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Off Board

MEMORANDUM

October 28, 1977

To: Commissioner Philip A. Loomis, Jr.
Commissioner John R. Evans
Commissioner Irving M. Pollack
Commissioner Roberta S. Karmel

From: J. Richard Zecher

Subject: Concentration in the Securities Industry

At the request of Chairman Williams, the Directorate had prepared this memorandum on the concentration in the securities industry. Attached is a copy of the memorandum for your information.

Attachment

MEMORANDUM

October 27, 1977

To: Chairman Harold M. Williams

From: Directorate of Economic and Policy Research

Subject: Concentration in the Securities Industry

This memorandum examines the concentration trend in the securities industry from 1972 to 1976, the last year for which data are available. Developments in 1977 are being monitored continuously with a view to detection of shifts in the trend and structure of the industry. While some industry officials have expressed alarm over the trend toward increased concentration, the Directorate sees no cause for immediate concern. The principal conclusions developed are:

- Concentration in the securities industry increased from 1972 through 1975, but leveled off in 1976.
- The securities industry is probably somewhat more concentrated than commercial banking, but a comparison between industries has drawbacks which limit the validity of any conclusions.
- The apparent trend toward increased concentration in the securities industry is a response to numerous factors, including cyclical market conditions, an operational crisis and increasing institutional participation in the market.
- The unfixing of commission rates has been associated with both intensified competition and increased concentration.

Concentration Analysis: Rationale and Purpose

Concentration is regarded as an important structural characteristic of any industry. The theoretical reasons for attaching importance to it derive from the polar concepts of perfect competition and monopoly. At the one extreme, a perfectly competitive industry is generally characterized as one in which there are a sufficient number of sellers so that the production of any one has no effect upon the market price. At the other extreme, a monopolized industry will have a single seller who will have a maximum of control over the market price by virtue of his total control over production.

In the real world neither of these extreme cases appears with any frequency. The real world industries fall somewhere in between the two poles. The goal of concentration analysis is to pin down the position of a particular industry to a single point on the span between perfect competition and

monopoly. This approach focuses upon the market shares held by firms within the industry and implicitly assumes that there is a direct and proportional relationship between a firm's market share and its control over market price. An industry in which the largest firms hold disproportionately large market shares is assumed to be closer to the monopoly end of the spectrum than is an industry in which the largest firms hold smaller market shares.

Because of the evils attributed to monopolies (higher prices, restricted output, distorted income distribution) there is a tendency to regard with disfavor an industry with a high level of concentration or to view with apprehension any measurable increase in concentration in a particular industry. But it should be understood that a given level of concentration reveals only a structural aspect of an industry. It is the assumed link between structure and control over market price which attaches importance to concentration. Since it is much easier to measure the level of concentration in an industry than to measure the degree of control over market price which is exercised (or exercisable) by the firms in the industry, this link is often assumed without examining the basis for the assumption.

The two most important factors which determine the extent to which the firms in an industry can exercise control over market price are (1) the existence and "height" of barriers to entry and (2) the substitutability of other products. A barrier to entry is anything which tends to inhibit a potential entrant from entering a profitable industry and attempting to capture a share of the market. Typical barriers to entry are the requirement of substantial capital investments to begin production, the prevalence of costly advertising as an effective means of creating and maintaining consumer preferences, and, of course, governmental regulation. The more effective (or the "higher") the entry barrier, the greater will be the ability of existing firms to raise and maintain prices without fear of attracting new firms. However, an existing firm must still contend with other existing firms. Furthermore, all of the existing firms in an industry must contend with other industries which produce substitute products.

The existence of substitute products and the varying shades of substitutability blur the dividing lines between industries. Indeed, most theoretical treatments of industrial concentration define an industry as including the producers of all products which are close substitutes for the product under consideration. Thus, in adopting a more practical (but also arbitrary) industry definition, explicit recognition must be given to substitute products and their detracting influence on the ability of firms to exert control over market price.

In view of these factors (entry barriers and substitutability) it should be clear that no concentration measure should be taken at face value. In particular, it should not be assumed that an industry which yields a higher measure of concentration than another industry is less competitive than the other, nor

should it be assumed that an increase in concentration makes an industry less competitive than it was before the increase. The more concentrated industry may face much more vigorous competition from substitute products which severely limits any control over market price, or the less concentrated industry may enjoy entry barriers which allow its firms to exercise greater market power. Furthermore, a temporal increase in concentration in a given industry may reflect intensified competition from substitute products rather than any lessening of intra-industry competition; in fact, it could be the result of intensified competition within the industry in response to the removal of a competitive impediment.

Securities Industry Trends: 1972-1976

Appendix A traces the movements in the level of concentration of total assets, equity capital, total revenue, net income (before taxes) and securities commission revenue by showing the percentages of total industry figures held by the 10 largest, 25 largest, 50 largest and 100 largest broker-dealers as of the end of each of the years 1972-1976. Regardless of the variable examined, the level of concentration showed a marked increase between 1972 and 1976.

The share of total assets in the hands of the ten largest broker-dealers grew from 40.4 percent in 1972 to 53.2 percent in 1976. Their share of equity capital grew from 29.7 percent to 37.9 percent. Similar increases were recorded for total revenue, net income (before taxes) and securities commissions. Most of the growth in these figures was achieved prior to 1975, and, except for securities commissions, the growth patterns either flattened out or reversed in 1975 and 1976. Securities commissions, however, achieved its largest single increase in concentration in 1975, the year during which commission rates were unfixed.

Given the recent history of the securities industry, the increase in concentration is neither unexpected nor so dramatic as to support predictions of a rising oligopoly. In the latter half of the 1960's the securities industry was confronted with an unanticipated surge in demand for its services. The result was a "paperwork crisis" which developed because the broker-dealers' back-offices simply could not cope with the volume of business beimg conducted in their front-offices. Compounding this crisis was the dramatic market decline of 1969-1970. Firms which were already experiencing back-office difficulties now found themselves unable to finance their expanded overhead because of a sharp decline in revenues. Scores of broker-dealers were forced to liquidate because of backward and inefficient back-office operations. Unfortunately, many otherwise sound firms were also forced to liquidate because their operations were entangled with those of the unsound firms.

The industry recovered in 1971 and 1972 but was confronted with another severe market decline which persisted through 1973-1974. Further illustrating the cyclical nature of the market was the record-breaking trading volume recorded in 1975, which was followed by even greater volume in 1976.

In the midst of this cyclical scenario, the industry was slowly prodded toward the complete unfixing of commission rates. Much of the impetus toward unfixing rates must be attributed to the greatly increased participation of institutions in the market since the mid-1960's. In October 1963 institutional participation was estimated to account for about 31 percent of public trading volume (in terms of shares) on the NYSE. Three years later the institutional share of trading volume had grown to 43 percent, and during 1969 it was estimated to have reached 56 percent. Since 1969 the trend has flattened out and appears to have stabilized at about 57-60 percent. 1/

The dramatically increased importance of institutions as a bargaining force in the securities markets not only built up pressure against the continuance of a fixed commission rate structure, but it also set the stage for extremely vigorous price competition among broker-dealers seeking to retain or expand their institutional business after May 1, 1975. Less than two years after the unfixing of commission rates institutions had achieved nearly a 40 percent discount (on a cents-per-share basis) from the old fixed rates. While individual customers were not able to negotiate so successfully, the overall rates charged to individual customers also declined with the advent of unfixed rates. 2/

Based on this documented experience, it is clear that the unfixing of commission rates removed a significant impediment to competition. The brokerage industry responded to the removal of this impediment with extremely vigorous pricing competition. Consequently, it must be concluded that any increase in concentration attributable to the unfixing of commission rates simply reflects the intensive competition which was restrained under the fixed rate environment. The fact that many former competitors have gone out of business is traceable to heightened, rather than lessened, competition. Moreover, it would be difficult to argue that the composition of the securities industry prior to the unfixing of commission rates was an ideal structure which should have been preserved.

An Industry Comparison

The preceding discussion of concentration trends within the securities industry provided no qualitative yardstick by which the level of concentration could be evaluated. To the extent that such an evaluation is possible, we must turn to comparisons of concentration levels in the securities industry with the corresponding levels in other industries.

1/ New York Stock Exchange, Inc., Public Transaction Study: 1976, p. 10.

2/ Securities and Exchange Commission, Fifth Report to Congress on the Effect of the Absence of Fixed Rates of Commissions, May 26, 1977, p. 4.

Because the securities industry is service-oriented it seems logical to try to compare it with another service industry, preferably a financial service industry. Two such industries which suggested themselves for comparative purposes, and for which at least some data were known to be obtainable, are commercial banking and the insurance industry. Upon closer scrutiny the data available for the insurance industry proved to be insufficient for the proposed comparisons, but the commercial banking data (obtained from the FDIC) were more than adequate.

Appendix B shows three different concentration measures which can be used for comparing concentration levels in the two industries. The percent accounted for by the ten largest firms within the respective industries is perhaps the most common type of concentration measure, but when used for comparative purposes its major flaw is its failure to account for differences in the number of firms within the compared industries. At the end of 1976 the number of commercial banks was more than 14,000 while there were only 2,300 broker-dealers doing a public business. Thus, the observation that the ten largest broker-dealers accounted for a larger percentage of each of the four financial variables shown in the appendix than did the ten largest commercial banks must be tempered by the additional observation that there were more than six times as many banks as there were broker-dealers.

The second measure, the Gini coefficient, is a measure of the relative inequality of the size of the firms in an industry. 3/ The smaller the Gini coefficient, the less concentrated the industry; the larger it is, the more concentrated the industry. And the third measure offered in Appendix B is the average size ratio. This measure is defined as the ratio of the average size (based on a particular variable) of a certain number (arbitrarily selected as ten) of the largest firms to the average size of all other firms in the industry. The average size ratio is very sensitive to the presence of many small firms in an industry as well as to the number of firms in the industry. Because of this sensitivity it must be used cautiously when comparing one industry with another.

The percent of total industry assets held by the ten largest broker-dealers is consistently much greater than the percent of commercial banking assets held by the ten largest banks. 4/ The other two measures of concentration offer apparently conflicting results. The Gini coefficients indicate that the securities industry is more concentrated than the commercial banking industry, while the average size ratios support the opposite conclusion. These conclusions do not really conflict, however, because the Gini coefficients are derived from percentage relationships whereas the average size ratios focus

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3/ See Appendix C for a technical description of the Gini coefficient.

4/ Because of the similarity in the patterns portrayed by assets, equity capital, revenue and net income, the following discussion will consider only assets.

upon the ten largest firms in an industry. The Gini coefficients show that the inequality of firm size is relatively greater among broker-dealers than among banks, while the average size ratios show that the ten largest commercial banks are more out-of-proportion to their industry average than are the ten largest broker-dealers to their industry average.

Thus, two of our concentration measures show the securities industry to be more concentrated than commercial banking, while the third tells us that commercial banking is more concentrated. Regardless of which measure is "believed," we must be careful not to jump from this conclusion about concentration to a conclusion about market power. As discussed above, market power (or control over market price) is affected by entry barriers and substitutability.

One distinct entry barrier in the commercial banking industry which does not exist in the securities industry is the geographic restriction which confines a commercial bank's branches to a single state. Not only does this barrier protect a bank from potential competition from out-of-state banks, but it also tends to question the reliability of a concentration measure which lumps all of the nation's commercial banks into a single market. Of course, banks can and do compete on a national scale, and even an international scale, in some activities, but it is clear that the branching restriction acts to confine much of the competition within state boundaries. 5/

Another element of commercial banking which might be considered an entry barrier is the amount of capital required as an initial investment. While to some extent this requirement is also a barrier to entry into the securities industry, it is clearly of much less significance. This conclusion is strikingly evidenced by the observation that the smallest commercial bank at the end of 1976 had $150 thousand of equity capital, while the median-sized broker-dealer had only $108 thousand of equity capital.

A third entry barrier is government regulation, which permeates both industries. No attempt is made here to weigh the extent to which this barrier impedes entry into either industry. It is sufficient to note that the effectiveness of this barrier may well be reflected in sizes of firms in an industry to the extent that the government imposes capital requirements.

5/ As an illustration of the possible bias contained in our concentration figures for commercial banking, it might be noted that at the end of 1975 the four largest commercial banks in the state of New York controlled 52.9 percent of the assets of all commercial banks in the state, and the four largest in California held 71.5 percent of that state's banking assets.

Turning from entry barriers to substitutability, we observe that, to a considerable degree, the services of commercial banking are substitutes for those of the securities industry, and vice versa. Indeed, virtually all financial service industries compete with one another for customer dollars. In particular, the dividing line between banking services and broker-dealer services has become very blurry and promises to become even less recognizable. While the substitutability factor evades quantification, it undeniably expands the competitive arena beyond the boundaries which define what we call the securities industry.

Policy Implications

The foregoing analysis has documented an increase in securities industry concentration in recent years. This increase has prompted a great deal of concern among those associated with the industry. Many have claimed that the unfixing of commission rates has contributed to the increase and will continue to do so for years to come.

A recent report by the SIA draws the conclusion that unfixed commission rates have resulted in greater concentration. 6/ While we would contend that it is not clear that the level of concentration has been appreciably affected by the unfixing of commission rates, we do not find it necessary to dispute the SIA's claim. Even if the unfixing of commission rates has contributed to an increase in concentration, we do not regard this result as alarming. When an industry responds to the removal of a substantial impediment to competition, structural changes should be expected. In noting a decline in the number of competitors, the preservation and stimulation of competition should be clearly distinguished from the preservation of competitors. The unfixing of commission rates may well have reduced the arena of competitors, but it clearly augmented the level and intensity of competition.

We would thus conclude that the increase in concentration evident in the securities industry is not presently a cause for serious concern. It might be argued, however, that such a conclusion ignores at least one very important change now proposed and under active consideration by the Commission -- that is, the removal of off-board trading restrictions.

Some claim that a change in the "rules of the game" will result in a proliferation of dealer markets. The dealer participants in these markets, it is argued, will require substantial capital commitments. The fear is that if the securities industry is already characterized as an increasingly more concentrated industry, it follows that the number of firms with sufficient

6/ "Trends in Concentration in the Securities Industry," Securities Industry Trends, Securities Industry Association, August 29, 1977.

capital to compete successfully as dealers will become increasingly smaller. Moreover, it is claimed that the ease of entry historically demonstrated by the securities industry will disappear, and a massive capital requirement will emerge as a prominent barrier to entry.

It is difficult to evaluate such an argument, simply because no one really knows what will happen upon the removal of off-board trading restrictions. If dealer markets do not supplant the existing exchange markets, the argument is clearly vacuous. But even if dealer markets do emerge, it is not obvious that concentration will increase to a level which would in itself threaten the vigor of competition. Since the removal of off-board trading restrictions, like the unfixing of commission rates, would eliminate a competitive obstacle, we believe that any increase in concentration would simply reflect a more competitive industry. This is not to say that the effects should be ignored but merely that we must look beyond concentration to business practices and behavior. Unless proven otherwise, we must assume that the removal of a competitive barrier will encourage competitive behavior even if concentration increases as a result.

The Directorate staff will continue to monitor concentration trends in the securities industry and keep you informed of any developments.

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Appendix A

CONCENTRATION TRENDS IN THE SECURITIES INDUSTRY

	1972	1973	1974	1975	1976
Assets					
Total assets ($ mil)	$33,562	$25,948	$24,445	$30,015	$46,530
Percent accounted for by:					
10 largest firms	40.4	46.2	54.5	52.9	53.2
25 largest firms	57.3	63.4	70.6	73.1	73.9
50 largest firms	69.2	74 7	79 7	82.8	83.6
100 largest firms	79.7	83.6	87.2	92.2	90.2
Equity Capital					
Total equity capital ($ mil)	$ 4,259	$ 3,416	$ 3,066	$ 3,510	$ 4,204
Percent accounted for by:					
10 largest firms	29.7	32.8	36.8	37.8	37 9
25 largest firms	45.2	48.2	51.3	53.1	52.9
50 largest firms	57.2	60.0	63.1	64.9	64.6
100 largest firms	69.0	71.8	74.0	76.3	75.6
Total Revenue					
Total revenue ($ mil)*	$ 7,036	$ 5,564	$ 5,290	$ 6,777	$ 8,244
Percent accounted for by:					
10 largest firms	28.1	32.2	35.7	37.4	36.6
25 largest firms	44.1	49.1	54.2	56.7	56.5
50 largest firms	56.2	61.6	65.1	68.0	67 5
100 largest firms	68.3	73.5	76.2	78.8	77.8
Net Income (before taxes)					
Total net income ($ mil.)*	$ 1,067	$ 393	$ 385	$ 992	$ 1,345
Percent accounted for by:					
10 largest firms	27.9	33.7	38.6	42.4	39.4
25 largest firms	43.8	49.7	56.6	59.7	55.5
50 largest firms	56.5	63.9	70.5	71.3	68.1
100 largest firms	70.4	77.5	83.0	82.7	79 2
Securities Commissions					
Total securities commissions ($ mil)	$ 3,534	$ 2,955	$ 2,553	$ 3,174	$ 3,448
Percent accounted for by:					
10 largest firms	27.4	28.8	32.1	37.2	38.3
25 largest firms	43.7	46.2	49.3	55.5	56.2
50 largest firms	57.4	60.1	62.7	68.4	68.7
100 largest firms	70.5	72.8	75.1	80.4	80.7
Number of Securities Firms Doing a Public Business	2,509	2,172	1,996	2,155	2,336

* Does not include firms with negative figures.

Source: SEC X-17A-10 Reports
Office of Securities Industry And Self-Regulatory Economics
Directorate of Economic and Policy Research

Appendix B

COMPARATIVE CONCENTRATION MEASURES:
SECURITIES INDUSTRY VERSUS COMMERCIAL BANKING

	1972	1973	1974	1975	1976
Assets					
Percent accounted for by 10 largest:					
Commercial banks	19.6	20.0	21.5	20.5	20.0
Broker-dealers	40.4	46.2	54.5	52.9	53.2
Gini Coefficient:					
Commercial banks	.8051	.8047	.8058	7955	7905
Broker-dealers	.9337	.9386	.9479	.9606	.9641
Average size ratio:					
Commercial banks	334.7	350.2	391.6	370.5	359.7
Broker-dealers	169.2	185.9	238.0	242.3	265.6
Equity Capital					
Percent accounted for by 10 largest:					
Commercial banks	19.2	19.0	19.0	19.6	20.3
Broker-dealers	29.7	32.8	36.8	37.8	37.9
Gini Coefficient:					
Commercial banks	.7817	.7744	.7678	.7654	7672
Broker-dealers	.8810	.8809	.8846	.9073	.9067
Average size ratio:					
Commercial banks	325.6	328.0	334.8	350.7	367 2
Broker-dealers	101.3	100.4	110.6	127.0	140.0
Total Revenue*					
Percent accounted for by 10 largest:					
Commercial banks	17.7	19.8	22.3	21.0	27.8
Broker-dealers	28.1	32.2	35.7	37.4	36.6
Gini Coefficient:					
Commercial banks	.7966	.8088	.8189	.8005	.8156
Broker-dealers	.8835	.8887	.8941	.9190	.9167
Average size ratio:					
Commercial banks	293.7	343.2	407.7	380.3	552.9
Broker-dealers	97.3	99.8	106.7	126.7	131.2
Net Income (before taxes)*					
Percent accounted for by 10 largest:					
Commercial banks	20.4	20.7	22.5	25.5	27.2
Broker-dealers	27.9	33.7	38.6	42.4	39.4
Gini Coefficient:					
Commercial banks	.8013	.7799	.7777	.7923	.7923
Broker-dealers	.8726	.8539	.8757	.9155	.9101
Average size ratio:					
Commercial banks	338.8	351.1	392.6	450.4	500.4
Broker-dealers	67.0	52.8	59.8	113.2	116.7

* Does not include banks or broker-dealers with negative figures.

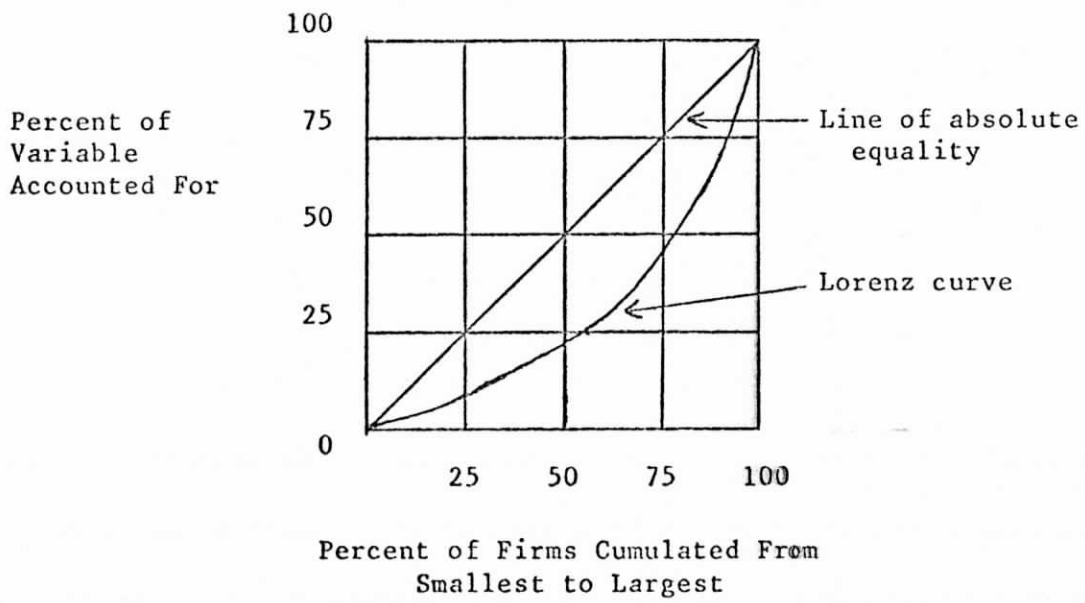
Sources: Broker-dealer data -- SEC X-17A-10 Reports; Office of Securities Industry And Self-Regulatory Economics, Directorate of Economic and Policy Research.
Bank data -- Federal Deposit Insurance Corporation.

Appendix C

The Gini Coefficient: A Technical Description

The Gini coefficient is regarded as a measure of relative concentration because it measures the inequality of firm sizes in an industry. In so doing it takes into account all of the firms in the industry.

The Gini coefficient is derived from a graphic measure of concentration known as the Lorenz curve, which measures the cumulative percent of a particular variable accounted for by the cumulative percentages of the number of firms ranked from smallest to largest based on their shares of the particular variable. The following illustrates a Lorenz curve and should help to explain the Gini coefficient:



The line of absolute equality (the diagonal line) depicts the extreme case of equal firm sizes. If all firms in the industry were of equal size, the Lorenz curve would coincide with the line of absolute equality. At the other extreme, if a single firm accounts for the total industry's size, the Lorenz curve will

follow the lower horizontal axis from left to right and then follow the right-hand vertical axis from bottom to top. Such a Lorenz curve would depict absolute inequality.

The Gini coefficient gives us a means of assigning a single numeric value (ranging from zero to one) to any Lorenz curve. It is defined as the ratio of the area between the line of absolute equality and the Lorenz curve (referred to as the area of concentration) to the total area beneath the line of absolute equality. By this definition an industry in which all firms are of equal size would have a Gini coefficient of zero because the Lorenz curve would coincide with the line of absolute equality, yielding no area of concentration. An industry of absolute inequality would produce a Gini coefficient of one because the area of concentration would fill the entire area beneath the line of absolute equality. In between the two extremes, the Gini coefficient for an industry must fall between zero and one. The closer it is to zero, the more nearly equal are the firm sizes and the less concentrated is the industry. Conversely, the closer it is to one, the more unequal are the firm sizes and the more concentrated is the industry.