12 cents and the average price of Middling ⅞-inch cotton in the 10 designated markets on the day the farmer sold his cotton. Under these provisions, farmers marketed their 1935 crop freely, but the increase in consumption of American cotton from the season 1934–35 to 1935–36 was substantially greater than the increase in the 1935 crop over that of 1934. Although substantial quantities of producers' pool and 12-cent loan cotton were released during the season 1935–36, the relative shortage of available supplies of spot cotton at prevailing prices continued, and prices of spot cotton continued high in relation to prices of futures contracts, particularly for the more distant months, throughout the season 1935–36. Prices of futures contracts for the near-active months advanced in relation to prices of spot cotton and in relation to prices of futures contracts for more distant months as the date of their maturity approached.

The extent to which prices of futures contracts may go below prices of spot cotton cannot be so definitely indicated as that for the reverse relationship. Prices of futures contracts may go below prices of spot cotton plus carrying charges at points of delivery by an amount greater than the cost of receiving the cotton on futures contracts before purchasers can obtain cotton at the date of maturity of the futures contracts, and at lower costs by purchasing futures contracts and requiring delivery than by purchasing spot cotton at the same time. Acute shortages of spot cotton immediately available in the market at current prices along with prospects of relatively large supplies may raise prices of spot cotton in relation to prices of futures contracts, particularly for the more distant months, by amounts substantially greater than the costs of receiving cotton on futures contracts.

In addition, uncertainties with regard to date and place of delivery on futures contracts, and to the qualities and commercial values of cotton which may have to be accepted on the futures contracts, as discussed in detail further on in this report, may tend to depress prices of futures contracts in relation to prices of spot cotton.

A relative shortage of available supplies of spot cotton at prevailing prices, along with rather large long interests in near-month futures, is favorable to a squeeze of the near-month futures contracts, with results as indicated in footnote 10 (p. 14). The relative shortage of available supplies of spot cotton during the season 1935–36, the probabilities of increased available supplies in 1936–37, and the rather large long interests in the 1936 January and March futures no doubt strengthened prices of these contracts relative to prices of futures contracts for more distant months and to prices of spot cotton. On January 10, 1936, for example, prices of New York January futures contracts were 0.70 cent a pound above March contracts, 1.26 cents above July contracts; and 1.66 cents above October contracts; and 0.27 cent above prices of Middling ⅞-inch spot cotton in New Orleans.

The option on the part of the seller to deliver cotton on any day during the month adds an element of uncertainty on the part of the one who anticipates receiving cotton on futures contracts. Under

these conditions the seller is less vulnerable to being squeezed and, in addition, he can make deliveries at the time during the month when it is most convenient for him to do so. These advantages increase the desirability of the contract from the viewpoint of the seller. On the other hand, the necessity on the part of the receiver to hold himself in readiness to receive the cotton at any time throughout the month reduces somewhat the desirability of the contract from the viewpoint of the receiver.

These advantages to the seller and disadvantages to the receiver may depress somewhat the prices of futures contracts in relation to prices of spot cotton, particularly as the date of maturity of the contract approaches (*13*).

DIFFERENCES IN QUALITY AND CLASSIFICATION OF COTTON

Prices of futures contracts apply to Middling ⅞-inch cotton, whereas prices of spot cotton may apply to one or more of the various grades and staple lengths. Differences between prices of futures contracts and prices of spot cotton in a specified locality may vary considerably with the quality of cotton to which the spot prices apply. Spot prices for the higher grades and longer staples may be substantially higher than prices of futures contracts, whereas at the same time and in the same markets, prices of the lower grades and shorter staples may be materially below prices of futures contracts (fig. 17).

In addition to the differences between prices of futures contracts and prices of spot cotton as a result of these differences in quality of the cotton to which the spot prices apply, the fact that cotton of various grades and staple lengths may be delivered in settlement of the futures-contract obligation at the seller's option at quoted premiums and discounts, along with the fact that prices of spot cotton are largely based on the sales of specified qualities to purchasers in need of these specific qualities, may also affect materially the differences between prices of spot cotton and prices of futures contracts.[17] The buyer of a futures contract cannot tell in advance how many, or what qualities of cotton will be delivered, but he may reasonably expect that the cotton tendered will be of the grades relatively least desirable at the contract prices and of the poorest qualities in each of such grades as the seller has available to offer. (*13*).

The fact that prices of spot cotton are largely arrived at on the basis of the bargaining of parties interested in the specific qualities of cotton involved, along with the fact that cotton of the relatively least desirable qualities at delivery prices may be delivered on futures contracts at the seller's option, tends to lower the prices of futures contracts in relation to prices of spot cotton.

[17] Middling ⅞-inch cotton may be delivered at the contract price. Grades above Middling and staples longer than ⅞-inch may be delivered at a premium over the contract price and certain grades below Middling may be delivered at a discount from the contract price. No staples shorter than ⅞-inch may be delivered on futures contracts. The amounts of the premiums and discounts for grades allowed on futures contracts are the averages quoted for the 10 designated spot markets. Premiums allowed on New York futures contracts for staples longer than ⅞-inch amount to 60 percent of the average of the quotations in six quoting markets for 15/16-inch and 1-inch. Premiums allowed for staples longer than 1 inch are the same as for 1 inch.

The relative prices of the various grades and staples in the spot markets and in the settlement of futures contracts largely determine, at any given time, the grade and staple most profitable for the seller to deliver on futures contracts. When central-market quotations do not reflect accurately the differences in spot values of the various grades available and deliverable on futures contracts, it is advantageous for the seller to confine his deliveries to the grade or grades for which the prices allowed on futures contracts in relation to prices of spot cotton are relatively highest.

Under such conditions prices of futures contracts may be depressed by an amount equivalent to the difference between the evaluations in spot markets and for delivery on futures contracts, of the grade or grades most likely to be delivered on contracts. Such a condition may raise the basis for the other grades by an amount approximately equal to the relative advantage to the seller of delivering this most likely deliverable grade, but it is very difficult to determine to what extent the relative value for contract purposes exceeds that in the spot market for any specific grade of cotton.

The seller not only will find it relatively most advantageous to deliver the grade of cotton for which the price allowed on futures contracts in relation to prices in spot markets is relatively highest, but also he may find it advantageous to deliver the lowest quality of cotton included in that particular grade. Since cotton of a specified grade may represent all degrees of variations in quality from the upper to the lower limit of the grade, and since no qualifications are made in the futures contracts with regard to the quality of cotton within a deliverable grade, the buyer rightly assumes that the seller will probably deliver on futures contracts the poorest quality of cotton available of the most profitable grade for the seller to deliver, and, in anticipation of such deliveries, futures prices may be depressed by an amount approximately equal to the difference in value between the average quality and the poorest quality of cotton of the most profitable grade available for the seller to deliver on futures contracts.

Some indication of the influence that variations in quality of cotton of the same grade and staple designation may have on the basis may be obtained from a comparision of variations in price with quality. During the season 1934–35, the 10-market average discount for Strict Low Middling was about 0.38 cent a pound and for Low Middling about 0.81 cent, from the price of Middling ⅞-inch cotton. These discounts presumably represented averages for the various qualities included within the limits for the respective grades. The change in value per unit change in grade increased somewhat from the higher to the lower grades, so that the range in value between Strict Low Middling and Low Middling was somewhat greater than the range in value between Strict Middling and Good Middling.

If differences in value for the different qualities within the grades were proportionately about as great as the differences in value from grade to grade, and this appears to be a reasonable assumption, the differences between the central-market value of the highest quality of Low Middling ⅞-inch cotton and the value of the lowest quality of Low Middling ⅞-inch cotton in the same market during the 1934–35 season averaged somewhat more than 0.40 cent a pound. The

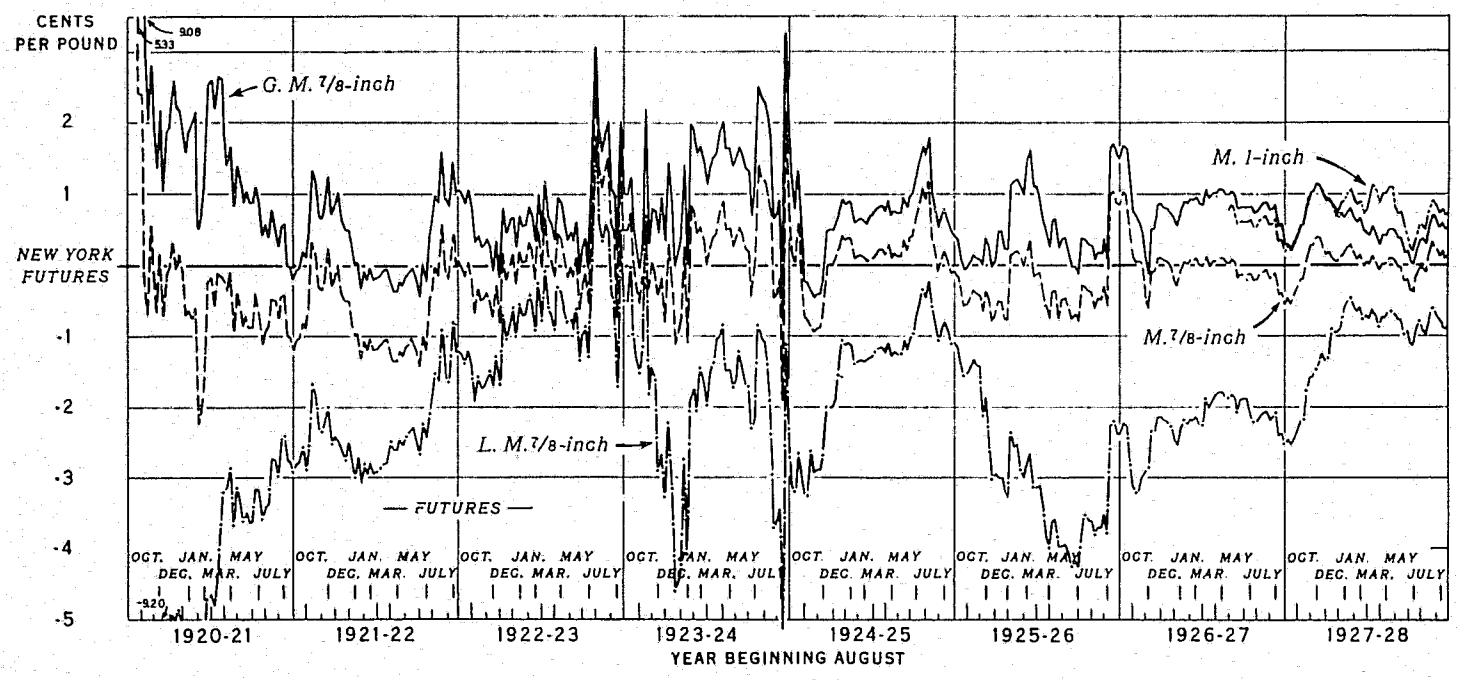

FIGURE 17.—DIFFERENCES BETWEEN CLOSING PRICES OF NEW YORK FUTURES CONTRACTS FOR THE NEAR-ACTIVE MONTH AND QUOTED PRICES OF SPOT COTTON OF SPECIFIED GRADE AND STAPLE LENGTH DESIGNATIONS AT NEW ORLEANS ON FRIDAYS, SEASONS 1920-21 TO 1935-36.

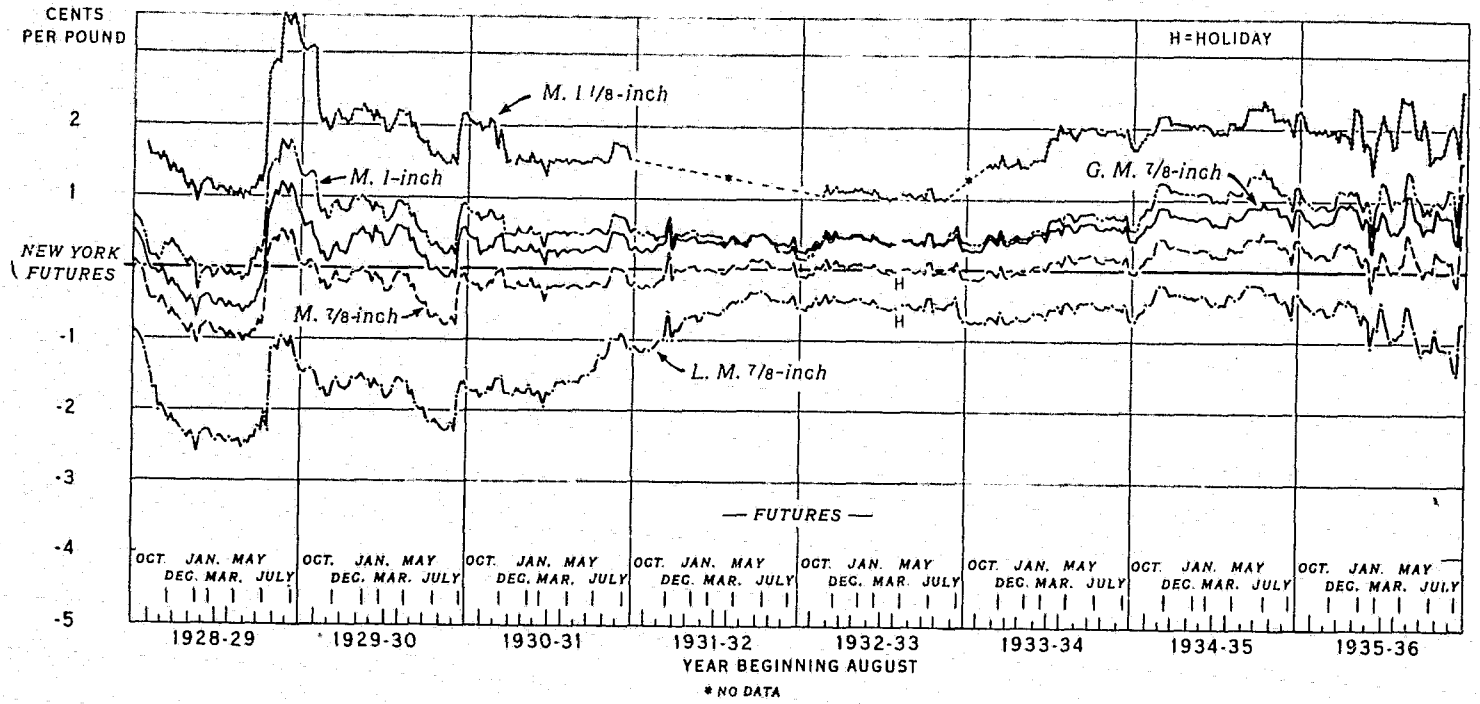

FIGURE 17.—Continued.

Differences between prices of futures contracts and prices of spot cotton in New Orleans vary considerably with the quality of the cotton to which the spot prices apply.

central-market value of the highest quality of Low Middling ⅞-inch cotton amounted, on the average, to as much as 0.20 cent a pound more than, and the central-market value of the lowest quality of Low Middling ⅞-inch cotton amounted, on the average, to as much as 0.23 cent less than that for the average quality of Low Middling ⅞-inch cotton in the same markets at the same time. The lowest quality of Low Middling ⅞-inch cotton, when delivered on futures contracts, however, was worth just as much as the highest quality of Low Middling ⅞-inch cotton. The range in value for cotton of the various qualities of the same grade and staple designation was progressively less for the grades above Low Middling, but even with the higher grades these differences may be great enough to affect materially the basis.

It is recognized, of course, that these differences in quality within grades are not always clearly reflected in prices of spot cotton because of a lack of sensitiveness of the market, due in part to a lack of precision in classing and in part to differences in bargaining power and other factors. Differences in value as a result of differences in quality of cotton of the same grade and staple designation, however, are recognized in the markets and prices in central markets reflect these differences to a considerable degree.

The extent to which these differences in value are recognized by the trade is indicated by the rules of the New Orleans Cotton Exchange, which state that:

> Unless prohibited by law or by ruling of the Secretary of Agriculture, the value of cotton "within" midway between the grades promulgated by the Secretary of Agriculture shall be considered the mean of the adjacent grades.[18]

The extent to which differences in quality within specified grade and staple length designations may be reflected in prices in central markets was also indicated by data collected on sales of spot cotton on ex-warehouse terms in New Orleans during the seasons 1929–30 and 1930–31. These data showed that cotton called "full" in grade or staple commanded a premium over the price of cotton equal in quality to the average for the standard. These premiums, on the average, amounted to approximately one-half of the difference between the price of the specified grade or staple length and that of the next higher grade or longer staple. Cotton described as "shy" in grade or staple sold at a discount from the price of cotton equal in quality to the average for the standard. The discount amounted, on the average, to approximately 30 percent of the difference between the price of the specified grade and staple and that of the next lower grade or shorter staple length.

Considerable variations were noted in premiums and discounts for cotton designated as "full" and as "shy" in grade and staple length, owing largely, no doubt, to differences in degrees of "fullness" or "shyness", to differences in conception of the terms "full" and "shy", and to differences in ability of classers to accurately appraise these differences in quality.

[18] Charter, constitution, bylaws, and rules of the New Orleans Cotton Exchange. Futures rules, rule 12, sec. 3, p. 92.

When these discounts for cotton shy in grade and in staple were applied to data on prices that prevailed during the seasons 1934–35, the discounts for shy Low Middling from the price of Low Middling equal in quality to the average for the standard averaged approximately 0.15 cent a pound and the discounts for shy ⅞-inch from the price of ⅞-inch equal in quality to the average for the type amounted to approximately 0.10 cent. Similar discounts for shy Strict Low Middling averaged approximately 0.12 cent. In other words, the advantage to the seller of delivering on futures contracts Low Middling and Strict Low Middling equal to the poorest quality included within the respective grades, and ⅞-inch cotton just equal to the shortest cotton that can be included as ⅞-inch cotton according to the types, instead of Low Middling and Strict Low Middling equal to the average for the standard and ⅞-inch equal to the average for the type would have amounted, on the average, to from 0.20 to 0.25 cent a pound during the season 1934–35.

These differences in values resulting from differences in quality of cotton of the same grade and staple designation would exist even if classing were absolutely accurate. Any lack of precision in classing may increase the range in value of the cotton included under specified grade and staple-length designations. These ranges in value, along with the option on the part of the merchant to sell the best-quality bales of each grade and staple-length designation in spot markets and to cull out the poorest quality bales of each tenderable grade and staple-length designation for delivery on futures contracts, may depress prices of futures contracts, particularly those for the near months, in relation to prices of spot cotton.

FUTURES TRADING AND FLUCTUATIONS IN SPOT-COTTON PRICES

Futures trading may give some protection from changes in prices of spot cotton, aside from offsets through hedges, by reducing these changes. The buying and selling of cotton futures contracts by competent speculators is alleged to result in less violent but more frequent fluctuations in cotton prices (*5, 9, 10, 12*). The contention is that prices tend to be kept closely in line with an accurate reflection of the basic demand-and-supply conditions by speculators who are ready to buy contracts when they are too low and to sell contracts when prices are too high.

Futures exhanges are equipped with facilities for readily concentrating in a single market all the available data on the various factors effecting the demand for and supply of cotton. Such information is used by speculators and others in determining when to buy and when to sell.

Speculators are interested in correctly predicting the movement of cotton prices as a basis for their transactions because of the fact that they profit when they are correct and they lose when they are wrong. It is maintained that when prices are too high the pressure of the market on the selling side is strengthened by speculators who sell contracts with the expectation of buying later at a lower price, and that when prices are too low the pressure of the market on the buying side is strengthened by speculators who buy contracts with which to balance their accounts or to profit from an advance in prices. The increased pressure on the selling side of the market when prices are

too high and the increased pressure on the buying side of the market when prices are too low tend to keep prices in line with the best composite judgment of an accurate reflection of the basic demand for and supply of actual cotton.

Moreover, futures trading facilities arbitraging, which, it is said, tends to keep present and future prices, and prices in different markets, in adjustment (*3*, *7*, *10*). Arbitraging is accomplished by selling in the markets where the prices are considered relatively high, and by purchasing simultaneously in the markets where the prices are considered relatively low. The arbitrager seeks to profit by the changes in the differences between prices of near-month futures and prices of futures for more distant months in the same markets, and by changes in the differences between prices of the various contracts in different markets. Under freely competitive conditions, futures trading along with arbitraging, when intelligently employed, may be advantageous to the cotton industry as a whole, because it increases the liquidity of the markets and tends to keep prices of contracts for different maturities and prices in different markets in adjustment.

The price leveling or adjusting features of futures trading, as previously stated, are apparently predicated on the assumption of free and unrestricted competition, whereas squeezes and other evidences of manipulations indicate that transactions in the market are at times decidedly at variance with such an assumption (*11*). Although futures exchanges make available much good information on demand-and-supply conditions, they may also supply a means of distributing misinformation, which at times may result in changes in prices that are not warranted by a correct evaluation of the basic demand-and-supply situation. The increase in width and liquidity of the market as a result of trading in futures, along with the participation of large numbers of speculators trading on margins, affords an opportunity for price manipulation and for panic influences which may bring about substantial changes in prices, due solely to planned manipulations or to the unreasoning excitement of the crowd. An influential person or persons may manipulate prices by buying and selling in order to induce a following of less informed persons to buy or sell. In such instances, the originator of the buying or selling movement may adroitly change his position and profit at the expense of his less informed follower (*2*).

Such manipulations and panic influences may at times more than offset any leveling influences which futures trading may have on cotton prices, and may result in considerable irregular variations in prices during relatively short periods. These variations in futures prices may influence the price of spot cotton to the advantage or disadvantage of producers and spinners.

Despite any leveling influences which futures trading may have, cotton prices fluctuate irregularly and at times widely from one part of the season to another, and from year to year. The range in cotton prices during the year sometimes amounts to as much as 50 percent of the highest price during the year. Since 1900, the range in prices of Middling ⅞-inch spot cotton in New York during the year has amounted to more than 25 percent of the highest price during the year about 85 percent of the time, and has amounted to as much as 50 percent almost 10 percent of the time. During this time the price has more than doubled or has declined more than 50 percent

from 1 year to another for about one-fourth of the time. Similar fluctuations have prevailed in prices of spot cotton in Liverpool during the same period. An examination of table 19 shows that the average difference between the high and low prices of spot cotton in New York and also in Liverpool amounted to more than 25 percent of the high for most of the time since 1820–21.

Cotton prices sometimes change considerably, during relatively short periods, as well as from one season to another. The nature and extent of these changes since 1920 are indicated by weekly prices of Middling ⅞-inch spot cotton in New Orleans together with prices of New York and New Orleans futures contracts for the near-active month, as shown in figure 2. Extremely wide fluctuations over relatively short periods occurred in 1920, 1923, and in 1927. In 1920 prices of Middling ⅞-inch spot cotton in New Orleans decreased from 36.76 cents a pound on August 6 to 13.50 cents on December 30, a decrease of 23.26 cents during 21 weeks. During the season 1923–24 prices of Middling ⅞-inch spot cotton in New Orleans advanced from 22.75 cents a pound on August 2 to 35.75 cents on November 30, an advance of 13 cents during 17 weeks. Again in 1927 prices of Middling ⅞-inch spot cotton in New Orleans advanced from 16.53 cents on August 5 to 23.17 cents on September 9; an advance of 6.64 cents during 5 weeks. As late as 1932, prices of Middling ⅞-inch spot cotton in New Orleans advanced from slightly above 5 cents a pound in June to above 8.50 cents a pound in August and September, and then declined to below 6 cents before the end of November.

These data clearly indicate that futures trading has not brought about that equilibrium between present and future demand-and-supply conditions necessary to prevent wide fluctuations in cotton prices over relatively short periods. Whether or not the changes in prices with futures trading were greater or less than they would have been without futures trading is difficult to determine statistically. Some students of futures trading have concluded that dealing in futures reduces the range of price fluctuations, and statistical investigations are said to support this contention (*10, 12*). On the other hand, other students of futures trading contend that conclusive evidence is lacking on the question of whether prices are in any measure leveled purely as a result of futures trading (*7*).

The problem of measuring statistically the effect of futures trading on cotton-price fluctuations is complicated by the fact that it is extremely difficult to evaluate and make accurate adjustments for the influence of other factors on price changes. Furthermore, it is not easy to devise a satisfactory statistical measure of price steadiness. Consequently, caution should be exercised in the use of statistics to show the influence of futures trading on changes in cotton prices.

With the limitations of statistical data in this connection duly recognized, comparisons were made of annual fluctuations in prices of American cotton in New York and in Liverpool before and after futures trading in New York began in 1870. Futures trading in cotton was carried on in Liverpool prior to 1870 in the form of transactions on the basis of cotton under "to-arrive" terms. Comparisons of the changes in cotton prices during the year in New York and in Liverpool from 1821 to the beginning of futures trading in New York in 1870 and subsequent to that date show that price changes in New York

were, for the most part, greater than those in Liverpool prior to 1870; that following 1870 price changes in New York declined in relation to those in Liverpool; and that during recent years they have been about equal to those in Liverpool (table 19).

Although these changes apparently indicate that the inauguration of futures trading in the New York market tended to reduce the changes in cotton prices, it is not known to what extent the changes shown were influenced by differences in quality of the cotton, improvements in communication and in transportation, developments within the market, and by other factors. Changes in cotton prices during the year have not been so great in New York since futures trading began as before. On the other hand, the yearly ranges in cotton prices in New York and in Liverpool, when expressed as a percentage of the high, have shown an upward trend since about 1885.

Futures trading apparently tends to level out prices during the year so that cotton prices at harvest time are not unduly depressed (*5*, *6*, *9*, *10*). An analysis of the changes in cotton prices from month to month during the last 21 years shows some irregularities, but, on the whole, cotton prices during the harvesting period averaged about as high as during the rest of the season after allowances were made for carrying costs.

Through the medium of futures trading, anticipated changes in demand-and-supply conditions are generally reflected in current prices of cotton to a greater extent than would be the case without futures trading (*5*, *7*, *10*), but supply-and-demand situations change rapidly and the focus of speculative interest in cotton is apparently largely confined to the immediate future with the result that prices of futures contracts, particularly for the more distant months, have not generally indicated very accurately the prices that prevailed at the date of maturity of the contracts. In a study of cotton prices for the period 1898 to 1913 it was found that prices of futures contracts for a given maturity quoted 1 month before the delivery date constituted a fairly accurate indication of the average prices at maturity of the contracts. The degree of error increased as the number of months increased, so that prices of futures contracts quoted 2 or more months prior to maturity bore only a very uncertain relationship to prices at date of maturity (*2*). A study made of grain prices indicated somewhat similar results (*7*).

Comparisons of prices of New Orleans cotton futures contracts several weeks before the date of their maturity with prices of Middling ⅞-inch spot cotton in New Orleans on the date of maturity of these contracts during the seasons 1926–27 to 1932–33, inclusive, also showed considerable differences. The average of these differences increased with the increase in the number of weeks prior to the maturity of the futures contracts, varying from 0.73 cent a pound over 4-week periods to 2.52 cents over 32-week periods.

These differences were great enough to justify the conclusion that the prices of futures contracts for distant months cannot be relied upon to indicate even fairly accurately the prices that will prevail several weeks in the future. Differences between prices of futures contracts for a specified number of weeks prior to the maturity of the futures contracts and prices of spot cotton at the date of maturity of the futures contracts, however, were generally less than the corresponding differences between prices of spot cotton adjusted for carrying charges.

In other words, anticipated changes in the demand-and-supply situation were discounted in prices of futures contracts to a greater extent than in prices of spot cotton.

These data, along with other information, apparently indicate that futures trading generally tends to lessen the seasonal changes in prices of cotton as well as the changes from one season to another, but futures markets, by facilitating trading, no doubt increase the frequency of change in cotton prices and may at times increase the amounts of these changes over relatively short periods.

But such information as is available is not considered adequate as a basis for final conclusions. In the first place, the data used are more or less fragmentary, and represent only rough averages. In the second place, increased facilities for transportation and communication, improvements in trade methods and practices, and the speculative system have all developed together, and it is extremely difficult to determine what part of the changes noted are the results of each of these factors and to what extent the effects of futures trading have been counterbalanced by other developments. Because of the limitations of the available statistical data, the influences of futures trading on fluctuations in cotton prices have been indicated only in a very general way.

EFFECTS OF FUTURES TRADING ON PRICES TO PRODUCERS

Protection afforded by futures as hedges, any price-leveling influences which trading in futures may have, and any other uses made of futures trading in cotton are significant to growers largely because of their effects on the general level of cotton prices in farmers' local markets. Although the problem of determining the effects of trading in futures on the general level of cotton prices to growers is an important consideration, no attempt is made to present in this bulletin an exhaustive treatment of this subject. A short statement, based on rather limited data, is presented, however, as a means of giving some indications of the effects of trading in futures on the level of cotton prices to growers.

As data on prices with futures trading and without futures trading and with other conditions held constant are not available, the effects of futures trading on price level is difficult to measure directly. But it would appear that any influence that futures trading in cotton may have on the level of prices to growers over a period of time results largely from its influence on costs in connection with merchandising the cotton. The hedging facilities provided by futures trading reduce the costs of merchandising cotton by reducing the risks from price changes and by savings in interest charges and in capital requirements (*4*, *9*). As previously shown, during the last 16 years, on the average, more than two-thirds of the risks from changes in prices of spot cotton could have been offset by the use of futures contracts as hedges, but the amount of the reductions in costs of merchandising cotton made possible by such reductions in risks is difficult to measure.

The relation of futures trading and hedging to the costs of financing in connection with the marketing of cotton is stated by Carson as follows:

> The problem of hedging is of great importance to the banks that extend credit to the merchants who handle the cotton in the United States, as well as to the banks that finance its importation. If the American cotton merchant keeps his

cotton hedged through the sale of futures contracts, the loans are more secure and business can be transacted on a much narrower margin than on cotton that is unprotected. In England the banker is primarily interested in keeping cotton hedged, because he has accepted the bills under which it is moving, and if it were not thus protected, the margin maintained on cotton loans would have to be much larger to insure the bank against loss (*17*).

The effects of hedging on the collateral value of cotton for bank loans is indicated by reports from large banks in New York which lend large sums of money on cotton each year. These reports show that on hedged cotton the banks advanced from 80 to 90 percent of the current market value of the cotton; whereas on cotton not hedged the banks advanced 70 percent or less of its current market value. Data from individual banks in New Orleans also show that bankers make loans on cotton as collateral more freely and at smaller margins when the specific cotton is hedged than they would if it were being carried subject to all the risks of fluctuations in market prices (*18*). The increased collateral value of cotton as a result of hedging enables the cotton merchant to carry a larger volume of cotton on a given amount of his own capital, thus lowering the capital costs per bale.

On the other hand, charges for futures trading also need to be taken into account. The bulk of the direct costs in this connection are represented by commissions, and the costs of commissions paid by hedgers may reasonably be considered a direct marketing cost. For domestic accounts, commissions charged nonmembers of the exchange for buying and selling each future contract amount to approximately 0.06 cent a pound on the New York Exchange and to about 0.05 cent a pound on the New Orleans and Chicago Exchanges. Commissions charged members of the exchanges are only one-half of those charged nonmembers. There are no commission charges for a member on transactions for his own account, but small clearing charges are made on these accounts. Commissions for foreign accounts were slightly higher than those for domestic accounts.[19] Total commission charges that may be considered legitimate merchandising costs depend upon the number of times the cotton is hedged and the number of times the hedges are transferred during its passage through commercial channels.

No satisfactory means are available for determining the extent to which the benefits of protection from risks and the savings in capital costs are offset by the direct charges for futures trading. Consequently, it is difficult even to approximate the net savings in merchandising cotton made possible by the use of futures trading. The fact that most of the larger cotton merchants, including the more successful ones, continue to use futures contracts as hedges against losses from changes in prices of spot cotton indicates that they are convinced that the benefits from hedging exceed the costs involved. Any such savings make possible a reduction in the costs of merchandising cotton, and some students of futures trading maintain that competition forces cotton merchants to pass on a substantial proportion of these savings to growers in the form of higher prices and to consumers in the form of lower prices (*4*, *6*, *10*). Available data are not adequate for determining to what extent any such savings boost prices to growers or to what extent they reduce prices to consumers.

[19] Rules and regulations of the cotton exchanges.

SUMMARY

Futures trading has become an integral part of the cotton-marketing system. Its importance, from the standpoint of producers, grows out of its relationship to the breadth and liquidity of the market for cotton, to the margins of costs necessary for merchandising the crop, and to the stability and level of cotton prices.

Holding cotton from the time it is ready for market until it is needed by spinners involves the risk of loss from price declines as well as possibilities of gains from price advances. During some seasons in recent years, changes in prices of spot cotton over 8-week periods have amounted to 25 percent or more of the average price for the season 20 percent or more of the time. Such changes in prices over relatively short periods may result in losses many times greater than the costs of merchandising the cotton. Trading in cotton futures contracts consists either in assuming these risks from price changes as speculators or in offsetting such risks as hedgers. Hedgers include principally cotton merchants and cotton manufacturers who buy and sell futures contracts as a means of offsetting risks involved in subsequent changes in prices of spot cotton.

The extent to which the risks from changes in prices of spot cotton can be hedged by the use of futures contracts depends upon the extent to which changes in prices of spot cotton are associated with similar changes in prices of futures contracts. Prices of spot cotton and prices of futures contracts are largely determined by the same group of factors, and in addition, futures contracts can be converted into spot cotton on the date of their maturity, if either the seller or the buyer so desires. Consequently the large swings in prices of spot cotton are generally associated with more or less similar changes in prices of futures contracts, but changes in prices of futures contracts are not always the same as the changes in prices of spot cotton.

Cotton futures contracts are used extensively in merchandising cotton as a means of securing protection against losses from changes in prices of spot cotton. The amount of such protection depends upon the amount of the losses involved and upon the proportion of the losses that may be offset by the use of futures contracts as hedges. Hedges against losses from changes in prices of spot cotton or its equivalent are obtained by offsetting sales or purchases of cotton futures contracts. When the movement of prices of spot cotton and of futures contracts are parallel, such a hedge offsets both losses and gains resulting from the changes in the general level of spot-cotton prices. A rise in prices of spot cotton in relation to prices of futures contracts by an amount equal to the cost of carrying spot cotton is normally expected in American markets. But unforeseen changes in the relative supply-and-demand situation bring about irregular changes in basis and the risks from these changes in basis are not shifted by the normal hedge procedure, and they may be responsible for substantial losses on the part of cotton merchants who may hedge invariably, but who fail to anticipate correctly the changes in basis.

A practical consideration, then, in connection with the usefulness of futures contracts as hedges against losses from changes in prices of spot cotton is concerned with determining how changes in prices of spot cotton compare with changes in basis.

The analysis showed that during the 16-year period ended with the season 1935–36, changes in prices of Middling ⅞-inch spot cotton in New Orleans over 8-week periods, adjusted for carrying charges, amounted to as much as 14.23 cents a pound and averaged 1.67 cents; whereas, the corresponding changes in basis for Middling ⅞-inch spot cotton in New Orleans calculated from near-month New York futures contracts amounted to as much as 7.99 cents, and averaged 0.51 cent during this 16-year period. During this period, taken as a whole, the changes in adjusted basis for Middling ⅞-inch spot cotton in New Orleans over 8-week periods, calculated from near-month New York futures contracts, averaged about 30 percent as large as the corresponding changes in prices of Middling ⅞-inch spot cotton in New Orleans, adjusted for carrying charges. The proportion, by seasons, varied from 59 percent in 1935–36 to about 6 percent in 1932–33.

During the 6-year period ended with the season 1935–36, these proportions amounted to about 18 percent for Middling ⅞-inch and Good Middling ⅞-inch, 22 percent for Low Middling ⅞-inch, and 20 percent for Middling 1-inch spot cotton in New Orleans, and 26 percent for Middling 1⅛-inch spot cotton in Memphis. The corresponding proportions based on New Orleans futures contracts were on the whole about the same as those based on New York futures contracts.

The average amounts of the changes in prices of spot cotton over 8-week periods, adjusted for carrying charges, and of the corresponding changes in adjusted basis calculated from near-month New York and New Orleans futures contracts were on the whole greatest from June to October when changes in crop prospects resulted in relatively large changes in prices of spot cotton and were on the whole least from January to April. The changes in adjusted basis over 8-week periods, calculated from near-month New York and New Orleans futures contracts, expressed as proportions of the corresponding changes in prices of spot cotton, adjusted for carrying charges, varied somewhat irregularly from one part of the season to another, but before the provisions for southern delivery on New York futures contracts in their present form became effective in 1930, these proportions were generally greatest during 8-week periods ended in July, August, and September.

Changes in prices of spot cotton were generally more closely associated with changes in prices of futures contracts for the near-active than for the more distant months, with the result that hedge protection afforded by near-month futures contracts were generally somewhat greater than that afforded by contracts for the more distant months, particularly those maturing in another season.

Changes in prices of spot cotton, adjusted for carrying charges, showed both advances and declines, and changes in adjusted basis represents both gains and losses on long interests in spot cotton hedged by the sale of futures contracts, generally referred to as a long-basis position. Gains on a long-basis position have as their counterpart the losses on short interests in spot cotton hedged by the purchase of futures contracts, generally referred to as a short-basis position, and, except for adjustments made for carrying charges, the amounts of the gains and losses would have been the same. Adjusting the changes in basis for the costs of carrying spot cotton over specified periods, as was done in much of the analysis presented in this bulletin, reduced

the gains and increased the losses shown on long-basis positions, and increased the gains and reduced the losses shown on short-basis position by amounts equivalent to the costs of carrying spot cotton.

During the 16-year period ended with the season 1935–36 the changes in price of Middling ⅞-inch spot cotton in New Orleans over 8-week periods, adjusted for carrying charges, showed declines almost 60 percent of the time, and the declines averaged 1.86 cents compared with an average of 1.41 cents for the advances. The corresponding changes in basis calculated from near-month New York futures contracts showed losses on long-basis positions almost two-thirds of the time, and the average loss amounted to 0.67 cent compared with an average gain of only 0.22 cent. The amounts of these losses from changes in adjusted basis averaged only 36 percent of those from the corresponding changes in prices of spot cotton adjusted for carrying charges during the 16-year period, and the proportions by seasons varied from 8 percent in 1931–32 to 55 percent in 1935–36. During the 6-year period ended with the season 1935–36, the corresponding proportions averaged 22 percent for Middling ⅞-inch, 21 percent for Good Middling ⅞-inch, and 25 percent for Low Middling ⅞-inch and Middling 1-inch spot cotton in New Orleans, and 30 percent for Middling 1⅛-inch spot cotton in Memphis.

Changes in adjusted basis over 8-week periods would have resulted in gains on long-basis positions 32 percent of the time during the 16-year period 1920–21 to 1935–36, compared with 40 percent from the corresponding changes in prices of Middling ⅞-inch spot cotton in New Orleans. The amounts of these gains in adjusted basis averaged only 16 percent of those for the corresponding changes in prices of Middling ⅞-inch spot cotton in New Orleans, adjusted for carrying charges, during the 16-year period, and the proportions by seasons varied from 180 percent in 1920–21 to 4 percent in 1932–33. During the 6-year period ended with 1935–36, these proportions averaged 12 percent for Middling ⅞-inch and Good Middling ⅞-inch, 18 percent for Low Middling ⅞-inch, and 16 percent for Middling 1-inch spot cotton in New Orleans, and 20 percent for Middling 1⅛-inch spot cotton in Memphis.

The losses and the gains on long-basis positions from changes in basis calculated from near-month New Orleans futures contracts averaged about the same as those calculated from the corresponding New York futures contracts. These losses and gains from changes in adjusted basis calculated from near-month futures contracts averaged somewhat less than those calculated from futures contracts for the more distant months, particularly those maturing in another season. The average amounts of these losses and gains were usually greater from June to October than during any other part of the season.

During the 6-year period ended with the season 1935–36, changes in prices of Middling ⅞-inch spot cotton over 8-week periods in the New Orleans market were fairly typical of those in Houston, Savannah, Memphis, Carolina mill points, New England mill points, and Liverpool. Consequently, the protection afforded by New York futures contracts as hedges against losses from changes in prices of spot cotton during this period were, on the whole, about the same in the other markets as in New Orleans. Hedge protection afforded by Liverpool futures contracts against losses from changes in prices of Middling ⅞-inch

spot cotton in American markets during this 6-year period, however, was apparently somewhat less than that afforded by New York futures contracts.

Sometimes basis risks were as great as or greater than price risks. During the 16-year period 1920–21 to 1935–36, inclusive, changes in adjusted basis for Middling ⅞-inch spot cotton in New Orleans over 8-week periods calculated from near-month New York futures contracts would have exceeded the changes in prices of Middling ⅞-inch spot cotton in New Orleans, adjusted for carrying charges, about 16 percent of the time, and the proportions by seasons varied from 2 percent in 1930–31 to 37 percent in 1935–36. During the 6-year period ended with 1935–36 the corresponding proportions averaged 12 percent for Middling ⅞-inch, Good Middling ⅞-inch and Middling 1-inch, and 16 percent for Low Middling ⅞-inch spot cotton in New Orleans, and 19 percent for Middling 1⅛-inch spot cotton in Memphis. The times when changes in adjusted basis exceeded the changes in prices of spot cotton were largely confined to periods when changes in prices of spot cotton were relatively small.

The risks involved in transferring futures contracts used as hedges from one futures month to another may be an important factor in connection with the use of futures contracts as hedges against losses from changes in prices of spot cotton. Such risks arise from differences in prices of futures contracts for the near month and those for the more distant months. Data on these differences show that in transferring short hedges from the near to the more distant months, considerable losses would have been involved during a large part of the time prior to the season 1930–31. Gains and losses from such transfers were relatively small from the beginning of the season 1930–31 throughout most of the season 1933–34, but with the marked advance in basis in 1934–35 the losses from such transfers increased substantially, and would have been relatively great throughout the season 1935–36.

Losses from transferring short hedges from the near to the more distant months have as their counterpart the gains to those who transfer long hedges from the near-active to the more distant months, and, except for adjustments made for carrying charges, the amounts of these losses and gains shown would have been the same. Adjusting the differences between prices of futures contracts for the near months and those for the more distant months for the differences in costs of carrying spot cotton to the date of maturity of the futures contracts increased the losses or decreased the gains shown from transferring short hedges, and decreased the losses or increased the gains shown from transferring long hedges from the near month to the more distant months by amounts equivalent to the differences in carrying charges.

Furthermore, a situation in which great losses would have resulted from switching hedges by buying contracts for the near-active month and selling simultaneously contracts for more distant months indicates that normally relatively few are in a position to necessitate the making of such transactions and those in a position to do so will make use of the reverse procedure in order to profit by such disparities.

A number of factors affect the relationship between prices of spot cotton and prices of futures contracts and the extent of protection afforded by futures contracts as hedges. Cotton prices in surplus-producing areas that are long distances from consuming centers are

generally substantially lower than prices of cotton of the same quality in deficit-producing areas near centers of consumption, and these differences in location are reflected in basis. Moreover, prices of spot cotton uniform in quality sold on shipside high-density terms at port markets, for example, are generally somewhat higher than prices for cotton of the same quality bought on "basis Middling" terms, landed flat at warehouses in the same markets. These differences in prices as a result of differences in terms and conditions of sales are reflected in basis.

Differences in date of delivery and differences between the immediate and prospective demand-and-supply situation may materially affect the relationship between prices of spot cotton and prices of futures contracts. When the available market supplies of spot cotton are large in relation to the demand for cotton, with no significant changes in the relative supply-and-demand situation in prospect, prices of spot cotton tend to advance in relation to prices of futures contracts by amounts equal to the costs of carrying spot cotton. If supplies of spot cotton immediately available in the market are abnormally large in relation to the demand for cotton, when relatively smaller supplies are anticipated, it may depress the prices of spot cotton in relation to prices of futures contracts, particularly those for delivery in the more distant months. A relative shortage of spot cotton immediately available in the market, along with the anticipation of relatively larger supplies, tends to raise prices of spot cotton in relation to prices of futures contracts.

Differences in quality and in classification of cotton may also affect materially the spread between prices of spot cotton in a specified market and prices of a specified futures contract. Prices of spot cotton vary appreciably with the grade and staple-length designation, and these differences in prices are reflected in differences in basis. In addition, there may be considerable differences in value of cotton of the same grade and staple-length designation when the cotton is accurately classed according to the official standards, because of the range in quality included within the same grade and staple-length designation. Such differences in value and also a lack of precision in classing may affect the spread between prices of spot cotton and prices of futures contracts.

Aside from offsets through hedges, futures trading may give some protection from changes in prices of spot cotton by reducing them. Some students of futures trading have concluded that buying and selling cotton futures contracts by competent speculators tends to result in less violent but more frequent fluctuations in cotton prices; whereas, others contend that conclusive evidence is lacking on the question of whether prices are in any measure leveled purely as a result of futures trading.

Available data clearly indicate that futures trading has not brought about that equilibrium between present and future demand-and-supply conditions necessary to prevent wide fluctuations in cotton prices over relatively short periods. Whether or not the changes in cotton prices with future trading were greater or less than they would have been without futures trading is difficult to determine statistically.

Futures trading in cotton was carried on in Liverpool prior to 1870 in the form of transactions on the basis of to-arrive terms, and futures tradings in cotton began in New York in 1870. A comparison of the

annual fluctuations in cotton prices in New York and in Liverpool before and after futures trading began in New York shows that price changes in New York were for the most part greater than those in Liverpool prior to 1870; that following 1870 price changes in New York declined in relation to those in Liverpool; and that during recent years price changes in New York have been about equal to those in Liverpool. Changes in cotton prices during the year have not been so great in New York since futures trading began as before. Anticipated changes in the demand-and-supply situation are generally discounted in prices of futures contracts to a greater extent than in prices of spot cotton, and cotton prices with futures trading apparently tend to be maintained at harvesting time at a level about as high as during the rest of the season after allowances were made for carrying costs.

These data, along with other information, apparently indicate that futures trading generally tends to lessen the seasonal changes in prices of cotton as well as the changes from one season to another, but futures trading no doubt increases the frequency of changes in cotton prices and may at times augment these changes. But such information as is available is not considered adequate as a basis for final conclusions.

The effects of futures trading on the level of cotton prices are difficult to determine directly. Apparently any influence that futures trading in cotton may have on the level of prices to growers over a period of time, results largely from its influence on costs in connection with merchandising cotton. Futures trading makes possible a reduction in the cost of merchandising cotton by supplying a means for obtaining protection from changes in prices of spot cotton, and for making savings in interest charges and in capital requirements. The benefits of protection from risks and the savings in capital costs are offset to some extent by direct charges for futures trading, the bulk of which are represented by commissions. Any net savings as the result of futures trading makes possible a reduction in the margins of costs necessary for merchandising cotton, and some students of futures trading believe that competition forces cotton merchants to pass on a substantial proportion of these savings to growers in the form of higher prices and to consumers in the form of lower prices. Available data, however, are not adequate for determining to what extent any such savings raise the prices to growers or reduce the prices to consumers.

LITERATURE CITED

(1) ANDERSON, CLAYTON AND COMPANY.
1928. WHAT IS WRONG WITH THE COTTON BUSINESS? A STATEMENT SUBMITTED TO THE SUBCOMMITTEE OF THE COMMITTEE ON AGRICULTURE AND FORESTRY OF THE UNITED STATES SENATE, INVESTIGATING THE COTTON TRADE. 52 pp. Houston, Tex.

(2) BRESCIANI-TURRONI, C.
1931. L'INFLUENCE DE LA SPECULATION SUR LES FLUCTUATIONS DES PRIX DU COTON. L'Egypte Contemporaine no. 127, pp. 330-336.

(3) COX, A. B.
1926. COTTON PRICES AND MARKETS. U. S. Dept. Agr. Bull. 1444, 78 pp., illus.

(4) COX, R.
1929. HEDGING COTTON. [Pamphlet.] 24 pp., illus. Publ. by the N. Y. Jour. Com.

(5) EMERY, H. C.
1896. SPECULATION ON THE STOCK AND PRODUCE EXCHANGES OF THE UNITED STATES. Columbia Univ., Faculty Polit. Sci., Studies in History, Econ., and Pub. Law 7: 285-512.

(6) GARSIDE, A. H.
1935. COTTON GOES TO MARKET; A GRAPHIC DESCRIPTION OF A GREAT INDUSTRY . . . 411 pp., illus. New York.
(7) HOFFMAN, G. W.
1932. FUTURE TRADING UPON ORGANIZED COMMODITY MARKETS IN THE UNITED STATES. 482 pp., illus. Philadelphia and London.
(8) HOWELL, L. D.
1934. FLUCTUATIONS IN PRICES OF COTTON FUTURES CONTRACTS. U. S. Dept. Agr. Tech. Bull. 423, 22 pp., illus.
(9) HUBBARD, W. H.
1923. COTTON AND THE COTTON MARKET. 503 pp. New York and London.
(10) HUEBNER, S. S.
1931. THE INSURANCE SERVICE OF COMMODITY EXCHANGES. Ann. Amer. Acad. Polit. and Social Sci. 155 (pt. 1): 1-6.
(11) IRWIN, H. W.
1937. THE NATURE OF RISK ASSUMPTION IN THE TRADING ON ORGANIZED EXCHANGES. Amer. Econ. Rev. 27: 267-278, illus.
(12) SMITH, J. G.
1922. ORGANISED PRODUCE MARKETS. 238 pp., illus. London, New York [etc.].
(13) STEVENS, W. H. S.
1931. RELATIONSHIP OF CASH AND FUTURES PRICES. Ann. Amer. Acad. Polit. and Social Sci. 155 (pt. 1): 79-90.
(14) UNITED STATES CONGRESS, HOUSE COMMITTEE ON AGRICULTURE.
1932. COMMODITY SHORT SELLING. Hearing . . . Seventy-second Congress, first session. January 18-29, 1932. Serial B, 3 pts.
(15) UNITED STATES CONGRESS, SENATE COMMITTEE ON AGRICULTURE AND FORESTRY.
1936. TO INVESTIGATE THE CAUSES OF THE DECLINE OF COTTON PRICES. Hearings . . . Seventy-fourth Congress, second session, pursuant to S. Res. nos. 103, 125, 172, and 182 . . . February 17-Apr. 30, 1936. 2 v. Washington.
(16) UNITED STATES DEPARTMENT OF AGRICULTURE.
1935. Yearbook. 762 pp., illus.
(17) UNITED STATES FEDERAL RESERVE BOARD.
1923. FINANCING THE PRODUCTION AND DISTRIBUTION OF COTTON. Prepared by W. J. Carson. 72 pp., illus.
(18) UNITED STATES FEDERAL TRADE COMMISSION.
1924. THE COTTON TRADE. 280 pp., illus. Washington. (68th Cong., 1st sess., S. Doc. 100, pt. 1.)

APPENDIX

The number of observations used in the analysis generally amounted to 52 each season or to 1 each week. When the markets were closed for a holiday on Friday, price quotations for the preceding Thursday were generally used. The number of observations in 1932-33 was reduced somewhat as a result of the bank holiday and the temporary suspension of the Department Market News Service for cotton. In a few instances, the number of observations was reduced as a result of some markets being closed on both Thursday and Friday. The averages presented in this bulletin represent simple averages or were arrived at on the basis of simple averages of the individual observations included in the analysis.

TABLE 1.—*Changes in adjusted prices of spot cotton of specified grade and staple length and in adjusted basis over 8-week periods, by seasons, 1920–21 to 1935–36*

MIDDLING ¾-INCH [1]

Season beginning July	Maximum change per pound			Average change per pound		
	Spot price [2]	Basis [3]		Spot price [2]	Basis [3]	
		New York futures	New Orleans futures		New York futures	New Orleans futures
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1920-21	14.23	7.90	6.74	4.89	1.47	1.78
1921-22	8.28	1.64	1.15	2.37	.61	.47
1922-23	6.67	1.30	1.04	2.09	.45	.41
1923-24	7.12	4.34	4.31	3.35	1.12	1.15
1924-25	8.65	5.67	5.75	1.93	1.04	1.05
1925-26	4.35	2.03	1.83	1.41	.77	.67
1926-27	6.38	1.72	1.68	1.53	.34	.38
1927-28	3.23	.68	.86	1.70	.29	.25
1928-29	4.44	.96	.81	1.05	.44	.33
1929-30	3.33	.71	.66	1.11	.28	.25
1930-31	3.30	1.61	1.62	1.34	.24	.23
1931-32	3.98	.32	.33	.91	.10	.09
1932-33	2.74	.19	.16	1.07	.07	.07
1933-34	3.08	.21	.21	.86	.08	.08
1934-35	1.57	.35	.30	.61	.12	.10
1935-36	1.87	.76	.77	.59	.34	.34
Average	5.33	1.91	1.76	1.67	.51	.48

LOW MIDDLING ⅞-INCH [1]

1920-21	11.15	5.69	4.97	3.57	1.47	1.20
1921-22	8.05	1.37	1.37	2.33	.53	.44
1922-23	6.65	1.30	1.08	2.14	.44	.40
1923-24	6.55	4.37	4.32	2.80	1.68	1.65
1924-25	7.31	4.93	4.90	1.86	1.10	.99
1925-26	3.85	2.05	1.74	1.67	1.05	.96
1926-27	3.35	1.25	1.46	1.42	.39	.39
1927-28	2.25	1.06	.89	1.53	.41	.42
1928-29	4.12	1.45	1.30	1.12	.54	.43
1929-30	3.32	.70	.64	1.10	.27	.24
1930-31	3.15	1.59	1.60	1.31	.30	.30
1931-32	3.87	.52	.51	.89	.17	.16
1932-33	2.75	.17	.16	1.08	.06	.06
1933-34	3.17	.30	.28	.88	.10	.09
1934-35	1.56	.36	.33	.61	.12	.11
1935-36	1.87	.87	.56	.59	.38	.38
Average	5.03	1.75	1.65	1.56	.56	.52

GOOD MIDDLING ⅞-INCH [1]

1920-21	16.00	9.53	8.29	5.20	2.29	2.20
1921-22	8.27	1.60	1.16	2.41	.61	.46
1922-23	6.67	1.55	1.33	2.07	.49	.46
1923-24	7.47	4.34	4.31	3.45	1.07	1.10
1924-25	9.29	6.31	6.39	2.04	1.14	1.14
1925-26	3.85	2.14	1.94	1.46	.82	.76
1926-27	6.44	1.88	1.84	1.53	.38	.40
1927-28	5.02	.89	.87	1.72	.36	.30
1928-29	4.44	.96	.81	1.03	.48	.36
1929-30	3.34	.93	.92	1.10	.31	.29
1930-31	3.30	1.61	1.62	1.36	.26	.26
1931-32	3.97	.26	.27	.93	.09	.08
1932-33	2.74	.18	.16	1.05	.07	.07
1933-34	3.08	.21	.21	.86	.09	.08
1934-35	1.57	.36	.30	.61	.12	.11
1935-36	1.88	.73	.72	.61	.35	.33
Average	5.46	2.08	1.95	1.72	.56	.52

See footnotes at end of table.

TABLE 1.—*Changes in adjusted prices of spot cotton of specified grade and staple length and in adjusted basis over 8-week periods, by seasons, 1920–21 to 1935–36*—Continued

MIDDLING 1-INCH [1]

Season beginning July	Maximum change per pound			Average change per pound		
	Spot price [2]	Basis [3]		Spot price [2]	Basis [3]	
		New York futures	New Orleans futures		New York futures	New Orleans futures
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1927–28	5.23	1.09	1.27	1.62	0.33	0.30
1928–29	4.44	.96	.81	1.05	.44	.33
1929–30	3.34	.93	.92	1.14	.31	.28
1930–31	3.31	1.62	1.63	1.37	.27	.27
1931–32	3.09	.32	.26	.95	.10	.09
1932–33	2.74	.28	.28	1.07	.11	.10
1933–34	3.08	.31	.31	.89	.10	.10
1934–35	1.57	.55	.49	.62	.17	.16
1935–36	1.93	.94	.93	.57	.36	.35
Average	3.29	.78	.77	1.03	.24	.22

MIDDLING 1⅛-INCH [1]

1929–30	3.51	1.96	1.81	1.22	0.63	0.63
1930–31	3.76	1.80	1.81	1.34	.36	.36
1931–32	4.11	.52	.54	.98	.15	.15
1932–33	2.80	.42	.41	1.16	.14	.14
1933–34	2.29	.33	.32	.83	.10	.11
1934–35	1.51	.45	.39	.58	.17	.16
1935–36	2.09	1.51	1.47	.71	.47	.47
Average	2.87	1.00	.96	.97	.28	.29

[1] Closing prices of spot cotton on Fridays as quoted in New Orleans.
[2] Adjustments were made by subtracting from the changes in quoted prices the costs of storage, insurance, and interest for carrying the spot cotton over 8-week periods.
[3] Adjustments were made in the changes in basis, or in the spread between the quoted prices of spot cotton of specified grade and staple length in New Orleans and in Memphis and prices of New York and New Orleans futures contracts for the near-active month at the close of the futures markets on Fridays, for the costs of carrying spot cotton over 8-week periods.
[4] Closing prices of spot cotton on Fridays as quoted in Memphis.

TABLE 2.—*Changes in prices of Middling ⅞-inch spot cotton in specified markets and in basis over 8-week periods, by seasons, 1930–31 to 1935–36*

1930–31

Market	Maximum change per pound			Average change per pound		
	Spot price [1]	Basis [2]		Spot price [1]	Basis [2]	
		New York futures	Liverpool futures		New York futures	Liverpool futures
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
New Orleans	3.03	1.34	1.30	1.20	0.28	0.36
Houston	3.25	1.21	1.41	1.17	.20	.39
Savannah	3.40	1.30	1.50	1.24	.34	.42
Memphis	2.80	.91	1.16	1.16	.32	.39
Carolina mill points	2.89	.65	.92	1.18	.31	.39
New England mill points	4.10	1.77	2.26	1.25	.41	.54
Liverpool	3.65	1.74	1.39	1.37	.39	.31

See footnotes at end of table.

TABLE 2.—*Changes in prices of Middling ⅞-inch spot cotton in specified markets and in basis over 8-week periods, by seasons, 1930–31 to 1935–36*—Continued

1931–32

Market	Maximum change per pound			Average change per pound		
	Spot price [1]	Basis [2]		Spot price [1]	Basis [2]	
		New York futures	Liverpool futures		New York futures	Liverpool futures
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
New Orleans	3.77	0.49	0.70	0.84	0.22	0.21
Houston	3.80	.46	.61	.81	.25	.20
Savannah	3.83	.58	.81	.85	.25	.21
Memphis	3.85	.71	1.04	.83	.25	.25
Carolina mill points	3.77	.61	.69	.89	.21	.22
New England mill points	3.88	.62	.64	.84	.27	.23
Liverpool	3.52	1.16	.90	.90	.30	.18
1932–33						
New Orleans	2.91	0.31	0.43	1.11	0.12	0.15
Houston	2.85	.32	.44	1.11	.13	.16
Savannah	2.81	.42	.32	1.11	.14	.12
Memphis	2.70	.42	.40	1.10	.20	.18
Carolina mill points	2.81	.56	.45	1.05	.18	.15
New England mill points	2.98	.43	.71	1.18	.16	.21
Liverpool	3.07	.98	.39	1.10	.28	.14
1933–34						
New Orleans	3.09	0.35	1.20	0.90	0.17	0.24
Houston	3.20	.35	.99	.90	.19	.25
Savannah	2.94	.51	1.42	.92	.20	.29
Memphis	3.09	.46	1.44	.93	.21	.31
Carolina mill points	2.41	2.35	2.60	.90	.35	.43
New England mill points	3.08	.39	1.10	.92	.15	.23
Liverpool	3.09	1.22	.74	1.12	.34	.21
1934–35						
New Orleans	1.52	0.49	0.89	0.59	0.15	0.20
Houston	1.45	.44	.80	.59	.16	.29
Savannah	1.55	.46	.88	.59	.16	.29
Memphis	1.50	.67	.85	.55	.23	.26
Carolina mill points	1.55	.58	.67	.60	.20	.30
New England mill points	1.62	1.32	.79	.57	.27	.32
Liverpool	1.92	1.45	1.17	.76	.27	.39
1935–36						
New Orleans	1.75	0.66	0.91	0.58	0.26	0.35
Houston	1.55	.63	.99	.57	.26	.36
Savannah	2.04	.80	1.26	.65	.29	.40
Memphis	1.95	1.00	1.42	.62	.33	.50
Carolina mill points	1.75	1.06	1.64	.56	.35	.53
New England mill points	1.78	1.01	1.03	.54	.30	.31
Liverpool	1.79	1.19	.86	.58	.40	.30
Average 1930–31 to 1935–36						
New Orleans	3.77	1.34	1.30	0.87	0.20	0.27
Houston	3.80	1.21	1.41	.86	.21	.27
Savannah	3.83	1.30	1.56	.89	.23	.29
Memphis	3.85	1.00	1.44	.86	.25	.32
Carolina mill points	3.77	2.35	2.50	.87	.26	.33
New England mill points	4.10	1.77	2.20	.88	.26	.32
Liverpool	3.75	1.74	1.39	.97	.33	.26

[1] Spot prices on Friday as officially quoted by the cotton exchange at each market. Liverpool prices were converted to United States money at the current rate of exchange.

[2] Basis represents the spread between the quoted prices of Middling ⅞-inch spot cotton in specified markets and closing prices of near-month New York and Liverpool futures contracts for American cotton. No adjustments were made for carrying charges or for differences in time of the quotations.

TABLE 3.—*Maximum changes in adjusted prices of spot cotton of specified grade and staple length and in adjusted basis over 8-week periods ended during specified months, by seasons, 1920–21 to 1935–36*

MIDDLING ⅞-INCH [1]

Season	Period ended during— July, August, and September: Spot price [2]	Basis [3]: New York futures	Basis [3]: New Orleans futures	October and November: Spot price [2]	Basis [3]: New York futures	Basis [3]: New Orleans futures	December: Spot price [2]	Basis [3]: New York futures	Basis [3]: New Orleans futures
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1920–21	12.75	7.99	6.74	14.23	6.57	6.50	7.32	1.89	1.57
1921–22	8.28	1.10	.88	7.14	.94	.92	3.05	1.64	1.07
1922–23	8.32	1.03	1.04	5.05	1.16	.94	4.05	.60	.60
1923–24	5.60	4.34	4.31	7.12	1.73	1.39	5.74	1.43	1.47
1924–25	8.65	5.67	5.75	4.19	1.30	1.57	.96	.14	.41
1925–26	2.13	2.03	1.83	4.35	.59	.55	2.35	.64	.31
1926–27	4.29	1.29	1.49	6.38	1.72	1.68	1.66	.20	.19
1927–28	5.23	.54	.30	2.55	.60	.39	2.10	.38	.41
1928–29	4.44	.86	.81	1.20	.83	.72	.55	.66	.59
1929–30	1.05	.67	.66	1.70	.42	.38	1.65	.11	.09
1930–31	3.30	1.61	1.62	2.03	.18	.22	1.71	.20	.20
1931–32	3.98	.25	.21	2.60	.32	.33	.72	.17	.16
1932–33	2.74	.17	.14	2.46	.19	.16	1.39	.11	.11
1933–34	3.08	.21	.19	.71	.14	.15	.73	.11	.04
1934–35	1.42	.33	.15	1.19	.35	.30	.37	.17	.12
1935–36	1.87	.57	.57	1.48	.42	.38	.94	.45	.44
Average	4.53	1.80	1.67	4.02	1.10	1.04	2.21	.56	.49

Season	Period ended during— January and February: Spot price [2]	Basis [3]: New York futures	Basis [3]: New Orleans futures	March and April: Spot price [2]	Basis [3]: New York futures	Basis [3]: New Orleans futures	May and June: Spot price [2]	Basis [3]: New York futures	Basis [3]: New Orleans futures
1920–21	5.05	2.42	2.36	4.51	0.99	1.03	1.09	0.68	0.83
1921–22	1.78	1.59	1.15	.99	.86	.69	5.23	1.04	.85
1922–23	2.80	.67	.80	3.24	.84	.69	6.67	1.30	.94
1923–24	5.96	.78	.98	6.57	.55	.88	2.82	2.62	1.45
1924–25	1.20	.17	.24	2.11	.16	.13	3.36	.84	.50
1925–26	1.48	1.12	.03	2.37	1.54	1.37	1.29	.85	.81
1926–27	1.64	.11	.18	1.15	.40	.35	2.21	.40	.47
1927–28	2.13	.49	.36	2.46	.55	.51	1.97	.68	.86
1928–29	.97	.52	.42	1.28	.43	.31	2.08	.51	.28
1929–30	2.50	.29	.13	3.33	.41	.22	3.32	.71	.61
1930–31	1.18	.18	.15	1.14	.12	.08	2.01	.36	.30
1931–32	.47	.11	.09	1.34	.14	.13	1.37	.14	.16
1932–33	.41	.13	.14	1.15	.06	.03	2.54	.07	.08
1933–34	2.23	.21	.21	1.09	.16	.12	1.24	.10	.14
1934–35	.42	.17	.14	1.57	.23	.27	1.23	.22	.24
1935–36	1.02	.61	.56	.51	.44	.44	.95	.78	.77
Average	1.96	.60	.55	2.21	.49	.45	2.46	.71	.68

LOW MIDDLING ⅞-INCH [1]

Season	Period ended during— July, August, and September: Spot price [2]	Basis [3]: New York futures	Basis [3]: New Orleans futures	October and November: Spot price [2]	Basis [3]: New York futures	Basis [3]: New Orleans futures	December: Spot price [2]	Basis [3]: New York futures	Basis [3]: New Orleans futures
1920–21	11.15	5.69	4.67	10.36	2.22	2.15	7.02	1.34	0.97
1921–22	8.05	1.37	1.37	6.91	1.13	.82	3.03	1.12	.58
1922–23	8.08	1.03	1.03	5.44	1.02	1.08	4.56	.93	.55
1923–24	6.13	4.37	4.32	5.12	3.73	3.39	4.62	3.43	3.47
1924–25	7.31	4.93	4.96	2.92	.59	.42	1.45	.65	.24

See footnotes at end of table.

TABLE 3.—*Maximum changes in adjusted prices of spot cotton of specified grade and staple length and in adjusted basis over 8-week periods ended during specified months, by seasons, 1920–21 to 1935–36*—Continued

LOW MIDDLING ⅞-INCH—Continued

Season	Period ended during— July, August, and September			October and November			December		
	Spot price [2]	Basis [3] New York futures	Basis [3] New Orleans futures	Spot price [2]	Basis [3] New York futures	Basis [3] New Orleans futures	Spot price [2]	Basis [3] New York futures	Basis [3] New Orleans futures
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1925–26	2.13	1.63	1.43	5.85	2.05	1.74	3.29	1.63	1.29
1926–27	4.00	1.25	1.46	5.35	.98	.95	1.64	.22	.17
1927–28	5.25	.71	.40	2.19	1.06	.85	1.23	.65	.89
1928–29	4.52	1.45	1.30	1.47	1.32	1.21	.57	.64	.57
1929–30	1.03	.65	.64	1.08	.41	.37	1.64	.10	.08
1930–31	3.28	1.59	1.60	2.02	.17	.21	1.60	.19	.19
1931–32	3.87	.52	.51	2.54	.37	.38	.56	.33	.32
1932–33	2.75	.17	.16	2.50	.14	.16	1.37	.11	.11
1933–34	3.17	.30	.28	.55	.10	.12	.74	.12	.05
1934–35	1.43	.34	.16	1.18	.36	.30	.37	.16	.11
1935–36	1.87	.56	.56	1.43	.46	.42	.04	.45	.44
Average	4.31	1.66	1.57	3.59	1.01	.91	2.17	.75	.63

Season	Period ended during— January and February			March and April			May and June		
1920–21	4.74	2.11	2.05	2.21	2.28	2.05	0.94	1.21	1.36
1921–22	1.51	.86	.44	1.51	.53	.50	4.99	.80	.84
1922–23	2.89	.54	.67	3.24	.81	.65	6.65	1.30	.94
1923–24	5.04	2.30	2.01	6.55	.94	1.11	2.85	3.95	2.58
1924–25	1.28	.45	.31	2.13	.20	.12	3.34	.84	.53
1925–26	1.70	1.34	1.15	2.59	1.76	1.59	1.01	.96	1.03
1926–27	1.66	.27	.22	1.52	.38	.34	2.13	.50	.55
1927–28	1.87	.64	.82	2.46	.54	.51	1.97	.68	.86
1928–29	.95	.50	.40	1.26	.42	.30	2.07	.53	.30
1929–30	2.58	.26	.12	3.22	.40	.21	3.30	.70	.60
1930–31	1.25	.23	.22	1.02	.28	.24	1.65	.60	.56
1931–32	.67	.22	.23	1.28	.22	.22	1.37	.15	.15
1932–33	.41	.12	.13	1.16	.07	.04	2.54	.07	.08
1933–34	2.24	.22	.22	1.69	.17	.13	1.24	.10	.14
1934–35	.41	.17	.13	1.56	.24	.28	1.13	.32	.33
1935–36	1.01	.75	.70	.60	.59	.59	.80	.87	.86
Average	1.89	.69	.61	2.13	.61	.56	2.37	.85	.73

GOOD MIDDLING ⅞-INCH [1]

Season	Period ended during— July, August, and September			October and November			December		
1920–21	14.79	9.53	8.28	16.00	8.36	8.29	7.00	1.66	1.59
1921–22	8.27	1.09	1.02	7.13	.93	.91	3.06	1.39	1.08
1922–23	3.31	1.25	1.15	4.93	1.55	1.53	3.80	.45	.85
1923–24	5.90	4.34	4.31	7.47	1.38	1.04	5.07	1.20	1.24
1924–25	9.29	6.31	6.39	4.46	1.82	1.96	.96	.14	.37
1925–26	2.23	2.14	1.94	3.85	.59	.55	2.10	.27	.11
1926–27	4.49	1.39	1.52	6.44	1.88	1.84	1.42	.54	.46
1927–28	5.02	.59	.51	2.55	.60	.39	2.25	.64	.56
1928–29	4.44	.96	.81	1.19	.84	.72	.55	.07	.60
1929–30	1.31	.93	.92	1.70	.58	.54	1.50	.15	.12
1930–31	3.30	1.61	1.62	2.19	.28	.23	1.71	.21	.21
1931–32	3.97	.26	.22	2.61	.26	.27	.77	.07	.06
1932–33	2.74	.18	.14	2.41	.16	.16	1.34	.13	.13
1933–34	3.08	.21	.19	.76	.19	.20	.73	.08	.04
1934–35	1.41	.23	.15	1.18	.36	.30	.36	.17	.12
1935–36	1.88	.58	.58	1.58	.37	.33	.98	.46	.45
Average	4.71	1.98	1.80	4.15	1.26	1.19	2.16	.51	.50

See footnotes at end of table.

TABLE 3.—*Maximum changes in adjusted prices of spot cotton of specified grade and staple length and in adjusted basis over 8-week periods ended during specified months, by seasons, 1920–21 to 1935–36*—Continued

GOOD MIDDLING ⅞-INCH—Continued

Season	Period ended during—								
	January and February			March and April			May and June		
	Spot price [2]	Basis [3]		Spot price [2]	Basis [3]		Spot price [2]	Basis [3]	
		New York futures	New Orleans futures		New York futures	New Orleans futures		New York futures	New Orleans futures
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1920–21	4.57	1.94	1.88	5.54	1.92	2.11	1.86	0.67	0.66
1921–22	1.79	1.60	1.16	.98	.87	.60	5.22	1.03	.58
1922–23	2.87	.82	.95	3.24	.83	.67	6.67	1.30	.94
1923–24	5.98	.76	.98	6.59	.67	.88	2.80	2.64	1.45
1924–25	1.26	.22	.24	2.21	.18	.10	3.36	.83	.40
1925–26	1.49	1.13	.94	2.63	1.80	1.63	1.40	1.10	1.17
1926–27	1.63	.12	.11	1.24	.41	.36	2.20	.43	.45
1927–28	2.34	.59	.46	2.45	.65	.52	1.96	.69	.67
1928–29	.97	.52	.42	1.28	.41	.32	1.99	.76	.53
1929–30	2.50	.20	.22	3.34	.42	.21	3.33	.72	.62
1930–31	1.18	.17	.14	1.14	.11	.07	2.02	.34	.30
1931–32	.60	.17	.12	1.39	.09	.08	1.37	.14	.16
1932–33	.43	.12	.14	1.15	.06	.04	2.52	.09	.07
1933–34	2.23	.21	.21	1.68	.16	.12	1.25	.11	.15
1934–35	.42	.17	.14	1.57	.23	.27	1.22	.23	.24
1935–36	1.03	.61	.56	.51	.40	.40	.94	.73	.72
Average	1.96	.58	.54	2.31	.58	.52	2.51	.74	.61

MIDDLING 1-INCH [1]

	Period ended during—								
	July, August, and September			October and November			December		
1927–28	5.23	0.54	0.31	2.55	0.69	0.39	2.10	0.39	0.41
1928–29	4.44	.96	.81	1.54	.84	.71	.47	.82	.68
1929–30	1.31	.93	.92	1.71	.68	.64	1.66	.12	.10
1930–31	3.31	1.62	1.63	2.29	.40	.37	1.72	.21	.21
1931–32	3.99	.32	.25	2.76	.25	.23	.72	.07	.06
1932–33	2.74	.28	.26	2.31	.26	.28	1.39	.13	.13
1933–34	3.08	.21	.19	.71	.14	.15	.73	.11	.04
1934–35	1.41	.52	.34	.99	.55	.49	.36	.17	.13
1935–36	1.03	.63	.63	1.53	.42	.38	1.03	.41	.40
Average	3.05	.67	.59	1.82	.46	.40	1.13	.27	.24

	Period ended during—								
	January and February			March and April			May and June		
1927–28	2.14	0.25	0.27	2.20	0.54	0.77	1.69	1.09	1.27
1928–29	1.18	.73	.63	1.13	.34	.23	1.94	.76	.53
1929–30	2.60	.30	.14	3.34	.42	.23	3.33	.72	.62
1930–31	1.18	.17	.14	1.15	.11	.07	2.02	.33	.29
1931–32	.55	.19	.20	1.39	.10	.11	1.38	.24	.26
1932–33	.43	.13	.14	1.15	.06	.04	2.52	.14	.17
1933–34	2.33	.31	.31	1.78	.22	.22	1.25	.11	.15
1934–35	.43	.18	.15	1.57	.33	.37	1.32	.38	.39
1935–36	.98	.42	.37	.45	.55	.55	1.04	.94	.93
Average	1.31	.30	.26	1.57	.30	.29	1.83	.52	.51

See footnotes at end of table.

TABLE 3.—*Maximum changes in adjusted prices of spot cotton of specified grade and staple length and in adjusted basis over 8-week periods ended during specified months, by seasons, 1920–21 to 1935–36*—Continued

MIDDLING 15/8-INCH [1]

Season	Period ended during								
	July, August, and September			October and November			December		
	Spot price [2]	Basis [3]		Spot price [2]	Basis [4]		Spot price [2]	Basis [4]	
		New York futures	New Orleans futures		New York futures	New Orleans futures		New York futures	New Orleans futures
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1920–30	2.36	1.98	1.81	2.06	1.79	1.77	1.50	0.29	0.31
1930–31	3.76	1.80	1.81	1.98	.74	.75	1.46	.17	.16
1931–32	4.11	.26	.23	2.73	.40	.40	.93	.43	.42
1932–33	2.59	.11	.11	2.43	.42	.40	1.51	.18	.22
1933–34	(5)	(5)	(5)	.57	.15	.10	.61	.08	.13
1934–35	1.46	.26	.23	1.20	.36	.34	.12	.45	.30
1935–36	2.09	1.01	1.05	1.77	1.07	1.06	1.24	.31	.30
Average	2.73	.95	.92	1.80	.70	.69	1.10	.27	.28

Season	Period ended during —								
	January and February			March and April			May and June		
	Spot price [2]	Basis [4]		Spot price [2]	Basis [4]		Spot price [2]	Basis [4]	
		New York futures	New Orleans futures		New York futures	New Orleans futures		New York futures	New Orleans futures
1929–30	2.06	0.77	0.81	2.77	1.28	1.09	3.51	1.21	1.19
1930–31	1.06	.22	.21	.85	.56	.61	2.09	.26	.28
1931–32	.67	.52	.54	1.43	.19	.20	1.49	.38	.40
1932–33	.57	.31	.30	1.14	.15	.13	2.80	.25	.26
1933–34	2.29	.33	.32	1.89	.26	.28	1.22	.16	.20
1934–35	.21	.35	.33	1.51	.23	.24	1.12	.23	.21
1935–36	.51	.30	.35	.56	1.08	1.08	2.01	1.51	1.47
Average	1.06	.40	.42	1.45	.51	.52	2.03	.58	.58

[1] See footnote 1, table 1.
[2] See footnote 2, table 1.
[3] See footnote 3, table 1.
[4] See footnote 4, table 1.
[5] Market closed during bank holiday.

TABLE 4.—*Average changes in adjusted prices of spot cotton of specified grade and staple length and in adjusted basis over 8-week periods ended during specified months, by seasons, 1920–21 to 1935–36*

MIDDLING ⅞-INCH [1]

Season	Period ended during: July, August, and September — Spot price [2]	Basis [3] — New York futures	Basis [3] — New Orleans futures	Period ended during: October and November — Spot price [2]	Basis [3] — New York futures	Basis [3] — New Orleans futures	Period ended during: December — Spot price [2]	Basis [3] — New York futures	Basis [3] — New Orleans futures
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1920–21	6.33	3.22	2.80	10.93	4.07	4.13	6.21	1.35	1.11
1921–22	3.22	.40	.41	3.60	.67	.62	1.85	1.13	.62
1922–23	1.42	.52	.50	2.54	.59	.53	2.70	.33	.30
1923–24	3.52	2.87	2.78	4.07	.50	.74	4.76	.71	.67
1924–25	3.78	3.34	3.31	2.30	.48	.69	.82	.09	.34
1925–26	.97	1.22	1.12	2.03	.29	.18	1.47	.40	.22
1926–27	.97	.61	.66	4.40	.64	.72	.62	.13	.11
1927–28	2.50	.21	.13	1.82	.40	.19	1.49	.27	.16
1928–29	2.19	.41	.33	.63	.71	.61	.31	.61	.49
1929–30	.60	.45	.44	1.10	.17	.17	1.19	.06	.05
1930–31	2.52	.69	.69	.68	.08	.07	1.07	.11	.14
1931–32	1.75	.14	.12	.63	.17	.17	.41	.08	.08
1932–33	1.18	.07	.09	1.46	.10	.09	.73	.08	.08
1933–34	.13	.08	.07	.32	.09	.10	.55	.05	.03
1934–35	.79	.08	.05	.67	.20	.13	.17	.14	.09
1935–36	.91	.38	.39	.76	.15	.18	.48	.23	.22
Average	2.12	.92	.87	2.48	.60	.58	1.55	.36	.29

Season	Period ended during: January and February — Spot price [2]	Basis [3] — New York futures	Basis [3] — New Orleans futures	Period ended during: March and April — Spot price [2]	Basis [3] — New York futures	Basis [3] — New Orleans futures	Period ended during: May and June — Spot price [2]	Basis [3] — New York futures	Basis [3] — New Orleans futures
1920–21	2.08	0.76	0.82	2.43	0.37	0.47	0.52	0.31	0.31
1921–22	.95	.86	.61	.46	.62	.32	3.41	.38	.44
1922–23	2.12	.27	.32	1.92	.47	.27	2.45	.42	.44
1923–24	2.80	.36	.44	3.26	.20	.65	1.54	1.08	.95
1924–25	.59	.09	.17	1.05	.07	.06	1.48	.51	.22
1925–26	.55	.48	.43	1.92	1.20	1.06	.69	.62	.57
1926–27	.09	.05	.10	.36	.09	.11	1.64	.26	.20
1927–28	1.39	.19	.18	1.33	.26	.24	1.00	.43	.59
1928–29	.55	.40	.34	.55	.32	.22	1.12	.32	.13
1929–30	1.32	.12	.06	1.28	.15	.11	1.46	.51	.45
1930–31	.86	.08	.07	.64	.05	.05	1.52	.11	.11
1931–32	.38	.05	.05	.60	.07	.06	1.06	.08	.04
1932–33	.18	.08	.08	.43	.03	.02	2.07	.04	.03
1933–34	1.41	.12	.12	.84	.08	.06	.68	.08	.08
1934–35	.24	.12	.11	.05	.09	.12	.50	.11	.14
1935–36	.63	.37	.31	.26	.28	.26	.23	.55	.56
Average	1.07	.28	.26	1.14	.27	.26	1.34	.36	.33

See footnotes at end of table.

TABLE 4.—*Average changes in adjusted prices of spot cotton of specified grade and staple length and in adjusted basis over 8-week periods ended during specified months, by seasons, 1920–21 to 1935–36*—Continued

LOW MIDDLING ⅞-INCH [1]

Season	Period ended during—								
	July, August, and September			October and November			December		
	Spot price [2]	Basis [3]		Spot price [2]	Basis [3]		Spot price [2]	Basis [3]	
		New York futures	New Orleans futures		New York futures	New Orleans futures		New York futures	New Orleans futures
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1920–21	6.74	3.08	2.50	7.01	0.02	0.91	5.30	0.65	0.53
1921–22	3.23	.75	.65	3.60	.61	.47	1.57	.86	.35
1922–23	1.39	.42	.42	2.77	.56	.66	2.08	.50	.26
1923–24	3.54	2.93	2.84	3.51	2.26	2.20	3.00	1.29	1.32
1924–25	3.90	3.46	3.43	1.65	.34	.20	1.08	.51	.18
1925–26	.06	1.02	.93	3.92	1.26	1.16	2.06	1.10	1.01
1926–27	.91	.62	.67	3.51	.64	.83	.60	.13	.10
1927–28	2.56	.25	.18	1.42	.82	.61	.83	.59	.70
1928–29	2.29	.38	.49	.84	1.04	.93	.33	.59	.48
1929–30	.59	.43	.42	1.69	.16	.16	1.17	.06	.04
1930–31	2.50	.67	.67	.67	.07	.06	1.06	.10	.12
1931–32	1.71	.20	.18	.62	.22	.22	.33	.20	.20
1932–33	1.18	.07	.09	1.49	.07	.07	.73	.07	.07
1933–34	1.16	.14	.13	.33	.07	.08	.56	.06	.03
1934–35	.77	.08	.05	.67	.20	.16	.17	.14	.08
1935–36	.91	.38	.39	.79	.15	.14	.49	.23	.22
Average	2.15	.94	.88	2.12	.59	.54	1.44	.44	.36

Season	Period ended during—								
	January and February			March and April			May and June		
1920–21	1.49	1.09	0.84	0.89	1.33	1.20	0.53	0.52	0.51
1921–22	.93	.53	.19	.51	.17	.27	3.26	.31	.54
1922–23	2.17	.22	.28	1.92	.46	.26	2.42	.41	.46
1923–24	1.80	1.16	.93	3.21	.36	.76	1.86	1.45	1.32
1924–25	.04	.18	.12	1.08	.10	.06	1.38	.52	.32
1925–26	.52	.85	.80	2.22	1.50	1.37	.56	.50	.45
1926–27	1.10	.12	.10	.63	.28	.22	1.60	.27	.30
1927–28	1.26	.28	.40	1.33	.25	.23	.08	.49	.65
1928–29	.55	.38	.30	.55	.30	.20	1.13	.33	.14
1929–30	1.32	.12	.06	1.28	.15	.12	1.46	.50	.44
1930–31	.89	.11	.11	.65	.20	.20	1.33	.35	.35
1931–32	.44	.13	.12	.56	.18	.17	1.01	.10	.08
1932–33	.18	.09	.07	.44	.03	.02	2.07	.04	.03
1933–34	1.42	.13	.13	.84	.08	.06	.68	.07	.08
1934–35	.24	.11	.11	.84	.09	.12	.53	.14	.16
1935–36	.57	.42	.36	.27	.40	.39	.26	.70	.71
Average	.97	.37	.31	1.08	.37	.35	1.31	.42	.41

See footnotes at end of table.

TABLE 4.—*Average changes in adjusted prices of spot cotton of specified grade and staple length and in adjusted basis over 8-week periods ended during specified months, by seasons, 1920–21 to 1935–36*—Continued

GOOD MIDDLING ¾-INCH [1]

Season	Period ended during—July, August, and September: Spot price [2]	Basis [3]: New York futures	Basis [3]: New Orleans futures	October and November: Spot price [2]	Basis [3]: New York futures	Basis [3]: New Orleans futures	December: Spot price [2]	Basis: New York futures	Basis: New Orleans futures
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1920–21	6.53	3.78	3.35	12.02	5.16	5.21	5.78	1.03	0.87
1921–22	3.38	.37	.38	3.60	.07	.00	1.86	1.14	.03
1922–23	1.40	.58	.57	2.47	.75	.60	2.51	.26	.42
1923–24	3.52	2.88	2.78	5.44	.50	.44	4.86	.71	.67
1924–25	4.06	3.62	3.60	2.46	.64	.84	.82	.09	.35
1925–26	1.03	1.28	1.19	2.64	.22	.29	1.34	.18	.07
1926–27	.99	.03	.09	4.35	.73	.80	.49	.25	.20
1927–28	2.45	.28	.24	1.82	.10	.19	1.70	.48	.38
1928–29	2.10	.41	.33	.63	.72	.61	.31	.01	.50
1929–30	.65	.54	.54	1.12	.25	.22	1.04	.08	.10
1930–31	2.58	.75	.75	.73	.13	.12	1.08	.12	.15
1931–32	1.76	.14	.12	.64	.13	.12	.42	.04	.02
1932–33	1.15	.08	.09	1.43	.10	.11	.73	.08	.10
1933–34	1.12	.08	.07	.31	.12	.12	.54	.05	.03
1934–35	.78	.08	.05	.67	.20	.16	.17	.14	.09
1935–36	.02	.39	.39	.84	.19	.17	.50	.24	.22
Average	2.18	.99	.95	2.57	.08	.08	1.51	.34	.30

Season	Period ended during—January and February: Spot price [2]	Basis [3]: New York futures	Basis [3]: New Orleans futures	March and April: Spot price [2]	Basis [3]: New York futures	Basis [3]: New Orleans futures	May and June: Spot price [2]	Basis: New York futures	Basis: New Orleans futures
1920–21	1.69	0.71	0.64	3.34	1.21	1.33	0.69	0.24	0.30
1921–22	.06	.87	.52	.46	.64	.34	3.40	.38	.44
1922–23	2.06	.32	.36	1.92	.47	.27	2.45	.42	.44
1923–24	2.81	.36	.44	3.26	.26	.67	1.54	1.09	.96
1924–25	.64	.10	.12	1.09	.08	.05	1.48	.51	.22
1925–26	.67	.43	.37	2.17	1.45	1.31	.90	.84	.79
1926–27	1.03	.04	.06	.41	.14	.11	1.62	.27	.20
1927–28	1.56	.35	.17	1.35	.31	.20	1.00	.43	.59
1928–29	.56	.41	.32	.54	.32	.22	.96	.48	.28
1929–30	1.22	.10	.11	1.28	.15	.10	1.47	.52	.46
1930–31	.86	.07	.08	.64	.05	.04	1.52	.12	.10
1931–32	.38	.07	.06	.65	.05	.03	1.06	.08	.06
1932–33	.17	.09	.09	.43	.01	.02	2.05	.04	.02
1933–34	1.41	.12	.12	.84	.07	.08	.60	.08	.09
1934–35	.24	.12	.11	.95	.09	.12	.50	.11	.13
1935–36	.58	.38	.32	.20	.27	.25	.27	.53	.54
Average	1.05	.28	.24	1.23	.35	.33	1.35	.38	.36

See footnotes at end of table.

TABLE 4.—*Average changes in adjusted prices of spot cotton of specified grade and staple length and in adjusted basis over 8-week periods ended during specified months, by seasons, 1920–21 to 1935–36*—Continued

MIDDLING 1-INCH [1]

Season	Period ended during: July, August, and September — Spot price [2]	Basis [3]: New York futures	Basis [3]: New Orleans futures	Period ended during: October and November — Spot price [2]	Basis [3]: New York futures	Basis [3]: New Orleans futures	Period ended during: December — Spot price [2]	Basis [3]: New York futures	Basis [3]: New Orleans futures
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1927–28	2.56	0.21	0.14	1.82	0.40	0.19	1.49	0.27	0.17
1928–29	2.10	.31	.33	.73	.42	.31	.23	.60	.58
1929–30	.62	.17	.17	1.22	.28	.29	1.20	.06	.06
1930–31	2.53	.69	.70	.85	.29	.28	1.08	.12	.15
1931–32	1.77	.15	.13	.76	.11	.11	.39	.06	.05
1932–33	1.22	.14	.14	1.36	.18	.19	.75	.09	.09
1933–34	1.17	.08	.07	.32	.08	.09	.34	.05	.03
1934–35	.81	.14	.11	.50	.28	.24	.17	.15	.09
1935–36	.97	.47	.48	.82	.18	.15	.44	.21	.20
Average	1.54	.31	.29	.94	.25	.21	.70	.19	.16

Season	Period ended during: January and February — Spot price [2]	Basis [3]: New York futures	Basis [3]: New Orleans futures	Period ended during: March and April — Spot price [2]	Basis [3]: New York futures	Basis [3]: New Orleans futures	Period ended during: May and June — Spot price [2]	Basis [3]: New York futures	Basis [3]: New Orleans futures
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1927–28	1.30	0.11	0.16	1.20	0.31	0.28	0.78	0.68	0.84
1928–29	.60	.51	.12	.37	.26	.17	.93	.51	.36
1929–30	1.34	.13	.06	1.28	.15	.10	1.47	.52	.46
1930–31	.86	.07	.07	.64	.01	.01	1.52	.10	.10
1931–32	.35	.08	.08	.66	.06	.08	1.10	.10	.08
1932–33	.17	.09	.08	.43	.01	.02	2.07	.05	.01
1933–34	1.46	.17	.17	.89	.11	.11	.60	.09	.09
1934–35	.24	.13	.12	.63	.12	.15	.59	.22	.25
1935–36	.45	.23	.18	.20	.31	.30	.25	.65	.65
Average	.75	.17	.15	.76	.15	.14	1.01	.32	.31

MIDDLING 1⅛-INCH [1]

Season	Period ended during: July, August, and September — Spot price [2]	Basis [3]: New York futures	Basis [3]: New Orleans futures	Period ended during: October and November — Spot price [2]	Basis [3]: New York futures	Basis [3]: New Orleans futures	Period ended during: December — Spot price [2]	Basis [3]: New York futures	Basis [3]: New Orleans futures
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1929–30	1.09	0.81	0.75	1.61	0.77	0.76	1.00	0.12	0.14
1930–31	2.51	.65	.68	.98	.13	.42	.85	.10	.08
1931–32	1.76	.19	.17	.83	.13	.13	.61	.20	.20
1932–33	1.28	.15	.14	1.48	.22	.22	.75	.10	.11
1933–34	(5)	(5)	(5)	.22	.06	.07	.49	.05	.07
1934–35	.78	.09	.09	.70	.25	.21	.23	.38	.32
1935–36	1.00	.37	.37	1.01	.40	.45	.83	.22	.22
Average	1.39	.38	.37	.98	.34	.32	.68	.17	.16

See footnotes at end of table.

TABLE 4.—*Average changes in adjusted prices of spot cotton of specified grade and staple length and in adjusted basis over 8-week periods ended during specified months, by seasons, 1920–21 to 1935–36*—Continued.

MIDDLING 1⅛-INCH [1] Continued

Season	Period ended during: January and February			March and April			May and June		
	Spot price [2]	Basis [3]: New York futures	Basis [3]: New Orleans futures	Spot price [2]	Basis [3]: New York futures	Basis [3]: New Orleans futures	Spot price [2]	Basis [3]: New York futures	Basis [3]: New Orleans futures
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1929–30	0.95	0.29	0.30	1.22	0.52	0.53	1.52	0.87	0.61
1930–31	.70	.14	.14	.36	.33	.42	1.48	.17	.17
1931–32	.26	.26	.26	.66	.04	.05	1.17	.11	.12
1932–33	.22	.16	.15	.39	.08	.07	2.27	.12	.13
1933–34	1.56	.21	.20	.85	.05	.08	.87	.07	.09
1934–35	.68	.20	.20	.89	.11	.14	.49	.13	.14
1935–36	.21	.24	.26	.26	.42	.41	.79	1.00	1.00
Average	.77	.21	.22	.72	.22	.23	1.20	.35	.35

[1] See footnote 1, table 1.
[2] See footnote 2, table 1.
[3] See footnote 3, table 1.
[4] See footnote 4, table 1.
[5] See footnote 5, table 3.

TABLE 5.—*Average changes in adjusted basis for cotton of specified grades and staple lengths over 8-week periods ended during specified months, by delivery months for specified numbers of seasons ended with 1935–36* [1]

MIDDLING ⅞-INCH, 1920–21 TO 1935–36 [2]

Period ended during:	New York futures, delivery months [3]				New Orleans futures, delivery months [3]			
	1	2	3	4	1	2	3	4
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
July, August, and September	0.92	0.93	0.94	0.97	0.87	0.91	0.93	0.96
October and November	.60	.64	.71	.79	.58	.62	.70	.78
December	.36	.39	.43	.48	.29	.31	.41	.49
January and February	.28	.28	.31	.50	.26	.26	.31	.52
March and April	.27	.30	.56	.58	.26	.29	.56	.57
May and June	.36	.49	.52	.53	.33	.50	.52	.51
Season	.51	.55	.62	.68	.48	.54	.62	.68

LOW MIDDLING ⅞-INCH, 1920–21 TO 1935–36 [4]

July, August, and September	0.94	0.95	0.98	0.99	0.88	0.93	0.94	0.99
October and November	.59	.58	.63	.66	.54	.55	.59	.62
December	.44	.46	.45	.46	.36	.44	.40	.42
January and February	.37	.35	.34	.42	.31	.42	.35	.44
March and April	.37	.37	.59	.62	.35	.36	.58	.61
May and June	.42	.56	.57	.57	.41	.56	.56	.55
Season	.57	.59	.64	.67	.52	.57	.62	.65

See footnotes at end of table.

TABLE 5.—*Average changes in adjusted basis for cotton of specified grades and staple lengths over 8-week periods ended during specified months, by delivery months for specified numbers of seasons ended with 1935–36* [1]—Continued

GOOD MIDDLING ⅞-INCH, 1920–21 TO 1935–36 [2]

Period ended during—	New York futures, delivery months [3]				New Orleans futures, delivery months [3]			
	1	2	3	4	1	2	3	4
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
July, August, and September	0.99	1.00	0.99	1.02	0.95	0.90	1.01	1.06
October and November	.68	.74	.80	.86	.66	.72	.80	.88
December	.34	.38	.43	.46	.30	.36	.41	.49
January and February	.22	.26	.30	.52	.24	.24	.30	.54
March and April	.35	.38	.63	.67	.33	.37	.63	.66
May and June	.38	.51	.55	.55	.36	.52	.54	.54
Season	.56	.60	.67	.73	.53	.59	.67	.74

MIDDLING 1-INCH, 1927–28 TO 1935–36 [2]

July, August, and September	0.31	0.32	0.33	0.34	0.29	0.31	0.32	0.34
October and November	.25	.26	.30	.32	.24	.24	.26	.29
December	.19	.20	.22	.24	.16	.18	.21	.24
January and February	.17	.17	.18	.27	.15	.16	.19	.28
March and April	.15	.15	.27	.29	.14	.16	.27	.28
May and June	.32	.36	.35	.34	.31	.31	.33	.31
Season	.24	.25	.28	.31	.22	.24	.27	.30

MIDDLING 1⅛-INCH, 1920–30 TO 1935–36 [4]

July, August, and September	0.38	0.40	0.42	0.43	0.37	0.40	0.42	0.44
October and November	.34	.39	.44	.48	.32	.39	.42	.46
December	.17	.19	.22	.22	.16	.19	.21	.21
January and February	.21	.22	.25	.31	.22	.24	.26	.36
March and April	.22	.21	.25	.26	.23	.21	.24	.24
May and June	.35	.33	.32	.31	.35	.32	.31	.30
Season	.29	.30	.33	.35	.29	.31	.32	.34

[1] See footnote 2, table 1.
[2] See footnote 1, table 1.
[3] Numbers for contract delivery months show the order of delivery date, as 1=nearest active month, 2=second nearest, 3=third nearest, and 4=fourth nearest.
[4] See footnote 4, table 1.

TABLE 6.—*Changes in prices of Middling ⅞-inch spot cotton in specified markets, and in basis, over 8-week periods ended during specified months, for the 6 years 1930–31 to 1935–36*

Market	Period ended during July, August, and September					
	Maximum change per pound			Average change per pound		
	Spot price [1]	Basis [2]		Spot price [1]	Basis [2]	
		New York futures	Liverpool futures		New York futures	Liverpool futures
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
New Orleans	3.77	1.34	1.30	1.33	0.21	0.31
Houston	3.80	1.21	1.41	1.30	.23	.30
Savannah	3.83	1.30	1.56	1.37	.28	.38
Memphis	3.85	.93	1.44	1.36	.23	.35
Carolina mill points	3.77	2.35	2.50	1.32	.19	.30
New England mill points	4.10	1.77	2.26	1.37	.29	.38
Liverpool	3.52	1.22	.74	1.35	.34	.24

See footnotes at end of table.

TABLE 6.—*Changes in prices of Middling 7/8-inch spot cotton in specified markets, and in basis, over 8-week periods ended during specified months, for the 6 years 1930–31 to 1935–36*—Continued

Market	Maximum change per pound			Average change per pound		
	Spot price [1]	Basis [2]		Spot price [1]	Basis [2]	
		New York futures	Liverpool futures		New York futures	Liverpool futures
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
Period ended during October and November						
New Orleans	2.41	0.49	0.91	0.69	0.31	0.27
Houston	2.40	.44	.99	.69	.19	.26
Savannah	2.20	.58	.94	.69	.30	.31
Memphis	2.30	1.00	1.42	.76	.32	.33
Carolina mill points	2.56	.93	1.64	.88	.35	.43
New England mill points	2.68	.53	.83	.83	.21	.28
Liverpool	3.65	1.74	1.39	.70	.43	.44
Period ended during December						
New Orleans	1.49	0.34	0.43	0.55	0.13	0.17
Houston	1.35	.30	.54	.54	.16	.21
Savannah	1.39	.26	.50	.55	.14	.21
Memphis	1.25	.46	.74	.54	.22	.25
Carolina mill points	1.59	.97	1.05	.63	.36	.42
New England mill points	1.49	.80	1.06	.45	.23	.24
Liverpool	1.86	.75	.50	.56	.21	.18
Period ended during January and February						
New Orleans	2.37	0.49	0.79	0.62	0.17	0.24
Houston	2.35	.52	1.09	.62	.21	.25
Savannah	2.46	.47	.83	.64	.18	.24
Memphis	2.30	.51	1.10	.54	.17	.33
Carolina mill points	2.37	.45	.92	.52	.13	.35
New England mill points	2.41	1.30	1.06	.58	.20	.36
Liverpool	3.00	1.05	.52	.80	.34	.16
Period ended during March and April						
New Orleans	1.83	0.36	0.75	0.64	0.22	0.22
Houston	1.55	.46	.77	.63	.22	.22
Savannah	2.02	.41	.72	.68	.21	.21
Memphis	1.80	.72	1.01	.59	.28	.23
Carolina mill points	1.99	.81	.99	.61	.20	.24
New England mill points	1.92	1.32	.99	.54	.32	.27
Liverpool	1.86	.75	1.17	.81	.27	.23
Period ended during May and June						
New Orleans	2.68	0.66	0.91	0.97	0.22	0.33
Houston	2.65	.60	.91	.94	.25	.35
Savannah	2.76	.50	.88	1.00	.21	.31
Memphis	2.65	.71	.90	.95	.30	.37
Carolina mill points	2.71	.83	.97	.97	.25	.36
New England mill points	2.79	.92	.94	1.00	.20	.34
Liverpool	3.07	1.46	1.14	1.10	.30	.25

[1] Spot prices on Friday as officially quoted by the cotton exchange at each market. Liverpool prices were converted to United States money at the current rate of exchange.

[2] Basis represents the spread between the quoted prices of Middling 7/8-inch spot cotton in specified markets and closing prices of near-month New York and Liverpool futures contracts for American cotton. No adjustments were made for carrying charges or for differences in time of the quotations.

TABLE 7.—*Proportion of the time changes in adjusted prices of spot cotton and in adjusted basis over 8-week periods showed gains and losses on long-market interests in spot cotton, and average amounts of these gains and losses for cotton of specified grades and staple lengths, by seasons, 1920–21 to 1935–36*

MIDDLING ⅞-INCH [1]

Season beginning July	Proportion of time					
	Gained on—			Lost on—		
	Basis [2]			Basis [2]		
	Spot price [2]	New York futures	New Orleans futures	Spot price [2]	New York futures	New Orleans futures
	Percent	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*
1920-21	13.5	26.9	21.2	86.5	73.1	76.9
1921-22	47.2	43.4	35.8	52.8	56.6	64.2
1922-23	63.5	36.5	30.8	36.5	61.5	69.2
1923-24	46.0	26.0	14.0	54.0	74.0	86.0
1924-25	32.7	38.5	21.2	67.3	59.6	76.9
1925-26	17.3	1.9	5.8	82.7	94.2	94.2
1926-27	55.8	26.9	13.5	44.2	67.3	86.5
1927-28	50.6	20.8	24.5	45.4	71.7	71.7
1928-29	42.3	17.3	15.4	57.7	80.8	82.7
1929-30	21.2	15.4	19.2	78.8	78.8	80.8
1930-31	19.2	46.2	48.1	80.8	53.8	51.9
1931-32	28.8	63.5	61.5	71.5	36.5	36.5
1932-33	57.1	30.6	30.6	41.9	67.3	63.3
1933-34	59.6	53.8	50.0	38.5	40.4	48.1
1934-35	36.5	48.1	46.2	61.5	48.1	50.0
1935-36	48.1	15.4	9.6	51.9	84.6	88.5
Average	40.3	32.0	28.0	59.6	65.7	70.4
	Average amount					
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1920-21	0.35	0.63	0.92	2.60	2.33	2.04
1921-22	3.74	.30	.48	1.15	.70	.46
1922-23	2.22	.31	.21	1.85	.54	.45
1923-24	3.60	.35	.71	3.13	1.40	1.26
1924-25	.90	.25	.19	2.42	1.58	1.31
1925-26	.49	.05	.02	1.61	.81	.71
1926-27	.91	.12	.05	2.31	.45	.43
1927-28	1.89	.34	.19	1.45	.28	.28
1928-29	.47	.32	.15	1.48	.48	.38
1929-30	.46	.06	.08	1.29	.34	.29
1930-31	.65	.08	.07	1.50	.36	.35
1931-32	.32	.12	.11	1.15	.09	.08
1932-33	1.31	.05	.06	.77	.05	.09
1933-34	.95	.09	.09	.78	.08	.07
1934-35	.69	.14	.14	.56	.11	.08
1935-36	.46	.05	.03	.71	.39	.37
Average	1.41	.22	.20	1.85	.67	.60

LOW MIDDLING ⅞-INCH [1]

	Proportion of time					
	Percent	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*
	13.5	50.0	57.8	86.5	50.0	42.3
1920-21	60.4	45.3	52.8	39.6	52.8	47.2
1921-22	63.5	36.5	27.0	36.5	61.5	73.1
1922-23	52.0	30.0	26.0	48.0	68.6	74.0
1923-24	32.7	57.7	51.9	67.3	40.4	48.1
1924-25	13.5	0.0	0.0	86.5	100.0	100.0
1925-26	59.6	46.2	38.5	40.4	51.9	61.5
1926-27	56.6	39.6	39.6	43.4	60.4	60.4
1927-28	36.5	17.3	11.5	63.5	82.7	88.5
1928-29	21.2	21.2	19.2	78.8	78.8	76.9
1929-30	19.2	48.1	48.1	80.8	46.2	51.9
1930-31	34.6	82.7	82.7	65.4	17.3	17.3
1931-32	55.1	32.7	30.6	42.9	67.3	65.3
1932-33	59.6	51.9	44.2	40.4	46.2	51.9
1933-34	36.5	42.3	44.2	61.5	51.9	48.1
1934-35	36.5	9.6	1.9	63.5	90.4	96.2
1935-36						
Average	40.7	38.2	35.8	59.1	60.3	62.6

See footnotes at end of table.

TABLE 7.—*Proportion of the time changes in adjusted prices of spot cotton and in adjusted basis over 8-week periods showed gains and losses on long-market interests in spot cotton, and average amounts of these gains and losses for cotton of specified grades and staple lengths, by seasons, 1920–21 to 1935–36*—Continued

LOW MIDDLING ⅞-INCH—Continued

Season beginning July	Average amount					
	Gained on—			Lost on—		
	Spot price[2]	Basis[3]		Spot price[2]	Basis[3]	
		New York futures	New Orleans futures		New York futures	New Orleans futures
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1920-21	0.56	0.99	0.86	4.39	1.94	1.85
1921-22	3.03	.59	.50	1.25	.50	.38
1922-23	2.35	.32	.35	1.78	.52	.43
1923-24	2.53	.86	.80	3.29	2.10	1.95
1924-25	1.08	.35	.26	2.23	2.17	1.54
1925-26	.49	.00	.00	1.85	1.05	.96
1926-27	.96	.38	.33	2.10	.40	.42
1927-28	1.80	.57	.53	1.05	.31	.34
1928-29	.50	.33	.20	1.46	.58	.46
1929-30	.48	.09	.09	1.27	.33	.29
1930-31	.78	.23	.23	1.43	.41	.36
1931-32	.39	.19	.18	1.16	.09	.07
1932-33	1.31	.05	.05	.82	.07	.07
1933-34	.04	.00	.10	.78	.11	.09
1934-35	.73	.16	.14	.57	.11	.10
1935-36	.52	.04	.03	.62	.43	.40
Average	1.40	.36	.33	1.71	.70	.63

GOOD MIDDLING ⅞-INCH

	Proportion of time					
	Percent	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*
1920-21	5.8	21.2	17.3	94.2	78.8	82.7
1921-22	47.2	39.6	32.1	52.8	60.4	66.0
1922-23	58.6	30.8	23.1	38.5	67.3	76.9
1923-24	46.0	32.0	18.0	54.0	68.0	82.0
1924-25	32.7	44.2	26.0	67.3	55.7	71.2
1925-26	19.2	13.5	23.1	80.8	84.6	76.9
1926-27	69.6	48.1	34.6	40.4	50.0	61.5
1927-28	56.6	15.1	15.9	43.4	83.0	31.1
1928-29	40.4	17.3	19.2	55.8	80.8	78.8
1929-30	17.3	28.8	38.5	82.7	71.2	61.5
1930-31	44.2	46.2	36.5	55.8	53.8	59.6
1931-32	28.8	48.1	40.4	71.2	46.2	51.9
1932-33	55.1	26.6	26.6	44.9	67.3	67.3
1933-34	39.6	55.8	50.0	38.5	40.4	50.0
1934-35	30.5	48.1	46.2	61.5	50.0	51.9
1935-36	48.1	15.4	11.5	51.9	84.6	88.5
Average	41.0	33.3	29.0	58.4	65.3	69.2

See footnotes at end of table

TABLE 7.—*Proportion of the time changes in adjusted prices of spot cotton and in adjusted basis over 8-week periods showed gains and losses on long-market interests in spot cotton, and average amounts of these gains and losses for cotton of specified grades and staple lengths, by seasons, 1920–21 to 1935–36*—Continued

GOOD MIDDLING ⅞-INCH[1]—Continued

Season beginning July	Average amount					
	Gained on—			Lost on—		
	Spot price[2]	Basis[3]		Spot price[2]	Basis[3]	
		New York futures	New Orleans futures		New York futures	New Orleans futures
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1920–21	0.56	0.79	1.14	5.58	2.69	2.42
1921–22	3.71	.52	.46	1.20	.67	.47
1922–23	2.28	.29	.23	1.84	.59	.53
1923–24	3.80	.34	.51	3.14	1.41	1.24
1924–25	.44	.24	.17	2.57	1.79	1.54
1925–26	.57	.23	.20	1.67	.93	.93
1926–27	.58	.15	.11	2.46	.61	.59
1927–28	1.83	.42	.16	1.58	.36	.34
1928–29	.49	.48	.26	1.46	.48	.40
1929–30	.54	.10	.10	1.22	.40	.41
1930–31	.28	.08	.08	2.22	.41	.38
1931–32	.20	.12	.10	1.18	.08	.08
1932–33	1.31	.07	.07	.76	.08	.08
1933–34	.95	.10	.10	.78	.08	.07
1934–35	.73	.14	.14	.56	.11	.08
1935–36	.50	.12	.12	.70	.39	.36
Average	1.39	.23	.21	1.97	.74	.67

MIDDLING 1-INCH[1]

	Proportion of time					
	Percent	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*
1927–28	56.0	26.4	32.1	43.4	71.7	66.0
1928–29	40.4	17.3	23.1	57.7	80.8	76.0
1929–30	17.3	17.3	21.2	82.7	82.7	78.8
1930–31	19.2	40.4	38.5	80.8	57.7	55.8
1931–32	25.0	42.3	44.2	75.0	57.7	55.8
1932–33	53.1	34.7	30.6	46.9	63.3	65.3
1933–34	61.5	61.5	59.6	38.5	34.6	36.5
1934–35	40.4	48.1	46.2	59.6	51.9	53.8
1935–36	40.4	13.5	11.5	59.6	86.5	88.5
Average	39.3	33.5	34.1	60.5	65.2	64.2

	Average amount					
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1927–28	1.80	0.29	0.17	1.40	0.35	0.36
1928–29	.57	.51	.24	1.41	.43	.36
1929–30	.57	.06	.07	1.26	.36	.33
1930–31	.62	.08	.08	1.55	.41	.43
1931–32	.30	.08	.07	1.16	.11	.12
1932–33	1.36	.12	.13	.72	.10	.10
1933–34	.96	.11	.11	.79	.09	.08
1934–35	.70	.22	.23	.56	.12	.10
1935–36	.53	.11	.08	.62	.41	.39
Average	.95	.16	.13	1.09	.29	.27

See footnotes at end of table.

TABLE 7.—*Proportion of the time changes in adjusted prices of spot cotton and in adjusted basis over 8-week periods showed gains and losses on long-market interests in spot cotton, and average amounts of these gains and losses for cotton of specified grades and staple lengths, by seasons, 1920–21 to 1935–36*—Continued

MIDDLING 15/16-INCH [4]

Season beginning July	Proportion of time					
	Gained on—			Lost on—		
	Spot price [2]	Basis [3]		Spot price [2]	Basis [3]	
		New York futures	New Orleans futures		New York futures	New Orleans futures
	Percent	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*
1929–30	11.5	36.5	40.4	88.5	61.5	59.6
1930–31	19.6	45.1	47.1	80.4	54.9	52.9
1931–32	18.0	32.0	26.0	82.0	62.0	66.0
1932–33	55.3	46.8	53.2	44.7	48.9	40.4
1933–34	65.7	34.3	37.1	34.3	65.7	62.9
1934–35	26.9	50.0	53.8	71.2	50.0	44.2
1935–36	44.2	30.8	32.7	55.8	69.2	67.3
Average	32.7	30.5	41.6	67.0	38.7	56.0
	Average amount					
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1929–30	0.53	0.26	0.29	1.31	0.87	0.87
1930–31	.63	.20	.18	1.53	.49	.51
1931–32	.33	.13	.15	1.13	.18	.17
1932–33	1.40	.15	.13	.84	.15	.17
1933–34	.95	.17	.16	.60	.06	.08
1934–35	.89	.16	.15	.48	.18	.19
1935–36	.65	.27	.27	.75	.56	.57
Average	.88	.19	.19	1.03	.39	.40

[1] Closing prices of spot cotton on Fridays as quoted in New Orleans.

[2] Adjustments were made by subtracting from the changes in quoted prices the costs of storage, insurance, and interest for carrying the spot cotton over 8-week periods.

[3] Adjustments were made in the changes in basis, or in the spread between the quoted prices of spot cotton of specified grade and staple length in New Orleans and in Memphis and prices of New York and New Orleans futures contracts for the near-active month at the close of the futures markets on Fridays, for the costs of carrying spot cotton over 8-week periods.

[4] Closing prices of spot cotton on Fridays as quoted in Memphis.

TABLE 8.—*Proportion of the time changes in adjusted prices of spot cotton and in adjusted basis over 8-week periods, ended during specified months, showed gains and losses on long-market interests in spot cotton, and average amounts of these gains and losses for cotton of specified grades and staple lengths for specified periods ended with 1935–36*

MIDDLING ⅞-INCH, 1920–21 TO 1935–36 [1]

Period ended during—	Proportion of time					
	Gained on—			Lost on—		
	Spot price [2]	Basis [3]		Spot price [2]	Basis [3]	
		New York futures	New Orleans futures		New York futures	New Orleans futures
	Percent	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*
July, August, September	35.9	20.0	19.1	63.6	77.5	79.4
October, November	33.1	42.4	38.8	66.9	56.8	60.4
December	43.0	25.0	20.8	57.0	70.8	77.8
January, February	40.0	26.1	20.9	60.0	72.4	78.4
March, April	47.1	36.0	30.9	52.9	60.3	66.2
May, June	46.8	43.9	38.1	53.2	54.0	59.7
	Average amount					
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
July, August, September	1.80	0.38	0.39	2.29	0.99	0.97
October, November	2.20	.22	.21	2.66	.91	.84
December	1.37	.17	.10	1.77	.46	.36
January, February	.93	.13	.11	1.14	.33	.29
March, April	.70	.08	.08	1.48	.42	.35
May, June	1.42	.28	.21	1.27	.45	.43

LOW MIDDLING ⅞-INCH, 1920–21 TO 1935–36 [1]

	Proportion of time					
	Percent	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*
July, August, September	38.3	21.5	20.6	60.8	77.5	77.0
October, November	33.1	51.8	45.3	66.9	47.5	53.2
December	43.1	38.4	35.6	56.9	58.9	64.4
January, February	41.8	45.1	39.1	58.2	54.1	57.9
March, April	48.5	44.1	48.5	51.5	53.7	50.7
May, June	41.7	37.4	33.8	58.3	61.2	65.5
	Average amount					
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
July, August, September	1.73	0.42	0.40	2.42	1.06	1.00
October, November	1.94	.37	.35	2.21	.86	.73
December	1.35	.34	.29	1.57	.53	.39
January, February	.98	.36	.34	.97	.39	.30
March, April	.85	.35	.31	1.31	.42	.42
May, June	1.55	.35	.30	1.15	.48	.48

GOOD MIDDLING ⅞-INCH, 1920–21 TO 1935–36 [1]

	Proportion of time					
	Percent	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*
July, August, September	35.4	18.7	16.7	64.1	80.4	81.8
October, November	31.7	51.1	46.8	68.3	48.2	59.7
December	44.4	30.6	33.3	54.2	65.3	66.7
January, February	39.6	31.6	26.3	59.7	67.7	73.7
March, April	46.3	34.6	27.2	53.7	64.0	70.6
May, June	43.0	37.4	33.1	54.7	59.7	63.3

See footnotes at end of table.

TABLE 8.—*Proportion of the time changes in adjusted prices of spot cotton and in adjusted basis over 8-week periods, ended during specified months, showed gains and losses on long-market interests in spot cotton, and average amounts of these gains and losses for cotton of specified grades and staple lengths for specified periods ended with 1935–36*—Continued

GOOD MIDDLING ⅞-INCH, 1920–21 TO 1935–36—Continued

Period ended during—	Average amount					
	Gained on—			Lost on—		
	Spot price [2]	Basis [3]		Spot price [2]	Basis [3]	
		New York futures	New Orleans futures		New York futures	New Orleans futures
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
July, August, September	1.79	0.36	0.39	2.40	1.11	1.04
October, November	2.38	.24	.22	2.70	1.18	.96
December	1.32	.17	.14	1.78	.45	.39
January, February	.97	.16	.13	1.12	.34	.28
March, April	.81	.08	.08	1.61	.52	.45
May, June	1.49	.32	.23	1.28	.44	.45

MIDDLING 1-INCH, 1927–28 TO 1935–36 [4]

	Proportion of time					
	Percent	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*
July, August, September	42.9	21.8	21.0	57.1	77.9	76.5
October, November	20.5	53.8	48.7	70.5	46.2	51.3
December	41.0	17.9	23.1	56.4	76.9	76.9
January, February	30.3	28.9	32.9	69.7	71.1	65.8
March, April	53.3	40.0	42.7	46.7	59.7	54.7
May, June	38.0	36.7	38.0	62.0	60.8	59.5
	Average amount					
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
July, August, September	1.42	0.16	0.12	1.63	0.35	0.33
October, November	.71	.20	.16	1.03	.31	.26
December	.41	.08	.05	.99	.23	.18
January, February	.80	.10	.12	.73	.20	.16
March, April	.64	.10	.11	.92	.20	.15
May, June	1.12	.24	.17	.98	.40	.43

MIDDLING 1⅛-INCH, 1929–30 TO 1935–36 [4]

	Proportion of time					
	Percent	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*
July, August, September	36.7	26.6	29.1	63.3	73.4	69.6
October, November	16.1	44.6	41.1	83.9	55.1	55.4
December	36.7	46.7	46.7	63.3	53.3	53.3
January, February	36.8	50.9	56.1	63.2	47.4	42.1
March, April	39.7	50.9	50.9	60.3	45.6	45.6
May, June	31.7	26.7	33.3	68.3	68.3	63.3
	Average amount					
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
July, August, September	1.01	0.14	0.12	1.60	0.46	0.47
October, November	.88	.20	.19	1.07	.50	.50
December	.59	.15	.15	.72	.17	.16
January, February	.80	.23	.25	.45	.21	.21
March, April	.58	.18	.21	.82	.28	.26
May, June	1.34	.20	.18	1.08	.45	.48

[1] Closing prices of spot cotton on Fridays as quoted in New Orleans.

[2] Adjustments were made by subtracting from the changes in quoted prices the costs of storage, insurance, and interest for carrying the spot cotton over 8-week periods.

[3] Adjustments were made in the changes in basis, or in the spread between the quoted prices of spot cotton of specified grade and staple length in New Orleans and in Memphis and prices of New York and New Orleans futures contracts for the near-active month at the close of the futures markets on Fridays, for the costs of carrying spot cotton over 8-week periods.

[4] Closing prices of spot cotton on Fridays as quoted in Memphis.

TABLE 9.—*Proportion of the time changes in adjusted basis, over 8-week periods ended during specified months, showed gains and losses on long-market interests in spot cotton, and average amounts of these gains and losses by delivery months for specified periods ended with 1935–36* [1]

MIDDLING ⅛-INCH, 1920–21 TO 1935–36 [2]

Period ended during—	Proportion of time							
	Gained on by—				Lost on by—			
	Delivery months [3]				Delivery months [3]			
	1	2	3	4	1	2	3	4
	Percent	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*
July, August, September	20.0	21.2	22.5	21.7	77.5	78.7	77.5	78.2
October, November	42.4	36.0	39.6	41.7	56.6	64.0	59.0	58.3
December	25.0	25.7	29.2	28.6	70.8	74.3	70.1	71.4
January, February	26.1	23.9	32.6	24.5	72.4	69.0	60.3	75.5
March, April	36.0	30.1	38.5	39.7	60.3	60.9	61.5	60.3
May, June	43.9	38.1	35.3	38.1	54.0	61.9	64.7	61.9
Season	31.8	30.3	32.4	31.8	65.9	68.5	66.2	68.2
	Average amount							
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
July, August, September	0.38	0.44	0.46	0.51	0.99	1.07	1.08	1.12
October, November	.22	.28	.32	.40	.91	.84	.98	1.06
December	.17	.25	.22	.25	.46	.48	.52	.59
January, February	.13	.13	.18	.35	.33	.34	.38	.69
March, April	.08	.13	.50	.55	.42	.42	.93	.98
May, June	.28	.45	.52	.53	.45	.76	.74	.79
Season	.22	.29	.39	.40	.65	.72	.83	.92

LOW MIDDLING ⅛-INCH, 1920–21 TO 1935–36 [2]

	Proportion of time							
	Percent	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*
July, August, September	21.5	21.4	23.1	23.7	77.5	79.6	76.9	76.3
October, November	51.8	47.1	46.4	44.6	47.5	52.9	53.6	55.4
December	38.4	41.1	38.0	31.0	58.9	58.9	62.0	69.0
January, February	45.1	43.0	41.4	35.8	54.1	57.0	58.6	64.2
March, April	44.1	53.3	52.1	54.0	53.7	46.7	47.9	46.0
May, June	37.4	39.0	36.3	36.3	61.2	61.0	63.7	63.3
Season	38.2	39.1	38.2	36.9	60.4	61.2	61.8	63.0
	Average amount							
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
July, August, September	0.42	0.50	0.49	0.55	1.06	1.09	1.13	1.15
October, November	.37	.38	.42	.47	.86	.77	.82	.82
December	.34	.32	.35	.37	.53	.55	.55	.51
January, February	.36	.35	.38	.29	.39	.37	.32	.73
March, April	.35	.31	.52	.54	.42	.46	1.09	1.13
May, June	.35	.46	.51	.54	.48	.83	.80	.80
Season	.37	.38	.45	.48	.70	.77	.85	.91

See footnotes at end of table.

TABLE 9.—*Proportion of the time changes in adjusted basis, over 8-week periods ended during specified months, showed gains and losses on long-market interests in spot cotton, and average amounts of these gains and losses by delivery months for specified periods ended with 1935–36* [1]—Continued

GOOD MIDDLING ⅞-INCH, 1920–21 TO 1935–36 [2]

Period ended during—	Proportion of time							
	Gained on by—				Lost on by—			
	Delivery months [3]				Delivery months [3]			
	1	2	3	4	1	2	3	4
	Percent	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*
July, August, September	18.7	18.8	20.6	20.4	80.4	81.2	79.4	79.6
October, November	51.1	44.6	45.3	43.9	48.2	55.4	54.7	56.1
December	30.6	36.1	33.3	33.8	65.3	63.9	66.6	66.2
January, February	31.6	32.1	37.6	29.5	67.7	67.9	62.4	70.5
March, April	34.6	37.6	36.6	44.6	64.9	62.4	63.4	55.4
May, June	37.4	31.0	30.3	32.2	59.7	60.0	69.7	67.8
Season	33.0	31.9	32.8	32.9	65.5	68.1	67.1	67.1
	Average amount [2]							
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
July, August, September	0.30	0.45	0.44	0.51	1.11	1.14	1.16	1.21
October, November	.24	.29	.34	.44	1.18	1.11	1.18	1.23
December	.17	.18	.27	.28	.45	.50	.50	.60
January, February	.16	.14	.18	.31	.34	.36	.37	.69
March, April	.08	.14	.47	.49	.52	.54	.89	1.01
May, June	.32	.53	.58	.60	.44	.62	.63	.64
Season	.23	.29	.38	.46	.74	.78	.85	.95

MIDDLING 1-INCH, 1927–28 TO 1935–36 [2]

	Proportion of time							
	Percent	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*
July, August, September	21.8	18.8	19.8	22.2	77.3	81.2	80.2	77.8
October, November	53.8	46.2	47.4	47.4	46.2	53.8	52.6	52.6
December	17.9	27.5	25.6	25.6	76.9	72.5	74.4	74.4
January, February	28.9	33.3	38.7	32.4	71.1	66.7	61.3	67.6
March, April	40.0	40.6	40.6	47.8	58.7	59.2	53.4	52.2
May, June	36.7	28.9	31.2	27.8	60.8	71.1	68.8	72.2
Season	33.4	31.7	34.2	33.4	65.3	68.3	65.8	66.6
	Average amount							
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
July, August, September	0.16	0.17	0.18	0.17	0.35	0.36	0.38	0.39
October, November	.20	.23	.20	.28	.31	.29	.32	.35
December	.08	.10	.16	.21	.23	.23	.24	.25
January, February	.10	.11	.14	.21	.20	.21	.22	.31
March, April	.10	.14	.35	.40	.20	.18	.22	.20
May, June	.24	.33	.30	.33	.40	.30	.38	.34
Season	.16	.10	.25	.28	.29	.30	.31	.33

See footnotes at end of table.

TABLE 9.—*Proportion of the time changes in adjusted basis, over 8-week periods ended during specified months, showed gains and losses on long-market interests in spot cotton, and average amounts of these gains and losses by delivery months for specified periods ended with 1935–36* [1]—Continued

MIDDLING 1⅛-INCH, 1920–30 TO 1935–36 [4]

Period ended during—	Proportion of time							
	Gained on by—				Lost on by—			
	Delivery months [3]				Delivery months [3]			
	1	2	3	4	1	2	3	4
	Percent	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*
July, August, September	26.6	30.3	33.3	39.6	73.4	69.7	66.7	61.0
October, November	44.6	42.9	46.3	49.2	55.4	57.1	53.7	50.8
December	46.7	41.4	43.3	37.9	53.3	58.6	56.7	62.1
January, February	50.9	55.4	52.7	50.8	47.4	44.6	47.3	49.2
March, April	50.9	55.6	66.2	72.4	45.6	54.4	33.8	27.6
May, June	26.7	30.4	29.9	26.9	68.3	69.6	70.1	73.1
Season	39.6	41.9	44.6	46.1	58.7	59.8	55.4	53.9
	Average amount							
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
July, August, September	0.14	0.15	0.15	0.16	0.46	0.53	0.50	0.63
October, November	.20	.23	.27	.28	.50	.51	.61	.63
December	.15	.24	.27	.32	.17	.17	.18	.17
January, February	.23	.24	.30	.33	.21	.21	.22	.27
March, April	.18	.17	.28	.27	.28	.28	.18	.33
May, June	.20	.30	.30	.37	.45	.34	.34	.32
Season	.19	.22	.26	.28	.38	.38	.40	.42

[1] Adjustments were made in the changes in basis, or in the spread between the quoted prices of spot cotton of specified grade and staple length and prices of New York futures contracts at the close of the futures markets on Fridays, for the costs of carrying spot cotton over 8-week periods.

[2] Closing prices of spot cotton on Fridays as quoted in New Orleans.

[3] Numbers for contract delivery months show the order of delivery date, as 1=nearest active month, 2=second nearest, 3=third nearest, and 4=fourth nearest.

[4] Closing prices of spot cotton on Fridays as quoted in Memphis.

TABLE 10.—*Proportion of the time changes in prices of Middling ⅞-inch spot cotton in specified markets and in basis over 8-week periods showed gains and losses on long market interests in spot cotton, and average amounts of these gains and losses by seasons, 1930–31 to 1935–36*

1930-31

Market	Proportion of time					
	Gained on—			Lost on—		
	Spot price [1]	Basis [2]		Spot price [1]	Basis [2]	
		New York futures	Liverpool futures		New York futures	Liverpool futures
	Percent	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*
New Orleans	25.0	75.0	61.5	75.0	25.0	38.5
Houston	23.1	76.8	71.2	76.9	19.2	28.8
Savannah	25.0	82.7	67.3	75.0	17.3	32.7
Memphis	21.2	61.5	59.6	78.8	38.5	40.4
Carolina mill points	22.0	54.0	48.0	78.0	38.0	52.0
New England mill points	20.0	62.0	60.0	74.0	32.0	40.0
Liverpool	23.1	50.0	57.7	76.9	50.0	42.3
	Average amount					
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
New Orleans	0.67	0.23	0.37	0.76	0.44	0.37
Houston	.69	.24	.35	1.31	.55	.49
Savannah	.72	.24	.37	1.41	.53	.52
Memphis	.75	.33	.42	1.27	.30	.34
Carolina mill points	.69	.35	.49	1.31	.32	.29
New England mill points	.54	.31	.43	1.50	.69	.69
Liverpool	.78	.33	.22	1.55	.45	.44

1931-32

	Proportion of time					
	Percent	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*
New Orleans	36.5	98.1	63.5	61.5	1.9	32.7
Houston	30.8	100.0	69.2	61.5	0	26.9
Savannah	42.3	96.2	69.2	57.7	1.9	30.8
Memphis	38.5	96.2	67.3	57.7	1.9	32.7
Carolina mill points	38.0	90.0	56.0	62.0	8.0	44.0
New England mill points	38.0	90.0	72.0	62.0	4.0	28.0
Liverpool	30.5	71.2	53.8	69.5	26.9	38.6
	Average amount					
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
New Orleans	0.41	0.23	0.22	1.13	0.05	0.21
Houston	.47	.25	.22	1.08	0	.16
Savannah	.30	.26	.22	1.18	.02	.16
Memphis	.40	.26	.25	1.17	.01	.23
Carolina mill points	.38	.23	.24	1.20	.07	.21
New England mill points	.30	.30	.23	1.12	.04	.23
Liverpool	.40	.37	.24	1.14	.13	.13

[1] Spot prices on Friday as officially quoted by the cotton exchange at each market. Liverpool prices were converted to United States money at the current rate of exchange.

[2] Basis represents the spread between the quoted prices of Middling ⅞-inch spot cotton in specified markets and closing prices of near-month New York and Liverpool futures contracts for American cotton. No adjustments were made for carrying charges or for differences in time of the quotations.

TABLE 10.—*Proportion of the time changes in prices of Middling ⅞-inch spot cotton in specified markets and in basis over 8-week periods showed gains and losses on long market interests in spot cotton, and average amounts of these gains and losses by seasons, 1930–31 to 1935–36*—Continued

1932–33

Market	Proportion of time					
	Gained on—			Lost on—		
	Spot price	Basis		Spot price	Basis	
		New York futures	Liverpool futures		New York futures	Liverpool futures
	Percent	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*
New Orleans	66.0	98.0	50.0	34.0	2.0	48.0
Houston	66.0	96.0	58.0	32.0	4.0	42.0
Savannah	68.0	88.0	52.0	32.0	10.0	48.0
Memphis	72.0	92.0	62.0	28.0	6.0	38.0
Carolina mill points	65.3	85.7	65.3	34.7	2.0	34.7
New England mill points	68.0	82.0	54.0	32.0	16.0	44.0
Liverpool	64.0	58.0	60.0	36.0	40.0	40.0
	Average amount					
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
New Orleans	1.26	0.12	0.14	0.83	0.01	0.16
Houston	1.26	.13	.14	.87	.11	.18
Savannah	1.22	.15	.12	.86	.04	.12
Memphis	1.19	.21	.19	.87	.07	.15
Carolina mill points	1.25	.21	.15	.68	.06	.15
New England mill points	1.27	.17	.19	.99	.13	.25
Liverpool	1.30	.36	.13	.74	.17	.16

1933–34

	Proportion of time					
New Orleans	*Percent* 63.5	*Percent* 96.2	*Percent* 44.2	*Percent* 36.5	*Percent* 1.9	*Percent* 53.8
Houston	64.0	98.0	50.0	34.0	2.0	48.0
Savannah	65.4	76.9	44.2	34.6	21.2	55.8
Memphis	65.4	82.7	42.3	34.6	17.3	55.8
Carolina mill points	76.3	73.6	34.2	23.7	18.4	65.2
New England mill points	63.5	81.0	44.2	36.5	11.5	53.8
Liverpool	63.5	71.2	61.5	36.5	26.9	38.5
	Average amount					
New Orleans	*Cents* 1.04	*Cents* 0.18	*Cents* 0.21	*Cents* 0.66	*Cents* 0.02	*Cents* 0.28
Houston	1.04	.19	.20	.68	.03	.31
Savannah	1.02	.24	.25	.74	.10	.32
Memphis	1.00	.21	.27	.78	.10	.36
Carolina mill points	1.08	.34	.46	.72	.55	.43
New England mill points	1.02	.17	.15	.74	.07	.30
Liverpool	1.27	.40	.18	.87	.23	.27

See footnotes on p. 89.

TABLE 10.—*Proportion of the time changes in prices of Middling ⅞-inch spot cotton in specified markets and in basis over 8-week periods showed gains and losses on long market interests in spot cotton, and average amounts of these gains and losses by seasons, 1930–31 to 1935–36*—Continued

1934–35

Market	Proportion of time					
	Gained on—			Lost on—		
	Spot price	Basis		Spot price	Basis	
		New York futures	Liverpool futures		New York futures	Liverpool futures
	Percent	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*
New Orleans	46.2	76.9	30.8	53.8	21.2	69.2
Houston	44.2	75.0	30.8	51.9	21.2	69.2
Savannah	50.0	94.0	32.0	50.0	4.0	68.0
Memphis	48.1	67.3	30.8	50.0	30.8	69.2
Carolina mill points	51.9	80.4	34.6	48.1	15.4	63.5
New England mill points	48.1	86.5	40.4	51.9	9.6	59.6
Liverpool	53.8	67.3	44.2	46.2	32.7	55.8
	Average amount					
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
New Orleans	0.68	0.18	0.27	0.51	0.03	0.29
Houston	.70	.19	.26	.54	.03	.31
Savannah	.67	.17	.28	.52	.08	.28
Memphis	.65	.30	.33	.47	.08	.26
Carolina mill points	.64	.22	.29	.56	.13	.31
New England mill points	.71	.28	.34	.44	.31	.31
Liverpool	.77	.32	.34	.74	.15	.43

1935–36

	Proportion of time					
New Orleans	*Percent* 50.0	*Percent* 19.2	*Percent* 34.6	*Percent* 48.1	*Percent* 80.8	*Percent* 65.4
Houston	50.0	19.2	32.7	50.0	78.8	67.3
Savannah	53.8	32.7	34.6	46.2	65.4	65.4
Memphis	46.2	30.8	38.5	48.1	67.3	61.5
Carolina mill points	44.2	28.8	34.6	55.8	69.2	65.4
New England mill points	46.2	26.9	32.7	51.9	67.3	67.3
Liverpool	55.8	30.8	30.8	44.2	69.2	67.3
	Average amount					
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
New Orleans	0.56	0.14	0.22	0.64	0.29	0.43
Houston	.53	.11	.21	.61	.31	.42
Savannah	.59	.15	.32	.73	.36	.45
Memphis	.63	.17	.36	.70	.41	.59
Carolina mill points	.56	.18	.43	.55	.42	.59
New England mill points	.56	.18	.32	.54	.38	.45
Liverpool	.51	.35	.17	.67	.31	.36

See footnotes on p. 89.

TABLE 10.—*Proportion of the time changes in prices of Middling ⅞-inch spot cotton in specified markets and in basis over 8-week periods showed gains and losses on long market interests in spot cotton, and average amounts of these gains and losses by seasons, 1930–31 to 1935–36*—Continued.

AVERAGE 1930–31 TO 1935–36

Market	Proportion of time					
	Gained on			Lost on—		
	Basis [2]			Basis [2]		
	Spot price [1]	New York futures	Liverpool futures	Spot price [1]	New York futures	Liverpool futures
	Percent	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*
New Orleans	47.7	77.6	47.4	51.6	22.4	51.0
Houston	46.1	77.6	51.9	51.3	21.1	47.1
Savannah	50.6	78.5	50.0	49.4	20.2	50.0
Memphis	48.4	71.6	50.0	49.7	27.4	49.7
Carolina mill points	48.5	68.3	45.7	51.5	25.8	53.6
New England mill points	48.4	71.9	50.3	51.3	23.5	49.0
Liverpool	49.4	58.1	51.6	50.6	41.0	46.8
	Average amount					
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
New Orleans	0.32	0.19	0.24	0.02	0.27	0.30
Houston	.31	.20	.24	.00	.30	.32
Savannah	.32	.21	.26	.97	.34	.31
Memphis	.30	.25	.30	.03	.28	.34
Carolina mill points	.33	.25	.32	.01	.35	.35
New England mill points	.32	.24	.28	.03	.38	.38
Liverpool	.01	.35	.21	1.04	.31	.31

See footnotes on p. 89.

TABLE 11.—*Average changes in adjusted basis over 8-week periods, as proportions of the corresponding changes in prices of spot cotton of specified grades and staple lengths, adjusted for carrying charges, by seasons, 1920–21 to 1935–36* [1]

Season beginning July	Middling ⅞-inch		Low Middling ⅞-inch		Good Middling ⅞-inch		Middling 1-inch [2]		Middling 1⅛-inch [3]	
	New York futures	New Orleans futures	New York futures	New Orleans futures	New York futures	New Orleans futures	New York futures	New Orleans futures	New York futures	New Orleans futures
	Percent	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*
1920–21	38.2	36.4	38.0	32.6	42.1	40.4				
1921–22	26.3	26.3	23.7	18.9	25.2	19.1				
1922–23	21.5	19.6	21.0	19.0	23.7	22.2				
1923–24	33.4	34.3	57.9	56.9	31.0	31.9				
1924–25	53.9	53.2	59.1	53.2	55.9	55.9				
1925–26	54.6	47.5	62.9	57.5	56.2	52.1				
1926–27	22.2	24.8	27.5	27.5	24.8	26.1				
1927–28	17.1	15.9	26.8	27.4	20.9	17.4	20.4	18.5		
1928–29	41.9	31.4	50.5	40.2	46.6	35.0	41.9	31.4		
1929–30	26.2	22.5	24.5	21.8	28.2	26.4	27.2	24.6	51.6	60.7
1930–31	17.9	17.2	22.9	22.9	19.1	19.1	19.7	19.7	26.9	26.1
1931–32	11.0	9.9	19.1	20.2	9.7	8.6	10.5	9.5	15.3	15.3
1932–33	6.5	6.5	5.6	5.6	6.7	6.7	10.3	9.3	12.1	12.1
1933–34	9.3	9.3	11.4	10.2	10.5	9.3	11.2	11.2	11.7	13.0
1934–35	19.7	16.4	19.7	18.0	19.7	18.0	27.4	25.8	29.3	27.6
1935–36	58.6	58.6	66.1	64.4	57.4	54.1	63.2	61.4	66.2	66.2
16 years	30.4	28.5	35.7	32.7	32.4	30.5				
9 years [4]	21.2	18.9	26.9	24.0	23.0	20.3	23.6	21.3		
7 years [5]	19.0	17.9	21.8	20.7	19.8	18.7	21.5	20.4	29.6	29.6

[1] Spot prices of Middling ⅞-inch, Low Middling ⅞-inch, and Good Middling ⅞-inch and Middling 1-inch cotton as quoted in New Orleans, and spot prices of Middling 1⅛-inch cotton as quoted in Memphis on Fridays. Adjustments were made in the changes in basis, or in the spread between the quoted prices of spot cotton of specified grade and staple length in New Orleans and in Memphis and prices of New York and New Orleans futures contracts for the near-active month at the close of the futures markets on Fridays, for the costs of carrying spot cotton over 8-week periods.

[2] Comparable data prior to 1927–28 not available.

[3] Comparable data prior to 1929–30 not available.

[4] Seasons 1927–28 to 1935–36.

[5] Seasons 1929–30 to 1935–36.

TABLE 12.—*Average changes in adjusted basis over 8-week periods ended during specified months as proportions of the corresponding changes in prices of spot cotton, adjusted for carrying charges, by delivery months for specified periods ended with 1935–36* [1]

MIDDLING 7/8-INCH, 1920-21 TO 1935-36

Period	New York futures, delivery months [2]				New Orleans futures, delivery months [2]			
	1	2	3	4	1	2	3	4
	Percent	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*
July, August, September	43	45	46	48	41	39	45	48
October, November	24	25	26	31	23	25	27	31
December	23	24	27	30	19	21	26	31
January, February	26	26	28	50	24	24	29	51
March, April	24	25	48	52	23	25	48	52
May, June	27	38	39	40	25	37	39	39
Season	30	32	38	43	28	30	37	43

LOW MIDDLING 7/8-INCH, 1920-21 TO 1935-36

July, August, September	44	46	47	48	41	45	46	48
October, November	25	27	30	31	25	25	27	29
December	31	33	33	32	25	28	30	31
January, February	38	37	35	43	32	33	36	45
March, April	34	33	54	55	32	32	53	54
May, June	32	40	43	44	31	42	42	43
Season	36	37	41	43	32	36	40	43

GOOD MIDDLING 7/8-INCH, 1920-21 TO 1935-36

July, August, September	45	47	47	50	44	47	48	50
October, November	26	28	31	34	26	27	31	33
December	23	24	28	31	20	23	26	32
January, February	26	26	27	46	23	24	27	47
March, April	28	30	50	54	27	28	50	54
May, June	28	38	40	41	27	38	40	41
Season	31	34	39	44	30	33	39	44

MIDDLING 1-INCH, 1927-28 TO 1935-36

July, August, September	20	21	22	22	19	20	21	22
October, November	27	28	32	33	22	26	28	30
December	27	30	33	34	23	27	31	36
January, February	23	24	25	36	20	23	27	37
March, April	20	20	36	37	18	20	36	36
May, June	31	34	32	33	30	29	31	29
Season	24	25	20	31	22	24	28	30

MIDDLING 1 1/8-INCH, 1929-30 TO 1935-36

July, August, September	27	29	30	32	27	29	30	32
October, November	35	37	41	45	33	37	40	43
December	25	29	34	34	21	29	32	32
January, February	37	39	44	53	39	40	44	51
March, April	31	29	35	37	32	29	33	35
May, June	29	27	26	25	29	26	25	24
Season	31	32	35	37	31	32	34	36

[1] Spot prices of Middling 7/8-inch, Low Middling 7/8-inch, and Good Middling 7/8-inch and Middling 1-inch cotton as quoted in New Orleans, and spot prices of Middling 1 1/8-inch cotton as quoted in Memphis on Fridays. Adjustments were made in the changes in basis, or in the spread between the quoted prices of spot cotton of specified grade and staple length in New Orleans and in Memphis and prices of New York and New Orleans futures contracts for the near-active month at the close of the futures markets on Fridays, for the costs of carrying spot cotton over 8-week periods.

[2] Numbers for contract delivery months show the order of delivery date, as 1=nearest active month, 2=second nearest, 3=third nearest, and 4=fourth nearest.

TABLE 13.—*Average changes in basis for Middling 7/8-inch cotton over 8-week periods as proportions of the corresponding changes in prices of spot cotton at specified markets, seasons 1930–31 to 1935–36* [1]

BASIS CALCULATED FROM PRICES OF NEW YORK FUTURES CONTRACTS

Market	Season beginning July						
	1930-31	1931-32	1932-33	1933-34	1934-35	1935-36	Weighted average
	Percent	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*
New Orleans	23	26	11	19	25	45	23
Houston	25	31	12	21	27	46	24
Savannah	27	29	13	22	27	45	26
Memphis	28	30	18	33	42	53	29
Carolina mill points	26	24	17	35	33	62	30
New England mill points	33	32	14	16	47	56	30
Liverpool	28	33	26	30	36	69	34

BASIS CALCULATED FROM LIVERPOOL FUTURES CONTRACTS [2]

New Orleans	30	25	14	27	49	60	31
Houston	33	25	14	28	49	63	31
Savannah	34	25	11	32	49	62	33
Memphis	34	30	16	33	51	81	37
Carolina mill points	33	25	14	43	50	95	36
New England mill points	43	27	18	25	56	76	36
Liverpool	23	20	13	19	51	52	27

[1] Basis represents the spread between prices of Middling ⅞-inch spot cotton in specified markets and prices of New York and Liverpool futures contracts for the near-active month.

[2] For American cotton.

TABLE 14.—*Averages of advances and of declines in prices [1] of spot cotton, average hedge offset afforded by futures contracts,[2] and additional gains and losses on long-basis positions; and net average gain or loss from changes in prices of spot cotton and from changes in adjusted basis [3] over 8-week periods, seasons 1920–21 to 1935–36*

FOR ENTIRE SEASON

Year beginning July	When spot prices advanced						When spot prices declined						Net average gain or loss (−)	
	Proportion of time	Spot price advance	Hedge		Additional		Proportion of time	Spot price decline	Hedge		Additional		Spot price	Basis N. Y.
			Offset [4]	Not offset [5]	Gain [6]	Loss [7]			Offset	Not offset [8]	Gain [9]	Loss [10]		
	Percent	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Percent*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1920–21	13.5	0.35	0.32	0.03	0.05	0.06	86.5	5.60	3.66	1.94	0.18	0	−4.80	−1.53
1921–22	47.2	3.74	3.36	.38	0	.11	52.8	1.15	.69	.46	.11	.16	1.15	−.18
1922–23	63.5	2.23	2.10	.13	.01	.13	36.5	1.85	1.38	.47	.09	.08	.74	−.22
1923–24	46.0	3.60	3.48	.12	0	.69	54.0	3.13	2.00	1.13	.06	.19	−.04	−.04
1924–25	32.7	.90	.84	.06	.03	.03	67.3	2.42	1.26	1.16	0	.22	−1.34	−.84
1925–26	17.3	.49	.48	.01	0	.02	82.7	1.61	.94	.67	0	.13	−1.24	−.76
1926–27	55.8	.91	.89	.02	0	.16	44.2	2.31	1.84	.47	.04	.03	−.51	−.27
1927–28	56.6	1.89	1.82	.07	0	.22	43.4	1.45	1.25	.20	.08	.01	.44	−.14
1928–29	42.3	.47	.47	0	0	.43	57.7	1.48	1.16	.32	.09	.04	−.66	−.33
1929–30	21.2	.46	.45	.01	.01	.34	78.8	1.29	1.07	.22	.01	.03	−.92	−.26
1930–31	19.2	.65	.57	.08	0	0	80.8	1.50	1.26	.24	.02	0	−1.09	−.16
1931–32	28.8	.32	.24	.08	.02	.01	71.2	1.15	1.11	.04	.06	0	−.73	.04
1932–33	55.1	1.31	1.30	.01	0	.04	44.9	.77	.71	.06	.02	.01	.38	−.04
1933–34	59.6	.95	.88	.07	0	.02	38.5	.78	.70	.08	.03	0	.26	.02
1934–35	38.5	.69	.66	.03	0	.06	61.5	.56	.51	.05	.08	0	−.08	.02
1935–36	48.1	.46	.44	.02	0	.26	51.9	.71	.39	.32	0	.08	−.14	−.33
Average	40.3	1.41	1.33	.08	.01	.19	59.6	1.86	1.31	.55	.06	.06	−.54	−.30

See footnotes at end of table.

TABLE 14.—*Averages of advances and of declines in prices*[1] *of spot cotton, average hedge offset afforded by futures contracts,*[2] *and additional gains and losses on long-basis positions; and net average gain or loss from changes in prices of spot cotton and from changes in adjusted basis*[3] *over 8-week periods, seasons 1920–21 to 1935–36*—Continued

FOR 8-WEEK PERIOD ENDED DURING JULY, AUGUST, AND SEPTEMBER

Year beginning July	When spot prices advanced						When spot prices declined						Net average gain or loss (−)	
	Proportion of time	Spot price advance	Hedge		Additional		Proportion of time	Spot price decline	Hedge		Additional		Spot price	Basis N. Y.
			Offset [4]	Not offset [5]	Gain [6]	Loss [7]			Offset	Not offset [8]	Gain [9]	Loss [10]		
	Percent	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Percent*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1920–21	0						100.0	6.33	3.55	2.78	.45	0	−6.33	−2.33
1921–22	64.3	4.65	4.23	0.42	0	0	35.7	.66	.64	.02	.34	0	2.76	.39
1922–23	38.5	1.61	1.54	.07	0	.15	61.5	1.30	.61	.69	0	0	−.18	−1.46
1923–24	36.4	2.52	2.43	.09	0	1.33	63.6	4.09	.84	3.25	0	.45	−1.68	−2.80
1924–25	0						100.0	3.78	1.02	2.76	0	.58	−3.78	−3.34
1925–26	15.4	.54	.54	0	0	1.54	84.6	1.05	.35	.70	0	.46	−.81	−1.22
1926–27	30.8	.52	.41	.11	0	.29	69.2	1.17	.63	.54	.08	.07	−.65	−1.41
1927–28	92.9	2.72	2.66	.06	0	.14	7.1	.42	.08	.34	0	0	2.50	−1.10
1928–29	30.8	.43	.43	0	0	.09	69.2	2.97	2.42	.55	0	0	−1.92	−1.41
1929–30	30.8	.20	.20	0	0	.45	69.2	.77	.33	.44	0	.01	−.47	−1.45
1930–31	0						100.0	2.52	1.84	.68	0	0	−2.52	−.69
1931–32	15.4	.24	.04	.20	0	0	84.6	2.02	1.95	.07	.05	0	−1.68	.01
1932–33	78.6	1.44	1.44	0	0	.06	21.4	.24	.16	.08	0	.01	1.08	−.07
1933–34	38.5	1.38	1.38	0	0	.09	53.8	1.12	1.04	.08	.01	0	−.07	−.07
1934–35	84.6	.90	.87	.03	.01	.02	15.4	.18	.18	0	.20	0	.73	.04
1935–36	7.7	.54	.54	0	0	.44	92.3	.94	.60	.34	0	.04	−.83	−.38
Average	35.9	1.80	1.69	.11	0	.21	63.6	2.29	1.27	1.02	.07	.13	−.81	−.49

[1] Prices of Middling ⅞-inch spot cotton in New Orleans as quoted on Fridays, adjusted for carrying charges.
[2] New York futures contracts for the near-active month at the close on Friday.
[3] Basis for Middling ⅞-inch spot cotton in New Orleans calculated from near-month New York futures contracts and adjusted for the costs of carrying spot cotton.
[4] Prices of spot cotton, adjusted for carrying charges, and prices of futures contracts advanced together.
[5] The extent to which advances in prices of spot cotton, adjusted for carrying charges, exceeded the advances in prices of futures contracts. These differences represent gains on long-basis positions.
[6] Declines in prices of futures contracts.
[7] The extent to which the advances in prices of futures contracts exceeded the corresponding advances in prices of spot cotton adjusted for carrying charges.
[8] The extent to which the declines in prices of spot cotton adjusted for carrying charges exceeded the declines in prices of futures contracts. These differences represent losses on long-basis positions.
[9] The extent to which declines in prices of futures contracts exceeded the declines in prices of spot cotton adjusted for carrying charges.
[10] Advances in prices of futures contracts.

TABLE 15.—*Averages of advances and of declines in prices of spot cotton [1] in specified markets, average hedge offset afforded by futures contracts,[2] and additional gains and losses on long-basis positions over 8-week periods, seasons 1930–31 to 1935–36*

Market	When spot prices advanced						When spot prices declined					
	Proportion of time	Spot price advance	Hedge		Additional		Proportion of time	Spot price advance	Hedge		Additional	
			Offset [3]	Not offset [4]	Gain [5]	Loss [6]			Offset	Not offset [7]	Gain [8]	Loss [9]
	Percent	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Percent*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
NEW YORK FUTURES AS HEDGES												
New Orleans	47.7	0.83	0.69	0.14	0.01	0.04	51.6	0.92	0.84	0.07	0.13	0.01
Houston	46.1	.85	.70	.15	.01	.04	51.3	.90	.83	.08	.15	.01
Savannah	50.6	.82	.66	.16	.02	.03	49.4	.97	.87	.11	.14	0
Memphis	48.4	.83	.67	.16	.03	.04	49.7	.93	.83	.10	.17	.01
Carolina mill points	47.6	.84	.65	.19	.02	.04	51.4	.91	.82	.09	.16	.03
New England mills points	48.4	.83	.67	.16	.02	.04	51.3	.93	.82	.12	.16	.03
Liverpool	49.4	.91	.62	.28	.03	.06	50.6	1.04	.87	.17	.11	.02
LIVERPOOL FUTURES AS HEDGES												
New Orleans	47.7	0.83	0.73	0.10	0.01	0.13	51.6	0.92	0.76	0.16	0.12	0.01
Houston	46.1	.85	.75	.10	.01	.13	51.3	.90	.75	.16	.13	.02
Savannah	50.6	.82	.71	.11	.02	.11	49.4	.97	.78	.19	.13	.01
Memphis	48.4	.83	.70	.13	.02	.14	49.7	.93	.75	.18	.14	.03
Carolina mill points	47.6	.84	.67	.17	.01	.13	51.4	.91	.73	.18	.13	.04
New England mill points	48.4	.83	.72	.11	.02	.13	51.3	.93	.73	.20	.14	.03
Liverpool	49.4	.91	.76	.15	.01	.07	50.6	1.04	.83	.21	.06	.01

[1] Price of Middling ⅞-inch spot cotton as quoted on Fridays. Liverpool prices were converted to United States money at the current rate of exchange.
[2] New York and Liverpool futures contracts for American cotton for near-active months. Liverpool prices were converted to United States money at the current rate of exchange.
[3] Prices of spot cotton and prices of futures contracts advanced together.
[4] The extent to which advances in prices of spot cotton exceeded the advances in prices of futures contracts. These differences represent gains on long-basis positions.
[5] Declines in prices of futures contracts.
[6] The extent to which the advances in prices of futures contracts exceeded the corresponding advances in prices of spot cotton.
[7] The extent to which the declines in prices of spot cotton exceeded the declines in prices of futures contracts.
[8] The extent to which declines in prices of futures contracts exceeded the declines of spot cotton.
[9] Advances in prices of futures contracts.

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RELATION OF SPOT COTTON PRICES TO PRICES OF FUTURES CONTRACTS, AND 2 OF 2

HOWELL, L. D., WATSON, L. J

TABLE 16.—*Proportion of the time changes in adjusted basis over 8-week periods exceeded the corresponding changes in prices of spot cotton of specified grades and staple lengths, adjusted for carrying charges, by seasons, 1920–21 to 1935–36* [1]

Season beginning July	Middling ⅞-inch	Low Middling ⅞-inch	Good Middling ⅞-inch	Middling 1-inch [2]	Middling 1⅛-inch [3]
	Percent	*Percent*	*Percent*	*Percent*	*Percent*
1920–21	15	25	12		
1921–22	25	25	21		
1922–23	15	13	15		
1923–24	12	28	12		
1924–25	19	31	17		
1925–26	31	33	25		
1926–27	17	15	23		
1927–28	8	17	8	13	
1928–29	25	29	31	25	
1929–30	19	19	21	17	23
1930–31	2	4	0	0	8
1931–32	6	23	6	0	10
1932–33	12	12	12	14	15
1933–34	4	4	4	2	9
1934–35	13	10	13	19	29
1935–36	37	42	38	37	38
16 years	16	21	16		
9 years [4]	14	18	15	14	
7 years [5]	13	16	14	13	19

[1] Spot prices of Middling ⅞-inch, Low Middling ⅞-inch, and Good Middling ⅞-inch and Middling 1-inch cotton as quoted in New Orleans, and spot prices of Middling 1⅛-inch cotton as quoted in Memphis on Fridays. Adjustments were made in the changes in basis, or in the spread between the quoted prices of spot cotton of specified grade and staple length in New Orleans and in Memphis and prices of New York and New Orleans futures contracts for the near-active month at the close of the futures markets on Fridays, for the cost of carrying spot cotton over 8-week periods.

[2] Comparable data prior to 1927–28 not available.

[3] Comparable data prior to 1929–30 not available.

[4] Seasons 1927–28 to 1935–36.

[5] Seasons 1929–30 to 1935–36.

TABLE 17.—*Proportion of the time changes in adjusted basis over 8-week periods ended during specified months exceeded the corresponding changes in prices of spot cotton of specified grades and staple lengths, adjusted for carrying charges, for specified periods ended with 1935–36* [1]

Period ended during—	Middling ⅞-inch [2]	Low Middling ⅞-inch [2]	Good Middling ⅞-inch [2]	Middling 1-inch [3]	Middling 1⅛-inch [4]
	Percent	*Percent*	*Percent*	*Percent*	*Percent*
July, August, September	19	21	18	9	10
October, November	10	14	10	12	16
December	14	22	14	17	13
January, February	15	22	14	12	39
March, April	17	21	18	12	19
May, June	21	25	21	27	20

[1] Spot prices of Middling ⅞-inch, Low Middling ⅞-inch, and Good Middling ⅞-inch, and Middling 1-inch cotton as quoted in New Orleans, and spot prices of Middling 1⅛-inch cotton as quoted in Memphis on Fridays. Adjustments were made in the changes in basis, or in the spread between the quoted prices of spot cotton of specified grade and staple length in New Orleans and in Memphis and prices of New York and New Orleans futures contracts for the near-active month at the close of the futures markets on Fridays, for the costs of carrying spot cotton over 8-week periods.

[2] 16-year period, 1920–21 to 1935–36.

[3] 9-year period, 1927–28 to 1935–36.

[4] 7-year period, 1929–30 to 1935–36.

TABLE 18.—*Average amounts by which prices of New York futures contracts for the more distant months, adjusted for carrying charges,[1] differed from prices of contracts for the near-active month, by active months and by years, 1920–21 to 1935–36*[2]

Season	October to—					December to—				
	Dec.	Jan.	Mar.	May	July	Jan.	Mar.	May	July	Oct.
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1920–21	−1.91	−2.03	−3.68	−4.39	−5.12	−0.34	−0.72	−1.04	−1.45	−1.85
1921–22	.03	−.20	−.44	−.83	−1.46	−.32	−.64	−1.17	−1.89	−3.01
1922–23	−.15	−.45	−.71	−1.12	−1.59	−.28	−.58	−1.06	−1.72	−3.77
1923–24	−.56	−1.11	−1.43	−1.81	−2.73	−.86	−1.04	−1.39	−2.47	−8.59
1924–25	−.02	−1.17	−1.26	−1.43	−2.15	−.03	−.02	−.07	−.49	−1.80
1925–26	− .14	−.90	−.95	−1.01	−1.58	−.84	−1.05	−1.52	−2.26	−3.30
1926–27	−.27	−.34	−.41	−.53		−.15	−.15	−.17	−.21	−.50
1927–28	−.05	−.18	−.26	−.42	−.85	−.12	−.22	−.38	−.80	−1.84
1928–29	−.40	−.58	−.90	−1.27	−1.62	−.23	−.52	−.89	−1.42	−2.30
1929–30	−.04	−.15	−.22	−.35	−.71	−.04	−.03	−.04	−.22	−.66
1930–31	−.04	−.05	−.09	−.16	−.12	.01	.05	.08	.05	−.22
1931–32	0	.05	.06	.04	.01	−.01	−.02	0	−.01	0
1932–33	− 03	−.04	−.08	−.12	−.23	−.01	−.08	−.12	−.17	−.22
1933–34	.05	.07	.07	.09	.11	−.01	−.02	−.01	−.02	−.04
1934–35	−.01	−.01	−.06	−.14	−.25	−.01	−.08	−.19	−.33	−.75
1935–36	−.17	−.23	−.32	−.42	−.52	−.13	−.37	−.56	−.74	−.21

Season	January to—					March to—				
	Mar.	May	July	Oct.	Dec.	May	July	Oct.	Dec.	Jan.
1920–21	−1.18	−1.39	−1.51	−1.79	−2.58	0.22	0.46	0.50	0.43	0.46
1921–22	−.36	−1.08	−1.84	−2.99	−3.18	−.54	−1.35	−2.33	−2.74	−3.04
1922–23	−.15	−.39	−1.02	−3.30	−3.85	−.21	−1.26	−1.66	−3.45	−5.99
1923–24	−.05	−.28	−1.73	−7.55	−8.20	−.11	−1.43	−5.29	−6.10	−6.44
1924–25	−.06	−.09	−.28	−1.32	−1.76	−.07	−.17	−1.07	−1.39	−1.82
1925–26	−.27	−.91	−1.56	−2.59	−3.73	−.86	−1.80	−3.00	−3.61	−3.81
1926–27	−.09	−.13	−.17	−.34	−.45	−.08	−.12	−.31	−.39	−.47
1927–28	−.24	−.40	−.85	−1.86	−2.32	−.15	−.47	−1.12	−1.45	−1.61
1928–29	−.26	−.55	−1.21	−2.09	−2.35	−.28	−.97	−1.70	−1.93	−2.07
1929–30	−.09	−.14	−.26	−.66	−.86	0	−.08	−.42	−.54	−.60
1930–31	−.02	.04	.04	−.23	−.23	.02	.04	−.01	−.03	−.05
1931–32	−.07	−.09	−.07	−.11	−.14	−.04	−.05	−.10	−.09	−.13
1932–33	−.07	−.10	−.11	−.14	−.17	−.01	−.06	−.08	−.10	−.12
1933–34	−.03	−.01	−.01	−.07	−.09	−.03	−.05	−.12	−.15	−.20
1934–35	−.02	−.09	−.17	−.30	−.76	−.04	−.14	−.44	−.50	−.54
1935–36	−.51	−.89	−1.27	−1.87	−2.01	−.52	−.96	−1.47	−1.59	−1.63

Season	May to—					July to—				
	July	Oct.	Dec.	Jan.	Mar.	Oct.	Dec.	Jan.	Mar.	May
1920–21	0.24	0.45	0.57	0.57	0.63	0.38	0.60	0.57	0.63	0.64
1921–22	−.83	−1.37	−1.57	−1.91	−2.14	−.54	−1.02	−1.38	−1.82	−2.30
1922–23	−1.39	−4.52	−5.32	−5.76	−6.08	−3.30	−4.14	−4.61	−5.01	−5.51
1923–24	−1.97	−6.16	−7.07	−7.58	−8.19	−4.23	−5.21	−5.66	−5.84	−6.21
1924–25	−.13	−.98	−1.19	−1.62	−1.71	−.70	−.88	−1.54	−1.60	−1.65
1925–26	−.78	−1.97	−2.57	−2.78	−2.97	−1.58	−1.88	−2.10	−2.25	−2.54
1926–27	−.01	−.15	−.21	−.31	−.36	−.01	−.11	−.18	−.28	
1927–28	−.50	−1.11	−1.54	−1.75	−2.06	−.31	−.79	−1.08	−1.48	−1.89
1928–29	−.97	−1.43	−1.63	−1.75	−1.91	−.16	−.27	−.42	−.58	−.69
1929–30	−.19	−1.87	−2.01	−2.10	−2.25	−1.10	−1.20	−1.28	−1.33	−1.32
1930–31	.02	.05	.05	.03	.03	.05	.08	.09	.07	.07
1931–32	−.03	−.04	−.06	−.08	−.09	−.03	−.04	−.05	−.07	−.10
1932–33	−.02	−.02	−.01	−.05	−.09	−.02	−.02	−.01	−.09	−.12
1933–34	−.01	−.14	−.19	−.20	−.22	−.02	−.04	−.09	−.14	−.21
1934–35	−.07	−.59	−.61	−.66	−.73	−.48	−.57	−.62	−.69	−.75
1935–36	−.42	−1.41	−1.53	−1.57	−1.63	−.92	−1.07	−1.14	−1.24	−1.35

[1] Costs of storage, insurance, and interest in New Orleans for carrying spot cotton from the near-active to the more-distant months were subtracted from prices of contracts for the more distant months.

[2] Minus (−) means a loss to holders on long-basis position from switching from near to more distant months.

TABLE 19.—*Average differences between the high and the low prices of spot cotton during the year in New York and in Liverpool, by 10-year periods, 1820–21 to 1929–30*

Period [1]	New York [2]				Liverpool [3]			
	Average low	Average high	Average difference		Average low	Average high	Average difference	
	Cents	*Cents*	*Cents*	*Percent* [4]	*Pence*	*Pence*	*Pence*	*Percent* [5]
1820–21 to 1829–30	9.55	16.90	7.35	43.5	5.94	8.43	2.49	29.5
1830–31 to 1839–40	8.88	16.48	7.60	46.1	6.24	8.41	2.18	25.9
1840–41 to 1849–50	6.62	10.75	4.12	38.4	4.19	6.12	1.93	31.5
1850–51 to 1859–60	9.65	13.11	3.46	26.4	5.34	6.99	1.65	23.5
1860–61 to 1869–70	30.18	74.12	43.95	59.3	11.88	20.10	8.22	40.9
1870–71 to 1879–80	13.20	17.58	4.38	24.9	6.94	8.53	1.59	18.6
1880–81 to 1889–90	9.91	11.98	2.07	17.3	5.45	6.51	1.06	16.3
1890–91 to 1899–1900	6.55	8.95	2.40	26.8	3.58	4.89	1.31	26.8
1900–01 to 1909–10	9.08	13.07	1.60	25.6	4.93	7.26	2.33	32.1
1910–11 to 1919–20	14.71	22.75	8.01	35.2	9.09	14.80	5.71	38.5
1920–21 to 1929–30	16.68	27.32	10.65	39.0	9.37	15.79	6.42	40.7

[1] Season ending Aug. 31 to and including 1913–14. Season ending July 31 for 1914–15 and subsequent years.

[2] Prices of low and high at New York for seasons 1820–21 to 1869–70 from "King Cotton—a Historical Review—1790–1908." Figures since 1870–71 are from "Cotton Year Book of New York Cotton Exchange—1932."

[3] Prices of low and high at Liverpool for seasons 1820–21 to 1891–92 are from "King Cotton—a Historical Review—1790–1908." Later figures from Annual Cotton Handbook of Daily Cable Records of Crop Statistics, 1901, 1909, 1917, 1930, and 1932.

[4] Difference in cents divided by the high.

[5] Difference in pence divided by the high.

END