Employment trends in the security brokers and dealers industry

Employment of wage and salary workers in this industry grew by 28 percent between 1984 and 1993; professional jobs almost doubled, while weak job growth for clerical workers reflected productivity gains from technological advances

Brett Illyse Graff

As global markets have expanded and computerized trading has increased, tasks performed by workers in many occupations in the security brokers and dealers industry have been transformed. The most recent data collected on occupational staffing patterns in the industry reflect the component firms' adaptation to consequences of the 1987 market crash and to decades of electronic advances. The industry has responded to these changes by increasing employment in highly technical professional occupations such as computer scientists and statistical financial analysts, and by streamlining managerial and internal analysis jobs. The increase in the professional share of the industry's employment has largely offset a decrease in the managerial share. This article examines the changes in occupational employment within the security brokers and dealers industry through some of the steepest bull and bear markets of the post-World War II period.

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Industry profile

The security brokers and dealers industry (SIC 621)[1] includes bond dealers and brokers, mutual fund agents, security traders, securities underwriters, oil and gas lease brokers, and tax certificate dealers. In May 1993, it employed 349,880 workers. (See table 1.) The industry is a component of securities and commodities brokers, dealers, exchanges, and services (SIC 62).

Brokers in this industry act as agents in security transactions for individual and institutional clients. Dealers buy and sell securities for their firm's own account and risk.[2] Investment bankers, also included in this industry, are primarily engaged in the initial public offering of securities. They underwrite and distribute shares, while generally continuing to act as market makers in those issues.

Broker-dealers are required to register with the Securities and Exchange Commission (SEC), a Federal agency that governs several self-regulated organizations (SRO's). They also must obtain membership in the National Association of Securities Dealers (NASD). A broker-dealer distributing new issues underwritten by NASD members, or distributing shares of investment companies sponsored by NASD members,[3] must become a member of the NASD.

Firms trading on the Nasdaq market (the over-the-counter market) as either strictly order-entry firms (trading as brokers or dealers) or market makers (dealers that hold an inventory of Nasdaq

listed securities) must meet NASD requirements. Nasdaq is an electronic trading network. The Nasdaq Workstation II provides a centralized quotation service, as well as automated executions, trade reporting, and trade negotiation.[4] Traders using the Nasdaq system can link to the major exchanges through the Computer Assisted Execution System Intermarket Trading System (CAES/ITS).

If a firm is brokering or dealing stocks listed on an exchange, it is often a member of that exchange. To become a market maker in an exchange listed security, a firm must apply to the exchange. Unlike the case for Nasdaq, each security trading on an exchange can only have one market maker. By using a correspondent firm to clear and execute its trades, a firm can trade on an exchange without being a member.

Chart 1 shows the trading volume within the major world securities markets. It displays the significance of both the New York Stock Exchange (NYSE) and Nasdaq. The high number of members and the consequential trading volume on the NYSE cause the resulting data from this organization to be used as a proxy for the operations of the entire industry.

Industry employment

Inflation during the late 1970's caused many companies to begin to trade at undervalued prices, and by the early 1980's, lower interest rates helped to make purchasing securities lucrative. In August 1982, the market began a 5-year ascent. Industry employment for March of that year totaled 219,620.[5] By 1984, brokerage firm profits were down from the previous year, but stock prices continued to rise. The Quarterly Dow Jones Industrial Average (DJIA) had increased by 26.3 percent,[6] and total industry employment in May of that year had risen by 24 percent (to 273,330) from the 1982 level.

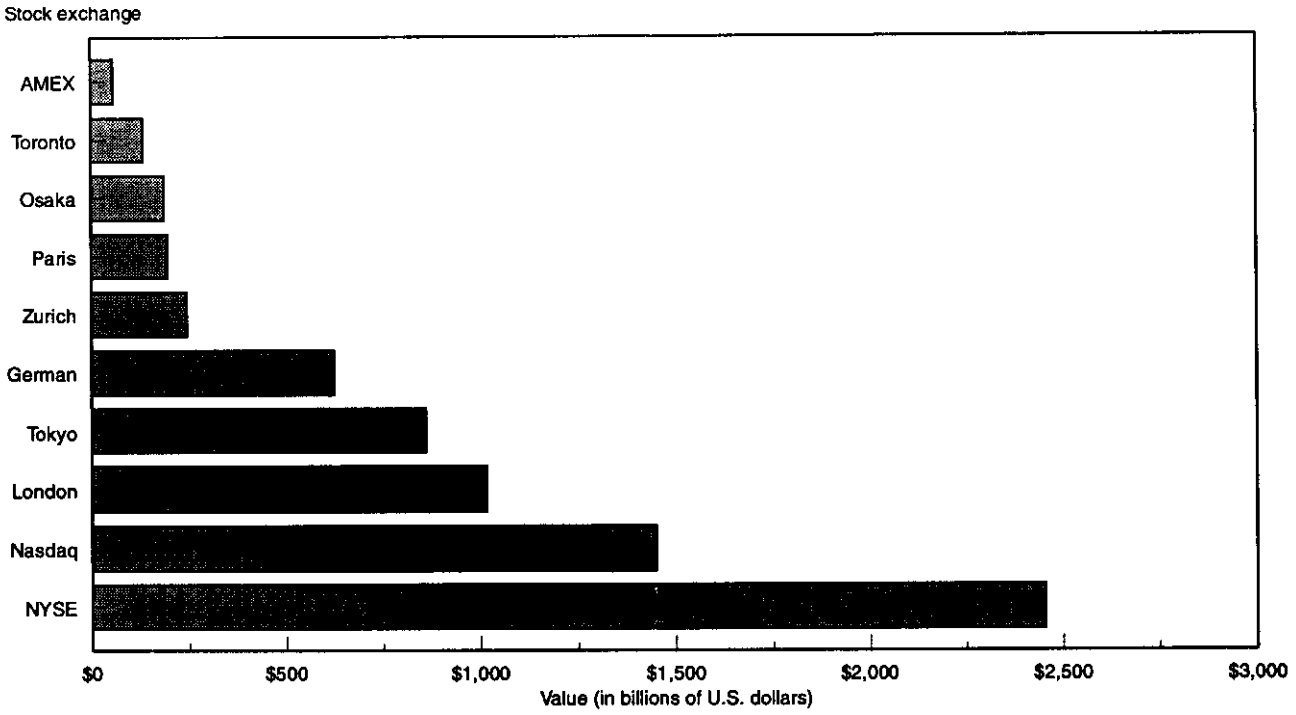
By 1987, stock prices in relation to their underlying value, as measured by earnings potential, had become inflated.[7] The Quarterly DJIA was up 113.5 percent from its 1984 level. As of May of 1987, industry employment had increased by 25.6 percent (273,330 to 343,170) from the 1984 level. By October, several factors, including a weakening U.S. dollar, expectations of rising inflation and interest rates, and widening yield spreads between stocks and bonds, sent investors on a selling spree. The market crashed and the Quarterly DJIA fell 657.45 points between the third and fourth quarters (September 30 to December 31). Pretax profits of firms in the industry were down $4.379 billion[8] from the previous year.[9] Even so, employment rose to 358,475 in December,[10] but decreased by 0.9 percent by the end of the first quarter of 1988.[11] By the end of that year, total trading volume was down on the American Stock Exchange (AMEX), NYSE, and Nasdaq.

The crash resulted in extreme cost cutting in the industry. In 1989, bonuses were down, on average, approximately 20 percent. Some firms sought to conserve cash by giving stock to their employees.[12] By May of 1990, employment had

Table 1. Occupational employment within security brokers and dealers, selected years, 1984–93

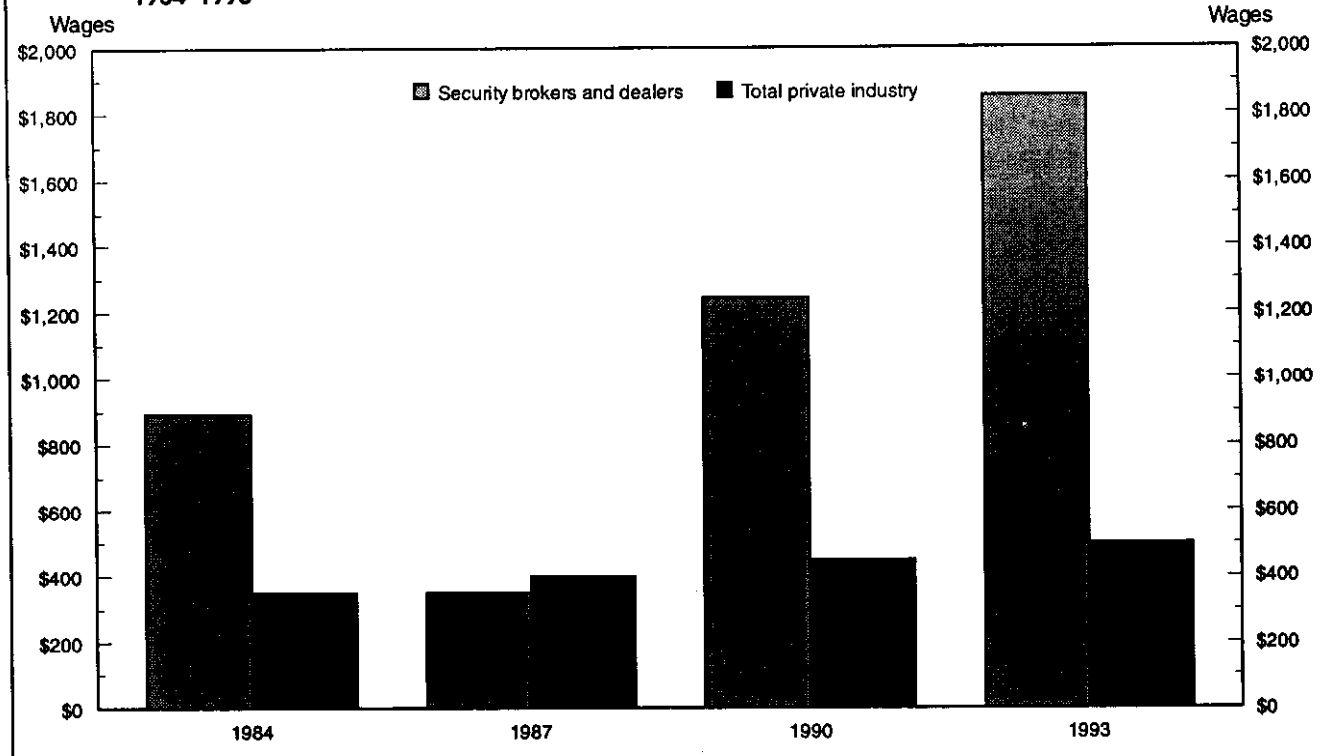
Occupation	1984		1987		1990		1993	
	Employment	Percent distribution	Employment	Percent distribution	Employment	Percent distribution	Employment	Percent distribution
Total industry	273,330	100.00	343,170	100.00	325,230	100.00	349,880	100.0
Managerial occupations	21,450	7.81	33,170	9.63	31,050	9.51	25,360	7.25
Financial managers	3,890	1.42	8,420	2.45	10,480	3.22	9,290	2.66
General managers and top executives (brokerage managers)	8,360	3.05	15,470	4.50	12,080	3.71	11,020	3.15
Professional occupations	27,720	10.01	44,490	12.81	47,290	14.50	54,380	15.50
Accountants and auditors	4,230	1.54	4,960	1.44	5,570	1.71	4,950	1.41
All other financial specialists	1,720	.62	6,120	1.78	13,560	4.16	17,000	4.86
Systems analysts	2,180	.79	2,930	.85	4,090	1.25	3,080	.88
Computer programmers	3,440	1.25	5,680	1.65	4,900	1.50	5,040	1.44
Operations and systems analysts, except computer	260	.09	1,490	.43	1,110	.34	350	.10
Financial analysts, statistical	3,700	1.35	5,300	1.54	5,330	1.63	6,380	1.82
Economists, including market researchers	1,940	.70	1,840	.53	1,570	.48	2,040	.58
Sales and related occupations	105,530	38.60	119,470	34.78	123,430	37.90	138,010	39.40
First-line supervisors	5,500	2.01	5,020	1.46	7,680	2.36	4,410	1.26
Sales agents—securities, commodities, and financial services	89,100	32.60	103,210	30.07	103,770	31.90	122,500	35.01
Clerical and administrative support workers	116,930	42.60	142,200	41.26	119,930	36.70	129,140	36.90
First-line supervisors	4,800	1.75	11,640	3.39	9,210	2.83	10,700	3.06
Brokerage clerks	37,660	13.77	40,410	11.77	35,390	10.88	44,230	12.64
Secretaries	26,700	9.76	31,660	9.22	29,070	8.93	26,040	7.44
Data-entry keyers	3,440	1.25	4,070	1.18	2,810	.86	2,030	.58

Chart 1. Dollar volume of equity trading in major world markets, 1994



SOURCE: National Association of Securities Dealers, Inc., *1995 Nasdaq Fact Book & Company Directory* (Washington, NASD, 1995). Reprinted by permission.

Chart 2. Average weekly wages in security brokers and dealers and in total private industry, selected years, 1984–1993



decreased by 5.2 percent from the 1987 level, and totaled 325,230. That year, firms in the industry posted a loss of $162 million before taxes. Between the second and third quarters (June 29 to September 28) of 1990, the Quarterly DJIA plummeted again, dropping 428.21 points. It moved up 181.18 points the following quarter and a total of 535.17 points over the following year.

In 1991, the market began a dramatic recovery, which led to spectacular performances in almost every product category. Lower short-term interest rates caused investors to favor stocks and bonds over low-yielding bank instruments.[13] The pretax profits of firms surpassed those of 1986. Industry employment, however, continued to fall until February of 1992. Later that year, the average daily trading volume on the Nasdaq doubled, while NYSE trading volume increased 69 percent.[14] Employment began to inch back up. Trading volume alone was enough to move up the market, but the cost cutting resulting from the 1987 crash and the privatization of state-owned enterprises worldwide also contributed to the prosperity. Mutual fund sales set successive records in 1991, 1992, and 1993.[15] Pretax profits for industry establishments in 1993 reached a record $8,600 billion.[16] By May of that year, the industry's employment had increased 7.6 percent from 1990, totaling 349,880.

The following tabulation shows the employment for the industry stratified by size (number of employees) of the unit:

Employment size	*Percent distribution*
1 to 19 workers	14.5
20 to 49 workers	15.2
50 to 99 workers	13.2
100 to 249 workers	13.4
250 workers or more	41.8

Fifty-eight percent of the employment in the security brokers and dealers industry was fairly evenly distributed among the first four size groups. The remaining 42 percent was in the units with at least 250 workers. The analysis that follows shows that employment size is a key factor in determining a unit's staffing pattern.

Industry payrolls

The security brokers and dealers industry had the highest payroll per employee of any industry in 1993.[17] The average weekly wage in this industry was $1,853, some 371 percent of the economy-wide private sector average of $499. (In 1990, the industry was the second highest paying, with an average of $1,242 per week. The services allied with securities industry (SIC 628) had the highest pay in 1990 and the second highest in 1993.) The high pay levels and their percent increase between 1990 and 1993 reflect how well the industry has recovered from the downturn of the late 1980's.

Employment in the security brokers and dealers industry is concentrated in relatively few States. Eight States (New York, California, New Jersey, Massachusetts, Florida, Illinois, Texas, and Pennsylvania) accounted for 71 percent of the total industry employment in 1993. Chart 3 shows each State's employment as a percentage of national employment for the industry and for the United States as a whole. While New York had only 7 percent of total U.S. private industry wage and salary employment, it had almost 33 percent of all employment in the security brokers and dealers industry. California recorded the second highest share of industry employment with 9 percent of the national employment. This was, however, a smaller share than the 11 percent California had of total employment in all industries.

Occupational employment

The data used for the analysis of occupational staffing patterns in the security brokers and dealers industry are from the Occupational Employment Statistics (OES) survey.[18] The OES survey is a Federal-State cooperative survey of establishments that produces estimates of current occupational employment by industry. The survey follows a 3-year cycle. In the first year, manufacturing industries, hospitals, and agricultural services are covered, followed by mining, construction, finance, and services industries in the second year. Trade, transportation, communications, public utilities, and education industries as well as State and local government are surveyed in the third year. The survey is based on a probability sample and is stratified by industry, geographic area, and size (number of employees) of the unit.

The OES occupational classification system divides workers into seven major groups: managerial and administrative occupations; professional, paraprofessional, and technical occupations; sales and related occupations; clerical and administrative support occupations; service occupations; agriculture, forestry, fishing, and related occupations; and production, construction, operating, maintenance, and material-handling occupations.

The 1993 OES survey shows that almost 99 percent of employment in the securities industry was concentrated in four of the major occupational groups: managerial, professional, sales, and clerical. The data and analysis that follow relate to these groups. The 3-year cycle for the security industry resulted in data collected for 1984, 1987, 1990, and 1993. Table 2 shows the resulting occupational estimates. May was the reference month in each case. Thus, the 1987 data from the OES survey reflect a period 6 months before the October 1987 stock market crash.

The end of the discussion for each occupational group addresses the occupational distribution of workers by the employment size of the establishment. The occupational es-

timates for employment by size of the establishment are shown in table 1.

Managerial workers

This group includes top and middle managers, administrators, and executives. They are responsible for policymaking, planning, staffing, and directing the activities of the establishment. The two managerial occupations with the greatest employment in the industry in 1993 were financial managers and general managers. Financial managers plan and direct financial activities, including the investment strategies of the organization. The general managers and top executives, who include brokerage managers, have diverse responsibilities that are not confined to a single functional area such as finance or marketing.

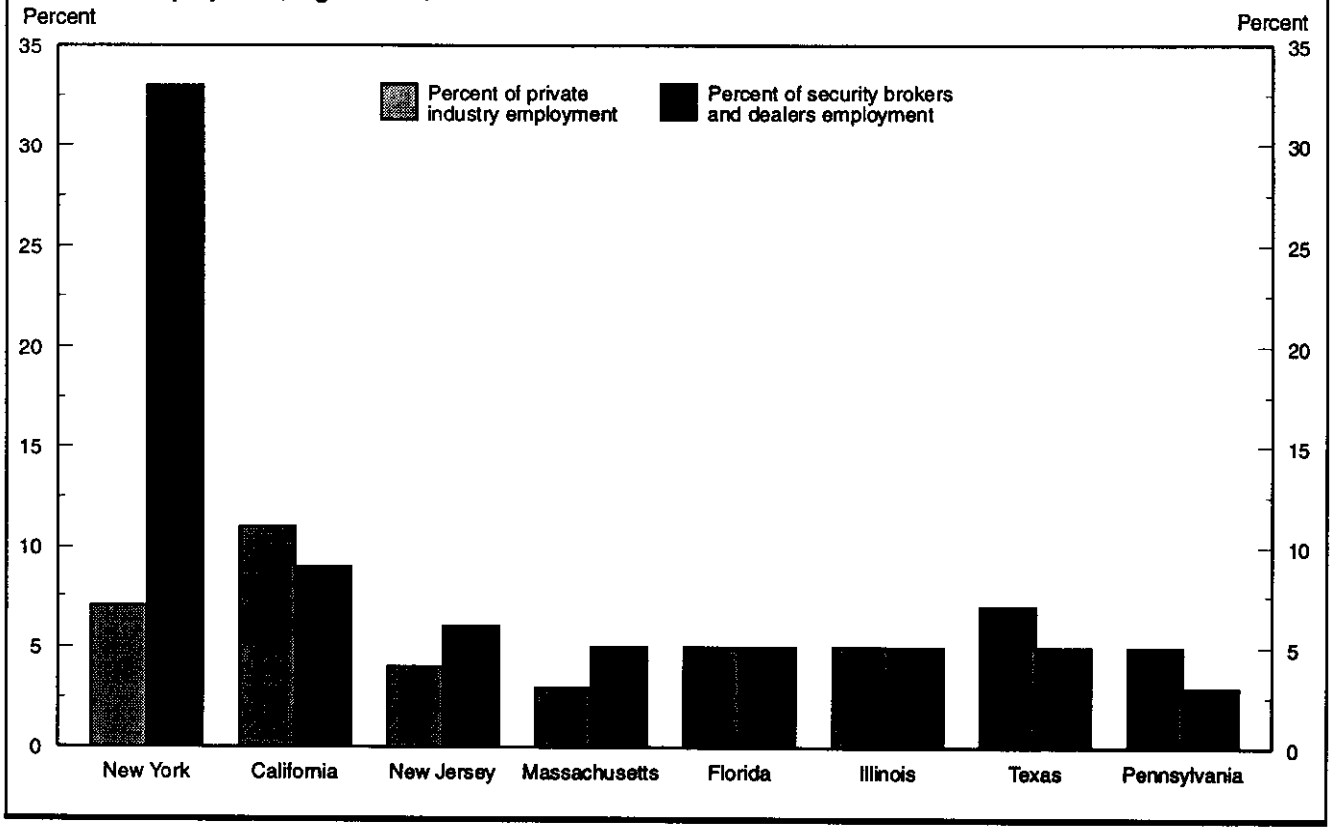
Many managers in this industry are designated by the NASD as registered principals. They are defined as persons engaged in the management of a member's investment banking or securities business. Their duties may include supervision and training. Registered principals are sole proprietors,[19] officers, partners, managers of offices of supervisory jurisdiction, and directors of corporations.[20] Holders of these positions must pass the appropriate NASD exam. (Sales managers, who must also be registered with the NASD, are discussed under sales and related occupations.)

By the end of the 5-year bull market that began in 1982,[21] firms had greatly increased their employment of managers. In 1984, the reported employment for this occupational group totaled 21,450. (See table 1.) By May of 1987 (approximately 6 months before the October crash), the number of managers had grown by 55 percent, reaching its highest level at 33,170. Their share of industry employment rose from 7.8 percent to 9.6 percent over the 3-year period.

Although financial managers and general managers experienced the largest percentage increases within this period (approximately 116 percent and 85 percent, respectively), notable percentage gains also occurred for managers directing other operations. The numbers of marketing, advertising, and public relations managers and personnel, training, and labor relations managers each grew by approximately 79 percent.

After the crash in 1987, firms began to reduce the number of managerial positions in order to streamline operations. At the outset, employment reductions were mainly of support staff, but in the first quarter of 1990, the industry reported its worst profits in years and further cutbacks were inevitable.[22]

Chart 3. Share of U.S. security brokers and dealers employment and share of total private wage and salary employment, eight States, 1993



By May of that year, the number of managers had declined by slightly over 6 percent from the 1987 total. Decreases occurred mainly among purchasing managers, whose number declined by 42 percent, and general managers and top executives, for whom employment dropped by 22 percent.

Firms in the industry further trimmed their managerial ranks from 1990 to 1993, even though, in the first half of 1993, net income for broker-dealers (doing public business, as opposed to specialist firms that deal only with institutions)[23] topped that for all of 1992. The industry showed a managerial decline of 18 percent, and a decrease in managerial concentration to 7.3 percent from the 9.5 percent reported in 1990. This drop, together with only a modest gain in industry employment (325,230 to 349,880) over the same period, resulted in a decrease in the employment level of managers, from 31,050 to 25,360.

During this period, the employment levels of almost all managerial occupations in the industry fell. The two largest, financial and general managers, together accounted for 2,250 of the 5,690-worker decrease for all managers. Other functional managers such as mathematical managers,[24] who decreased in number from 1,350 in 1990 to 450 in 1993, experienced much more severe relative effects of the downsizing process. The number of marketing, advertising, and public relations managers declined from 1,440 to 930, while employment of personnel, training, and labor relations managers decreased from 700 to 490.

Employment by size of establishment, 1993. Managers' share of employment within a firm varied by the size of the unit reporting, with the highest percentage in the smallest employment size group. Within security brokers and dealers, units with fewer than 20 employees had 13 percent of workers in the managerial ranks. (See table 1.) General managers made up 6.6 percent and financial managers comprised 6.1 percent of employment in these units. The units with wage and salary employment between 20 and 49, between 50 and 99, and between 100 and 249 reported 6.4, 4.6, and 6.8 percent, respectively, of their workers as managers. Units with more than 250 employees reported 7.3 percent of workers as managers. These large units had a high percentage of "specialized managers," such as personnel managers, marketing managers, or administrative services managers.

Professional and technical workers

Professional, paraprofessional, and technical workers within the security brokers and dealers industry are involved in analysis, trading, research, and advising. Substantial postsecondary education or on-the-job training usually is required for occupations in this group. Persons in occupations concerned with the trading of securities must be registered with the NASD. In 1993, security brokers, dealers, and flotation companies employed 54,380 professional workers, accounting for 15.5 percent of industry employment. (See table 2.)

Cost cutting measures within the industry over the study period have included consolidations and intercompany mergers of back office operations. The brokering and dealing of securities requires specially trained professional workers for functions such as the handling of computations, analysis, daily statements, regulatory reports, and settling and clearing trades. Smaller units have often determined that it is not cost-effective to have each of these specialized functions performed by a professional on their payroll. Another cost factor in the industry is that the operations require constant implementation of more advanced technology.

Many of the smaller brokers and dealers use the greater capacity of larger firms. Through a formal agreement, sometimes called "outsourcing," a smaller firm clears trades through a larger firm. By outsourcing, a small firm can focus solely on investing, while competing at the same level of technology as larger firms. Some of the establishments with excess back office capacity have found providing this service profitable enough to create affiliates dedicated purely to doing so.

Clearing trades through other firms is not the only factor that allows some units to conduct business with very few or no professional workers. The bulk of computation, research, and trading done within each firm is generally performed at one central location. Other units may be front offices, employing mostly registered representatives who deal directly with clients.

Due to the aforementioned factors, only a small percentage of establishments reported employing professionals, as they are defined for this study. The 1993 employment level for financial analysts was 6,380, yet only 10 percent[25] of units reported employment for this occupation. An estimated 4,950 accountants and auditors employed within the securities brokers and dealers industry were reported by 12 percent of the units. Workers in computer science occupations totaled 9,850 within security brokers and dealers. Of these, systems analysts and computer programmers were reported by 7 and 8 percent of firms, respectively. Credit analysts, budget analysts, management analysts, and systems researchers each were reported by approximately 2 percent of establishments in the industry.

Employment trends, 1984–93. The overall industry demand for this occupational group is illustrated by increases in its employment level over the 1984–93 period. The amount of growth, however, was largely a function of the profitability of firms. Post-crash cost cutting and vital restructuring proved some occupations to be more indispensable than others.

Employment of professionals expanded rapidly from 1984 to 1987. The total number increased by 60 percent, from 27,720 to 44,490. These workers accounted for 24 percent of the overall industry employment expansion during this period.

Professional occupations with rising employment levels for the 1984–87 period were mainly concerned with financial and operational analysis. Employment of statistical financial analysts grew by 1,600 to total 5,300, and that of operations and systems research analysts moved up by 1,230, to 1,490. The number of accountants and auditors grew by 730 during this time. Although the increase for accountants was not as great as those for the aforementioned occupations, total occupational employment for accountants was high in 1987, at 4,960 or 1.4 percent of industry employment. While there were large increases in the number of workers in professional occupations in the 1984–87 period, the detailed professional occupations did not all fare well in less prosperous markets.

Shortly after October of 1987, firms began cost cutting, which included an employment reduction. Previously, total industry employment had increased in almost every quarter. Between 1987 and 1990, however, the total employment level declined by slightly more than 5 percent, although the number of professional workers grew by 6 percent to total 47,290. The occupational share for these workers grew by approximately 2 percentage points, such that professional workers accounted for 14.5 percent of industry employment in 1990.

Restructuring did, however, trim employment of most analytical positions. The residual occupational group of management support workers[26] took the largest hit, dropping from 6,640 workers to 2,210, for a 67-percent decrease. Employment of management analysts declined by 300 to total 410. The number of operations and systems analysts, except computer, dropped by 380 to 1,110 in 1990, and that of economists declined by 270, to 1,570 workers. The employment of statistical financial analysts, however, barely changed (a 30-worker increase); this group numbered 5,330 in the latter year.

By May of 1993, the market had recovered and firms reconfigured staffing patterns accordingly. In the first half of the year, the industry saw an increase in mergers and acquisitions, as well as highly profitable Initial Public Offerings.[27] With increasing momentum, firms picked up employment of statistical financial analysts, raising the level by 1,050 workers to total 6,380. Also, the employment level for economists rose to 2,040, surpassing its 1987 level.

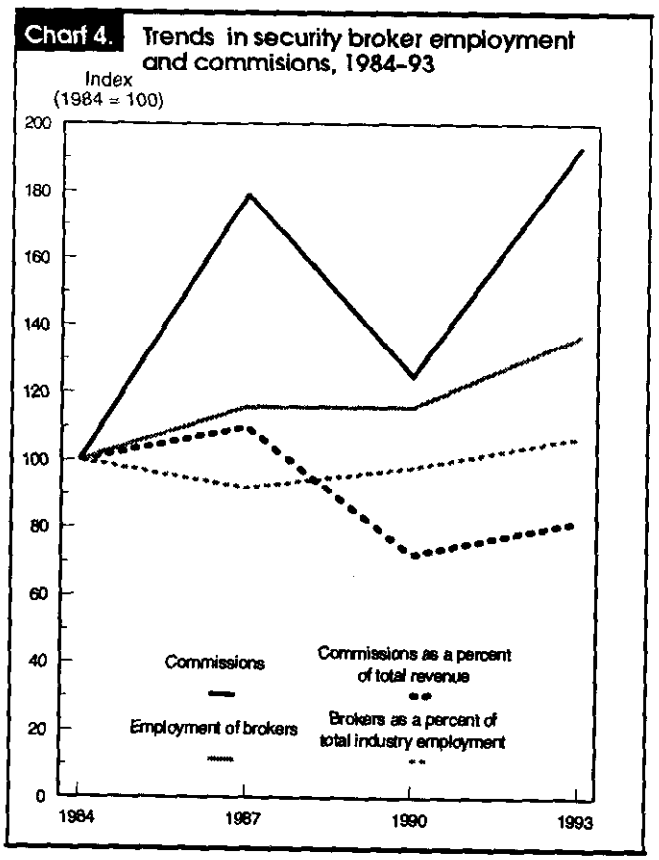
Professional workers dealing with internal operations declined in employment between 1987 and 1990. The group of accountants and auditors, which had grown by 12 percent from 1987 to 1990, declined almost an equal percent (11) between 1990 and 1993. The employment level for management analysts, which had fallen over the 1987–90 period, changed little. The number of operations and systems analysts, except computer, dropped to a mere 350 workers, a 68-percent decline over 3 years.

The most dramatic employment change throughout the four survey rounds examined is the increase for "all other financial specialists." This occupation is a residual within the OES structure. Firms report employment in this category for financial occupations not individually specified. This

Table 2. Percent distribution of workers by detailed occupation and establishment size class, security brokers and dealers, 1993

Occupation	1–19 workers	20–49 workers	50–99 workers	100–249 workers	250 workers or more
Managerial occupations	13.04	6.40	4.62	6.76	7.27
Financial managers	6.14	1.86	1.2	1.59	2.31
General managers (brokerage managers)	6.55	4.15	2.13	3.19	1.70
Professional occupations	3.75	5.07	6.00	8.59	27.91
Accountants and auditors	.85	.51	.59	.87	2.53
All other financial specialists	.55	.86	1.54	1.01	8.70
Systems analysts, electronic data processing	.17	.15	.28	.42	2.03
Computer programmers	.11	.21	.10	.69	3.24
Financial analysts, statistical	1.10	1.83	2.23	1.32	1.72
Economists, including market researchers	.14	.06	.24	.36	1.06
Public relations specialists	.02	—	—	.07	.11
Sales and related workers	46.33	54.15	60.16	50.34	18.72
First-line supervisors	1.80	1.03	1.73	1.73	.74
Sales agents—security, commodity, and financial services	42.9	50.84	55.64	43.12	14.63
Clerical and administrative support workers	36.09	34.34	29.07	34.01	44.27
First-line supervisors	3.53	2.29	1.12	2.10	3.85
Brokerage clerks	17.64	11.46	10.36	11.60	14.48
Secretaries	6.17	11.51	7.34	5.89	6.95

NOTE: Dash indicates no data, or data not available.



residual occupation includes traders.[28] The occupation totaled 1,720 workers in 1984 and had increased, by 256 percent, to 6,120 in 1987. It more than doubled to 13,560 in 1990, and then rose another 25 percent, to 17,000, in 1993. Because this residual occupation is composed of various financial specialists, it is difficult to link its increase to any specific factors.

The number of computer scientists and related workers within security brokers and dealers increased more than 63 percent from 1984 to 1993. Within this occupational group, the employment level of systems analysts was at its highest in 1990, with 4,090 workers. That level had declined to 3,080 by 1993. Total growth for this occupation during all four survey rounds amounted to 41 percent. For computer programmers, the overall increase between 1984 and 1993 was 47 percent. Their employment totaled 3,440 in 1984, peaked at 5,680 in 1987, and then declined slightly to 5,040 in 1993.

Employment by size of establishment, 1993. Size of establishment data from 1993 show that the percentage of professional workers in security brokers and dealers increases with unit employment. In establishments with fewer than 20 employees, 3.8 percent of workers were professionals. (See table 2.) Occupations related to finance, including financial analysts, accountants and auditors, and the residual "all other financial specialists" (that is, traders, including those assigned to exchange floors) each made up around 1 percent of industry employment. In contrast, units that employed at least 250 workers had 27.9 percent of their workers in the professional group. These units also employed the finance-related occupations in greater percentages. In addition, the larger units reported the majority of the employment of computer related workers, economists, labor relations specialists, and lawyers within the industry. The fact that employment for these occupations in the smaller firms is low is partly due to the concentration of such jobs in centralized departments in multi-location firms, as well as to outsourcing.

Sales and related workers

Any employee of a firm who participates in the business of investment banking or securities transactions, including account solicitation, must be recognized by the NASD as a registered representative.[29] To qualify, an employee must first be sponsored by a member firm. The association performs an investigation of the applicant for involvement in any violation of Federal or State laws, or NASD or exchange rules. Applicants must pass the exam appropriate for the securities brokered, and can then engage in the solicitation of instruments for which they are qualified. Supervisors of these workers are considered principals, and must pass the NASD exam that pertains to the securities solicited by themselves and their workers. In the security brokers and dealers industry, the OES occupation "sales agents—securities, commodities, and financial services" is made up largely of brokers.

Brokers are generally paid on a commission basis. Each firm formulates a grid, with payments determined by both the price and number of shares traded. Every trade produces a commission, of which a percentage is identified as broker earnings. The Securities Industry Association reported in 1994, however, that a "growing number of firms are changing compensation practices, paying brokers by portfolio performance, assets managed, or other alternatives."[30]

The employment level for these sales agents or brokers did not decline through any of the survey rounds. In fact, their number increased dramatically between 1984 and 1987, from 89,100 to 103,210. (See table 2.) Between 1987 and 1990, however, the level barely changed. This was contrary to the experience of the overall industry, which lost 5 percent of its employment in the aftermath of the 1987 crash.

By 1993, the employment of "sales agents—securities, commodities, and financial services" reached 122,500, an 18-percent rise from 1990. Although stock prices plummeted again towards the end of 1990, the following year brought low interest rates and favorable investing conditions. By 1993, average daily trading volume on the majority of exchanges had increased substantially. Because the number of

trades is a key determinant of commissions, the favorable market conditions brought greater earnings potential for brokers.

While the percentage fluctuations in employment for sales agents (mostly brokers) in the industry tended to correspond with overall market performance over the study period, the trend of their earnings (commissions) was an even better match. (See chart 4.) Between 1984 and 1987, the employment level of these workers rose by 15.8 percent. Over the same period, commissions increased from $7.095 billion to $12.67 billion, an increase of 78 percent. Between 1987 and 1990, when employment grew by only 0.5 percent, broker commissions declined. By 1990, commissions had fallen about 13 percent from the 1989 level, which in turn was down 20 percent from 1988.[31] The total drop in commissions for the 1987–90 period was 30 percent ($12.674 billion to $8.878 billion).

By 1993, both the employment and commissions of the industry's brokers had surpassed pre-crash levels. Occupational employment was up 18 percent over the 1990 level, totaling 122,150. Commissions had risen to $13.707 billion, a 54.4-percent increase from the previous survey round.

From 1984 to 1993, the movement of broker commissions as a percent of total revenues was inverse to that of broker employment as a percent of industry employment. (See chart 4.) Highs and lows for this period occurred in 1987, when commissions accounted for 24.93 percent of total revenues and in 1990, when they accounted for 16.43 percent. In contrast to the commission ratio, broker employment comprised its highest percentage in 1993, and its lowest in 1987, when the occupation accounted for 30.1 percent of industry employment.

A comparison of data for 1984 with those for 1993 reveals that the decline of commissions as a per cent of total revenues was almost equal to the increase of brokers as a percent of industry employment. In 1984, commissions amounted to 22.73 percent of total revenues and brokers accounted for 32.6 percent of industry employment. By 1993, commissions accounted for 19.21 percent of total industry revenues, and brokers, 35.01 percent of total industry employment.

From 1984 to 1987, the employment level of sales supervisors moved inversely to that of the workers they supervised. The level decreased between 1984 and 1987, from 5,500 to 5,020, but then grew dramatically through 1990, to total 7,684. By 1993, the number of sales supervisors had fallen to 4,410. This fluctuation may be due to the interchanging of supervisory and front-line sales jobs.

Employment by size of establishment 1993. Employment staffing patterns show that units with fewer than 20 employees had 46.3 percent of their workers in sales. (See table 2.) The 60.2 percent of sales workers in establishments employing 50 to 99 workers was the highest concentration of such workers in any establishment-size group. In units employing 20 to 49 workers and 100 to 249 workers, sales occupations accounted for 54.2 and 50.3 percent of total employment, respectively. In contrast, the largest firms, with 250 or more employees, had only 18.7 percent of their workers in sales. Large establishments provide in-house or outsourced back office operations, and trading and research departments. Because these activities require large numbers of professional and clerical staff, the sales worker share of total firm employment is lower.

Clerical workers

Advances in equipment, including computers, have increased the productivity of the industry's clerical workers. Previously, brokers were required to pass a ticket for each order to a wire operator, who keyed the order into a processing system that sent it to an exchange. Now, some order entry systems allow brokers to input trades as they are requested, directly from their desks. The process takes about 1 minute as opposed to 10 minutes under the old system. The efficiency of the current system is such that market transactions often can be completed before a security experiences any movement in price. Electronic trading systems transmit orders directly to a receiving unit. Both advances eliminate paper tickets, and thus the need for clerks to handle them.

Electronic systems allowed management to trim the employment of clerical workers to 36.9 percent of the total in 1993, down from 42.6 percent in 1984. (See table 2.) In 1984, there were 116,930 clerical workers employed by security brokers and dealers. By 1987, employment in the industry as a whole had grown by almost 22 percent, and the number of clerical workers had risen by almost 28 percent, to 142,200. Between 1987 and 1990, however, industry employment declined by about 5 percent, while the number of clerical workers fell by more than 19 percent, to 119,930. By 1993, when total industry employment had risen by more than 8 percent from its 1990 level, there were 129,140 clerical workers, also an increase of 8 percent.

The clerical occupation that experienced the sharpest decline in share of industry employment between 1984 and 1993 was secretaries, whose numbers fell from 9.8 percent to 7.4 percent of the total. Furthermore, while 73 percent of firms reported employing secretaries in the 1987 survey, only 57 percent reported such employment in 1993. While secretaries still are one of the most numerically significant clerical occupations, more firms are able to provide their customers services without having someone designated to perform traditional secretarial duties. In some units, these duties have been assigned to other workers such as receptionists and information clerks, whose numbers increased from 2,360 to

4,460 over the 1987–93 period.

While there has been a decline in numbers of clerical workers as technological advances are further implemented, clerical jobs are not disappearing as quickly as the paperwork. Many firms are altering the tasks performed by these workers so that the difference between their work and that of other occupational groups is less clearly defined. In addition, many clerical workers are being assigned to trading desks, where they are being retrained for work of a more professional nature.[32]

Employment by size of establishment, 1993. In 1993, clerical workers were most abundant in offices with more than 250 workers. Their 44.3-percent share of employment (table 2) is attributable to the back office operations located in these establishments. In addition to brokerage, accounting and auditing, and general office clerks, large establishments also employed greater percentages of statistical and adjustment clerks. Units with fewer than 20 workers employed the second greatest percentage of clerical workers (36.1 percent). Included were large numbers of brokerage clerks, secretaries, and general office clerks.

THE SECURITY BROKERS AND DEALERS industry witnessed a major overhaul in the way that business was conducted over the 9-year period ending in 1993. The technological changes introduced affected both the staffing patterns of firms and the tasks performed by workers in various occupations. The result is an industry that today encompasses greater shares of professional and sales occupations, and relatively fewer managerial and clerical occupations, than in the past. □

Footnotes

[1] *Standard Industrial Classification Manual* (U.S. Office of Management and Budget, 1987).

[2] *NASDAQ Investor Series, The NASDAQ Investor Glossary* (The National Association of Securities Dealers, Inc. (NASD), December 1992), p. 6.

[3] An explanation of the NASD registration and examination requirements, September 1994.

[4] The NASDAQ Stock Market, Inc., "The future of intelligent trading is here..." (The NASDAQ Stock Market, Inc., 1994).

[5] Bureau of Labor Statistics ES-202 program, unpublished data.

[6] The "Quarterly Dow Jones Industrial Stock Averages" in this passage are the closing average for the month stated. Fluctuations were calculated using the two time frames stated, not a compilation of all quarters in-between. See *Barron's National Business and Financial Weekly*, various issues, 1993.

[7] *Standard and Poors Industry Surveys*, Apr. 13, 1989, p. I–43.

[8] NYSE firms' income statement. Source: Securities Industry DataBank.

[9] The pretax profit data in this section is from the NYSE firms' income statement.

[10] Bureau of Labor Statistics ES-202 program, unpublished data.

[11] Ibid.

[12] *Standard and Poors Industry Surveys*, July 12, 1990, p. I–40.

[13] *Standard and Poors Industry Surveys*, Nov. 3, 1994, p. B–55.

[14] Ibid

[15] Ibid.

[16] NYSE firms' income statement. Source: Securities Industry DataBank.

[17] BLS 1993 Employment and Wages Annual Averages. The reference to any industry is at the 3-digit SIC level. The weekly wage number is derived by dividing the total annual pay of employees covered by unemployment insurance programs by annual average employment. A further division by 52 yields average weekly wages per employee. Average wages are affected by the ratio of full-time to part-time workers as well as the number of individuals in high-paying and low-paying occupations.

[18] *Handbook of Methods*, Bulletin 2414 (Bureau of Labor Statistics, 1992), pp. 29–31.

[19] Sole proprietors are not included in the employment data for this article.

[20] An explanation of the NASD registration and examination requirements, September 1994.

[21] *Standard and Poors Industry Surveys*, Apr. 3, 1989, p. I–43.

[22] *Standard and Poors Industry Surveys*, July 12, 1990, p. I–40.

[23] *Standard and Poors Industry Surveys*, Nov. 18, 1993.

[24] The actual OES title for this occupation is "engineering, mathematical, and natural sciences managers." Given the services provided by this industry, it is assumed that the reported employment is for the mathematical managers.

[25] The percent of firms reporting each occupation is produced with the OES estimates. Due to space limitations, this number is not shown in the tables in this article.

[26] The OES occupation structure includes "all other" occupations that allow respondents to report employment for workers not covered within the definition for any of the specified detailed occupations. In order to obtain information on the content of these "all other" or residual occupations, the OES program is currently implementing a plan to disaggregate residual occupations on the survey forms.

[27] *Standard and Poors Industry Surveys*, Nov. 18, 1993, p. B-64.

[28] Traders, like principals and brokers, must be registered with the NASD.

[29] An explanation of the NASD registration and examination requirements, September 1994.

[30] Securities Industry Association, Media Release No. 516, Aug. 8, 1994.

[31] *Standard and Poors Industry Surveys*, Dec. 5, 1991, p. I–42.

[32] *Wall Street and Technology*, vol. 11, no. 13, pp. 55–58.