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STOCK PRICES: A PROBLEM IN VERIFICATION

STATEMENTS are frequently encountered in the financial columns of the popular press to the effect that the day preceding a stock-exchange holiday witnesses a general readjustment of speculative positions. More specifically, it is often held that the unwillingness of traders to carry their holdings over the uncertainties of a week-end leads to a liquidation of long accounts and a consequent decline of security prices on Saturday, particularly just before the close of the market. If this notion is correct, closing stock prices on Saturday should, on the whole, average lower than the same prices on Friday and Monday. It is for the purpose of testing this hypothesis that this paper is written.

To be reasonably confident that the investigation included individual instances in which practically every type of market fluctuation was manifested, the Dow-Jones daily average of industrials was analyzed over the rather long period from 1915 to 1930, both inclusive. The type of study here involved necessarily implies that the constituents of the index should be those that are peculiarly active in speculative operations. While it is probably true that a more sensitive index than that used here could be constructed, the ready availability of the very satisfactory Dow-Jones averages made it unwise to undertake the laborious task of computing a more delicate measure. By examining the situation in the different phases of the speculative cycles included in this sixteen-year interval, we should get a conclusive answer to the question whether the movement of prices upward is not in fact as frequent as that downward. The method used was to compare the Saturday index with the average of the Friday and Monday indexes for each week except those in which a holiday intervened to spoil the comparison. In addition, an actual count was made of various other existing relationships which were thought to have a significant bearing on the problem under investigation. The results are tabulated in Table I.

It should be noted that the principal method of approaching the problem which is employed here assumes that the Saturday figure should be an arithmetic mean of Friday and Monday. Of course, if market movements are an ordinary systematic development in time, like the growth of a tree or the age of an individual, this is an unduly severe restraint in that Saturday is closer to Friday than to Monday. If stock prices are determined by the composite judgment of specu-

TABLE I

DOW-JONES INDEX OF CLOSING PRICES ON SATURDAY COMPARED WITH ARITHMETIC MEAN OF SAME INDEXES ON FRIDAY AND MONDAY

Year	Trend of Industrial Stock Prices	Number of Cases	Number of Cases in Which Saturday Index Is Significantly Higher* than Mean of Friday and Monday	Number of Cases in Which Saturday Index Is Significantly Lower* than Mean of Friday and Monday
1915..........	Up	44	17	22
1916..........	Down and up	47	20	16
1917..........	Down	48	26	17
1918..........	Up	44	26	15
1919..........	Up	43	20	20
1920..........	Down	44	30	12
1921..........	Down and up	44	25	12
1922..........	Up	47	24	16
1923..........	Down and up	47	24	16
1924..........	Down and up	46	25	12
1925..........	Up	44	25	11
1926..........	Down and up	44	23	15
1927..........	Up	44	13	21
1928..........	Up	43	17	23
1929..........	Up and down	42	30	11
1930..........	Up and down	46	27	18
Totals.....	Up	717	372	257

* The terms "significantly higher" and "significantly lower" denote those cases in which the averages are at least .10 higher and lower, respectively.

SUPPLEMENTARY INFORMATION

a) Number of cases in which Saturday index is higher than Friday........ 410
b) Number of cases in which Saturday index is lower than Friday......... 306
c) Number of cases in which Saturday index is higher than Monday....... 374
d) Number of cases in which Saturday index is lower than Monday........ 341
e) Number of cases in which Saturday index is higher than Friday and Monday.. 202
f) Number of cases in which Saturday index is lower than Friday and Monday 134
g) Number of cases in which Saturday index is higher than mean of both Friday and Monday.. 419
h) Number of cases in which Saturday index is lower than mean of both Friday and Monday.. 294

lators, and if that judgment is developing on Sunday, some allowance would have to be made for the fact that Monday is farther away from Saturday than is Friday. On the other hand, if that judgment remains inactive on the holiday, this particular obstacle disappears. Lack of knowledge on this point is a serious defect; but it is questionable if a true adjustment can in fact be made for this time disparity. In this case, with the trend of prices generally upward, we could calculate the expected rise of Saturday above Friday; but it is extremely doubtful if, under conditions of upward trend, Saturday should be higher than the average of the other two days. On the contrary, we should rather expect to find the opposite; and, from this point of view, the results shown in Table I are even less favorable to the original hypothesis than the figures alone would seem to indicate. Taking things as they stand, with Saturday lower than the arithmetic mean of Friday and Monday less than 50 per cent of the time, it is obvious that the opinions of the financial commentators have no basis in fact.

One can easily split hairs too fine in an inquiry of this kind; and, fortunately, we are not compelled to resort solely to the existing relationship between Saturday and the mean of the two adjacent days to prove our point. The supplementary information appended to the table, when considered conjointly with the foregoing, serves to demonstrate conclusively the complete absence of the effect which is so often predicated. Of particular significance is the remarkable evenness of those cases in which the index for Saturday is sometimes higher and sometimes lower than the same indexes for Friday and Monday. Taken as a whole, no surer conclusion can be adduced from these data than that there is very little connection between such popular generalizations regarding the market and the actual movement of stock prices from day to day. The figures leave no room for doubt that the use of broad statements to explain such a phenomenon as this, the action of which is controlled by a tremendous complex of factors, can hardly fail to be in error.

If inferences of any sort can indeed be drawn from this investigation, it would tend to show, albeit inconclusively, that commitments are covered more completely in anticipation of a holiday in a declining market than when the tendency of prices is upward. The preponderance of cases in which Saturday is higher than the arithmetic mean of Friday and Monday and the substantial number of instances in which Saturday is absolutely higher than both of the other two days would tend to substantiate this view. Nor is this surprising. It is probably true that the rank and file of those who "play the market" on the up side are generally less experienced traders than those who undertake short sales. For example, the ability to appraise a situation correctly and take a loss rapidly when the occasion demands it is a mark of the more alert speculator. When this fact is contrasted with the "doggedness" of the usually less experienced long holder, it affords an important clue to the proper understanding of the varying sensitivity of prices depending upon the state of the market. If this be correct, it is to be expected that the uncertainties of carrying short commitments over the week-end in a bear market should, under certain conditions, lead to replacements sufficiently heavy to turn the tide of prices upward on Saturday. But the evidence in support of this opinion is by no means strong enough to raise it above the level of pure conjecture.

It will be noted that no attempt is here made to interpret those cases in which a holiday other than Sunday intervenes. Nor is the effect of unusually long holidays analyzed. Finally, this study does not undertake to treat days other than those mentioned. For those who are interested, it would be a simple matter to extend this analysis further.

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