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AUTHOR Stone, Charles Edward
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ABSTRACT

This document is a study of teacher retirement systems of the United States. It also deals with the problems of improved management, particularly of how funds might be invested to increase benefits or reduce the required contributions. It sets up a hypothetically ideal pattern for the investment portfolio of typical State pension fund on the basis of security and return criteria. From this model the implication is made that benefits of teacher pension funds might be increased (or contributions reduced) by as much as one third if the model were applied to the average fund. The study presents a compilation of information on the history of teacher pensions and improvements of and comparisons among State systems, and offers recommendations to those responsible for teacher pension funds. (Author)

THE AUTHOR—Dr. Charles E. Stone is a native of Sugar Grove, Virginia, where he received his elementary and high school training. He holds the Bachelor of Science degree, taken at Berea College in 1950. He took the Master of Business Administration degree at the University of Kentucky in 1953 and, with the completion of the dissertation which provides the substance of this issue of the *Bulletin*, was awarded the Ph.D. degree with his major in economics at the University of Kentucky in August of this year. He was elected to the honor organization in business, Beta Gamma Sigma, in April 1971.

During World War II the writer served three years in the United States Navy. Following graduation from college he became a teacher and guidance counselor in Smyth County, Virginia, 1950-1964. While a student at the University of Kentucky, he was a graduate teaching assistant for the year 1965-66. Since 1967, he has been a professor at Radford College where he now is chairman of the economics department. He currently resides with his wife and teen-age son in Blacksburg, Virginia.

Dr. Stone's dissertation was directed by Dr. Herman A. Ellis, professor of business administration, and Dr. Don M. Soule, professor of economics, they serving as co-chairmen of the special committee to direct his doctoral program.

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TEACHER RETIREMENT SYSTEMS

A Review of Patterns of Teacher Pension Systems in the Fifty States, with a Model Investment Portfolio for a Typical System

Charles Edward Stone, Ph.D.

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FOREWORD

This is a study of teacher retirement systems of the United States. It is partly descriptive and analytic; but it also deals with the problems of improved management, particularly of how funds might be invested in order to increase benefits or reduce the required contributions. It sets up a hypothetically ideal pattern for the investment portfolio of a typical state pension fund on the basis of security and return criteria. A somewhat startling implication emerges out of the reasoning upon which the model is based: that benefits of teacher pension funds might be increased (or contributions reduced) by as much as one third if the model were applied to the average fund.

For those interested in the history of teacher pensions, as well as those concerned for improvement of state systems and comparisons among them, the study represents a valuable compilation of information, as well as counsel to those responsible for teacher pension funds.

—PAUL STREET

It was a pleasure to work with Dr. Charles E. Stone in connection with his doctor's dissertation dealing with the investment policies and practices of teacher retirement funds. This is a very timely subject and one of great significance with respect to the designing and administration of huge sums going into pension and retirement plans. Considerable thought and effort went into this multi-disciplinary inquiry. The members of Dr. Stone's dissertation committee from economics, business administration and education, were impressed with the quality of work done and with the results obtained in putting together the scattered information relative to diverse teacher retirement programs.

Inasmuch as the study focuses attention generally on public education and specifically on efforts aimed at promoting more efficiency in the management of teacher retirement systems, we feel that persons and officials charged with the responsibility of directing public pension plans can find helpful suggestions by referring to the conclusions expressed in this dissertation summary. We are of the opinion that his suggestions for managerial improvement in the administration of teacher retirement plans would be supported by professional investment counsel.

—DON M. SOULE
—HERMAN A. ELLIS
Co-chairmen of Dr. Stone's
Dissertation Committee

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CHAPTER I

DESIGN OF STUDY

Funded teacher retirement systems are relatively young. Just as has been true of pensions in general, they have grown up rather rapidly and have tended to emphasize the retirement aspects. On the other hand, they often have not given a great deal of professional attention to the investment of their funds. This does not mean that investments have been a matter of unconcern. Rather, it means that they have restricted investments to those considered relatively safe from a financial-risk point of view and have usually contented themselves with a minimum amount of investment administrative organization and counsel.

While the emphasis has been on the retirement aspects of pension systems, one must not assume that benefits are abundant. Their benefits are usually much below the average salary of the present teacher, and with rising inflation many teachers may find their benefits inadequate when they retire some time in the future.

With these two thoughts in mind, it is contended that retirement systems will need to improve their benefits in the future and that they will be able to do this in part through changes in investment policies and practices.

Problem and Procedure

Specifically stated, it was hypothesized that investment policies and practices of the average teacher retirement fund can be altered in such manner as to increase benefits or decrease contributions significantly and that this can be done with prudent regard for various investment risks.

Data with regard to the aggregate portfolio were compiled from the biannual publications of *State and Local Pension Funds* which were made available by the Investment Bankers Association,[1] and from the *Proceedings of Annual Meetings* of the National Council on Teachers Retirement.[2] An abundance of information dealing with membership, administration, and retirement provisions was made available by the National Education Association through the *School Law Summaries*.[3] These aggregate data were supplemented from time to time by reference to *Finance of Employee Retirement Systems* which is published by the U. S. Bureau of Census.[4]

Fund portfolios and other information were secured from the teacher retirement system of the state of Kentucky and several other systems operating in states in the general geographical area of Kentucky. This information was secured through letters of request sent to the various executive secretaries, through interviews with system directors, through analysis of the standard publications provided by retirement systems, and by probing the statutes of Kentucky and numerous other states.

Purpose and Scope of Study

It was the purpose of this project to identify the investment policies and practices of teacher retirement funds as they presently exist and to analyze them in the light of various professional standards. It was conjectured that this analysis would show that the investment policies and practices of teacher retirement systems can be changed in such manner as to improve the yield performance with due regard for investment risks.

This study was primarily concerned with the investments of public teacher retirement systems operating at the state level for elementary and secondary teachers. Sometimes college teachers were included, but for the most part they are not members of these systems. It sometimes included other school employees, e.g., janitors, cooks, and bus drivers, but usually not. Teachers of private school systems were usually not included. Finally, some of the large cities run systems independent of the states, and these were not included. This study, however, did cover systems involving over 1,000,000 members or approximately 90 percent of those reported in the membership of teacher retirement systems.[5]

Aggregate data for portfolios were secured from all of the 50 states, while specific portfolio data were limited to Kentucky and the participating states of the general geographical area adjacent to Kentucky.

Review of Literature

A review of literature reveals that a great deal has been written on retirement. While some of this writing is not directly related to the investment of teacher retirement funds, most of it is quite relevant either directly or indirectly to proper analysis of the investment policies and practices of these systems.

General retirement literature

Several authors have dealt with the broader aspects of retirement. Among them, Dan McGill[6] has edited a series of lectures, *Pensions: Problems and Trends,* dealing with such pertinent subjects as forces underlying the pension movement, economic impact of private pension plans, actuarial solvency of a pension plan, meeting price level changes, and characteristics of insured and non-insured plans. Another study dealing with pensions in general is *The Pension System in the United States* published by Haskins and Sells.[7] It is a survey of all major types of retirement systems in the United States. It is useful in getting an overall view of the pension system in the United States, in introducing one to various retirement features standard in many retirement systems, and in gaining an appreciation for funding methods as well as other financial considerations useful to understanding retirement funds.

A number of writers have been concerned with certain specific provisions of retirement, e.g., vesting, portability, and funding. Many articles

have been devoted to vesting of benefits—a feature which entitles the employee to receive pension benefits at retirement age even if he no longer is an employee of the company. Among them is Walter Kolodrubetz,[8] who has discussed various types of vesting and has pointed out the fact that most employees do not have full vesting. Many employees have some form of vesting; however, the provision is usually much less than full. Kolodrubetz finds that unions and employees are applying pressure to improve this benefit. Various other authors have reported mounting pressure favoring vesting and portability.[9]

Another growing concern to those interested in retirement is portability. Among others who have written on this subject is D. F. McGinn.[10] In an article entitled "Case for Portable Pensions," McGinn deals with some of the problems of making pensions portable from one employment to another. Merton C. Bernstein[11] has a sizable work in which he stresses the need for making pensions portable and has indicated that this might be made possible by setting up a clearing house arrangement to handle portability provisions for all pension funds. In fact, Bernstein appears to believe the future of private pensions may depend on how well they can adapt to improved vesting and portability.

Funding is another provision which is considered basic to sound pension systems. As mentioned earlier, Haskins and Sells, [12] in *The Pension System in the United States,* briefly introduce the reader to types of funding. In various journal articles, Charles Trowbridge[13] has discussed the "ABC's" of funding in which he explains the basic reasoning behind funding. Dorrance C. Bronson[14] has dealt with this subject more extensively in his book, *Concepts of Actuarial Soundness in Pension Plans.*

A number of authors have written on one special group of pensions. Bernstein[15] has been concerned about the future of private pensions, has noted their inadequacies, and has indicated that they may not be moving fast enough toward improvement of vesting and portability. McGill[16] has discussed the possibilities of private funds fulfilling expectations. In his publication, *Fulfilling Pension Expectations,* he deals with the sources of security behind anticipated benefits and with the employer's commitment. He discusses some of the legal loopholes which tend to result in pensions expected but not received. It is his contention that some of these loopholes should be closed. Especially, he contends that those benefits which have already been vested should be fully funded. Charles Dearing,[17] in his book entitled *Industrial Pensions,* has dealt with the underlying forces which led to the development of pensions, the financial responsibility for pension systems, and the investment of these funds.

Other authors provide background in the area of state and local systems. Joseph Krislov,[18] for example, has surveyed the retirement provisions of these funds and collected data from 151 systems with reference to normal retirement, disability retirement, survivor benefits, and financing.

Recently, a few scholars have become concerned with the economic aspects of pensions. Paul Harbrecht,[19] who has devoted considerable

emphasis to this subject, views pension funds as a potential source of power centered in the hands of a few fund managers. Although managers presently appear to be more concerned with yield than with gaining power over corporations, he feels that the opportunity for fund managers to take control of some of the largest corporations is a very real possibility. Phillip Cagan[20] and George Katona[21] have studied the effects of pension programs upon savings patterns of households. It is their contention that initially these funds have a stimulating effect upon savings, or more precisely that they provide an amount of savings in addition to the savings which would exist in the absence of pension systems. In *Economic Aspects of Pensions,* Roger Murray[22] has summarized the effects of retirement funds on savings and the capital markets. He, too, feels that savings are stimulated by pensions and that the magnitude of funds flowing into the capital markets from this source will continue rising in the foreseeable future. On the other hand, he does not feel that this is likely to result in a power take-over of the corporations of the United States. It is his feeling that they will continue to be more concerned about yields than with the potential chance of selecting the management of the companies in which they invest.

While it is true that the foregoing literature is often not directly related to investment of pension funds, it is hardly possible to discuss investments without such background information. It is only when one has some understanding of the various funding arrangements of pension funds, their general growth and development, and various benefits provisions, that he can set the objectives for pension fund investment.

Portfolio management literature

With the rapid growth of retirement systems during and following World War II, there has been an increasing concern with investment policies and practices of these systems. Among those giving consideration to this aspect is the Industrial Conference Board,[23] which has published a pamphlet dealing with various phases of financial management of a retirement plan. This bulletin includes a discussion of the basic financial considerations for starting and funding a plan and a brief discussion of investment policy. Harold Scott[24] has written a dissertation dealing with the investments of private pension plans in which he discusses investment requirements and the advantages of various investment media for satisfying these objectives. Victor Andrews,[25] although primarily concerned with their influence on the capital market, discusses the composition of private pension fund portfolios and offers reasons for changes which have been taking place in their investment policies. Esmond B. Gardner[26] has recently edited the record of Proceedings for a Certified Financial Analysts Research Seminar, entitled *Pension Fund Investment Management.* This study includes such subjects as: the trust agreement, ethics, funding, measuring performance, and investing the pension fund. John Sieff,[27] in considering the construction of a retirement fund portfolio, has discussed the various available investment media and their suitability for pension-fund investment.

Much of the recent literature has been critical of conservatism in the portfolio policy. Paul Howell, one of the leaders in this criticism, has written a number of journal articles, two of which are "High Cost of Conservatism in Pension Fund Investing"[28] and "Common Stock and Pension Fund Investing."[29] In these papers, he draws attention to the growing dependence of a sizable part of the population upon pension funds as a means of existence. At the same time, he notes the inadequacy of funding and the growing demand for better benefits. These, he holds, can be partially provided by improving the investment performance. In short, he feels that pension funds have emphasized their defense against the financial risk at too great an expense in terms of the market-rate risk. While Howell was primarily concerned with private pension systems, another author, Murray Polakoff,[30] has followed this same theme with regard to state and local retirement funds. In his research, Polakoff compares the investment of state and local funds to those of corporate funds and finds the average state and local fund much more conservative in its portfolio distribution than its counterpart in the private group. State and local funds tend to hold a greater percentage of the portfolio in fixed income securities. Likewise, when he computed yields including dividends and appreciation, Polakoff found that private funds outperformed the state and local funds significantly in five out of seven years during the 1955-1964 period. In fact, the average annual yield differential between the two types of funds was 2.1 percent over the eight-year period. From his research and from other studies concerning equity investment, Polakoff concludes that fund managers should press state legislatures to liberalize state statutes with reference to their portfolio distribution.

A number of other scholars have written on this general theme. Edward A. Mennis,[31] e.g., in a journal article entitled "Investment Policy for a Growing Pension Fund," has discussed investment decision-making and contends that the most important decision that investment trustees have to make is that of deciding on the ratio of fixed income securities to equity investments. Looking at the economic environment as it existed during the mid-1960's, he observed that the interest-rate risk and the market risk were probably greater than the financial risk for pension funds. Finding some private funds with equity ratios as high as 50-60 percent, he indicated that these ratios might need to be even greater in the future. Robert M. Soldofsky and Ernest V. Zuber,[32] in reviewing the Iowa Public Employees Retirement System, also recommended greater attention to equity securities.

The increased emphasis on management of various trust funds has led some members, managers, and students of the subject to place increasing emphasis on comparing performance. However, various authors point to the fact that it is not an easy task to measure performance on a comparable basis. Accounting methods traditionally have required that securities be carried on an original cost basis, thus ignoring capital gains and losses except when realized through sale of the security. In measuring the yield, this system may produce odd results in any one annual period. Randolph McCandlish[33] points out that much of the reason for this also is the fact

that funds get started at different times and face unlike conditions with regard to timing receipts and payments. Under these circumstances, a yield of 4.50 percent for each of two funds may appear to denote an equally good performance. This may have been much easier to attain, however, in the case of one fund than with the other. Fund "A," for example, may have had the good fortune to have begun its investments during a period when interest rates were unusually high or when stock prices were low and rising, whereas the opposite may have been true for Fund "B."

Peter Dietz[34] and the Bank Administration Institute[35] have dealt with this problem at length. They have each suggested methods of computing yields for comparison purposes in such manner as to eliminate many of the differences; however, performance is still reported by fund managers according to traditional methods. In light of the fact that fund managers do not follow one set standard for measuring yield, reported yields supplied by pension funds are not suitable for measuring performance of one fund against another.[36]

With reference to the investment of teacher retirement funds, specifically, the literature is rather limited. As noted earlier, the National Education Association[37] collects summary information which is helpful with regard to the legal setting for teacher retirement fund investments. Also, the Investment Bankers Association[38] provides comprehensive information of this type.

Other work done in the area of teacher retirement is usually on a single-fund basis. A commission on economy and efficiency for the state of Kentucky has done a report on the public retirement systems operating in that state.[39] This report deals briefly with investments for the Kentucky Teachers Retirement System. Roger Murray[40] has served as a consultant to the New York State Teachers Retirement System and has made recommendations for improvements in the administrative organization and for changes in the portfolio distribution of this system. Evidently, there are many of these consultant reports which have been prepared for the funds of the respective states by banks and other investment consultants. Some of these were made available for this study; their general tenor was toward more active management and more equity investments.

Reflecting upon this review of literature, one will observe that while a great deal has been written on retirement systems, very little has been done toward making an overall study of the investment policies and practices of teacher retirement funds.

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CHAPTER II

HISTORY AND PERSPECTIVE

Over the past century, the United States has witnessed the development of systems of retirement covering most of our labor force. These developments have accompanied a steady growth of the population, a steady shift from rural to urban living, development of mass production techniques, rather persistent inflation of prices, and a rising standard of living.

In 1900, the population of the United States was approximately 76 million people. By 1969, it had more than doubled to reach 202 million.[1] This increase was accomplished in part by improved medical science which increased life expectancy from 47.3 years in 1900 to 70.5 years in 1967.[2] As a result, the "senior citizen" portion of the population—definied here as those 65 years of age and older—had increased from 1.1 percent in 1900 to 9.5 percent in 1965.[3]

Growth of technology

As this growth of population and increasing life span were taking place, the country was also making technical progress. Developments brought many new and better products which took much of the drudgery out of once menial tasks and resulted in a rise in the National Income from $103.1 billion in 1929 to $860.6 billion in 1968.[4] Per capita disposable personal income also increased and, based on 1958 prices, approximately doubled during this period.

Economic and technological progress, however, have brought social and economic problems. The development of a factory system has forced a movement from farm to factory, from small shops to large plants, and from a predominately rural to an urban society. As the overall population grew, the farm population followed an opposite trend and declined from a peak of 32.1 million in 1910 to 10.5 million in 1968.[5]

While agriculture and small shops were the predominant means of earning a living, they were also a way of life. Those who lived to become "senior citizens" were cared for by their children; and because of the nature of the work, they often led useful lives during their final years.

On the other hand, as mass production techniques began to develop, a great change came about in the type of worker needed for available occupations. Older workers were displaced by machines which often made the worker's skills of no value. As a result, older workers often found themselves without jobs and with no means of support.

Other forces affecting retirement plans

A number of other forces appear to have affected the growth of retirement systems. Among these is inflation. Those who were farsighted enough

to save some of their income as they were earning during years of employment have found it eroded away by creeping inflation. In other words, savings used during retirement tended to be used up much faster than would have been anticipated. Similarly, a rising standard of living, while enjoyed by the population in general, often turned into a burden for the aged. Since people tend to be emulative, the average family finds it difficult to reduce expenditures upon retirement.

Finally, mass production has not eliminated the low-income group. Twelve and one-half percent of the family units of this country receive annual incomes of less than $3,000.[6] Needless to say, most of these families and many others can not save for their retirement. In fact, a survey of consumer finance published in the Federal Reserve Bulletin showed that about 37 percent of all families are not saving any of their income.[7]

As people became aware of these changes, they were displeased with the prospects for the future. Workmen did not like the prospect of becoming public charges. Sons and daughters found it increasingly difficult to take father and mother into their homes while caring for their own families. Even employers did not enjoy discharging faithful workers and leaving them without a means of livelihood. Therefore, thinking people—both employers and employees—began to propose various retirement plans.

A Brief History of Retirement Systems

Teacher retirement plans developed as part of a general movement which began in Europe—this having come about from the fact that their civilization was older, that the industrial revolution had arrived there earlier, and that they had been able to solve some of the more immediate problems well ahead of the United States. A beginning seems to have been made with the establishment of civil service pensions in England in the year 1834. Soon thereafter, teachers were covered in Switzerland in 1839 and Germany joined the movement around 1880. In fact, Germany plans were on a compulsory and contributory basis.[8] Private plans, likewise, had a very early beginning in Europe. One author[9] reports that they came even earlier than state pensions but failed to gain as much publicity.

In the United States, the movement for pensions seems to have had its beginning immediately following the Civil War, with firemen and policemen among the earlier groups to gain pension systems. Actually, the New York City plan for policemen marks the beginning of municipal pensions in this country.[10] Private pensions, also, had an early beginning in the United States when in 1875 the American Express Company established the first industrial plan. This was followed 5 years later by the Baltimore and Ohio Railroad plan.[11] Similarly, labor unions soon entered the movement as the Pattern Makers' League of North America adopted a plan in 1900. This was soon followed by the International Jewelry Workers Union of America, the National Association of Letter Carriers, the Granite Cutters' International Association of America, and the International Typographical Union.

By 1930 at least 13 international unions had established programs and in some cases large locals had been able to set up old-age funds.[12]

Teachers very early got into this drive for more security. For them, the beginning came about as an outgrowth of their mutual aid associations. The New York City Teachers' Mutual Life Assurance Association, formed in 1869, had as its purpose the provision for burial insurance. From this beginning, the mutual aid associations proceeded to add sick benefits and by 1897 no less than 7 associations had made this provision. Soon these associations began to recognize another problem—the insecurity of teachers disabled because of sickness or old age. Here again, New York City and Brooklyn were pioneers, both establishing annuity associations in the year 1887. The movement continued, and by 1897 there were at least 10 of these voluntary associations largely centered in the cities of the eastern seaboard.[13]

Early pension plans, both private and public, generally were rather weak pay-as-you-go arrangements. Private plans were often simply paternalistic in nature and could be withheld or paid at the discretion of the employer. Coverage was usually very limited, in many cases only applying in the event of total disability. Moreover, most of the funds were unsound.[14] They either failed to make adequate assumptions or tended to ignore actuarial considerations. Writing about teacher retirement funds in 1920, Studensky[15] thought the problem of administration of these funds so inadequate that most of the 100 teacher retirement funds existing at that time would collapse unless fundamentally altered.

During the 1920's, as more and more pressure was brought in favor of sound funded systems, the insurance companies found that they could offer certain advantages to those who wished to establish systems on a funded basis. In the first place, they had the experience necessary for setting up systems which were scientifically planned to be actuarially sound. In the second place, they had a staff of trained investment officers who could do a professional job of investing the funds that were being built up. Therefore, as employers were not anxious to take on this much additional responsibility, they began to make arrangements with the insurance companies to write contracts for group annuities. Accordingly, insurance companies were in a prominent position with regard to retirement plans during the 1925-40 period.

Beginning about 1940, several influences seem to have favored the growth of pensions—particularly the noninsured type plans. In the first place, the Social Security Act of 1935 had been passed and had provided for two systems of retirement pensions: Old Age Assistance and Old Age and Survivors Insurance.[16] While making pensions available for more people, the Social Security Act also seems to have drawn attention to the need for larger pension provisions and to have stimulated the growth of private funds.

A further stimulus to private pensions came about through a clarification of the Internal Revenue Code in 1942.[17] Under this provision of the

law, it was clear that pension-fund contributions to qualified plans are eligible for deduction in figuring the income tax of the private employer. Thus, the corporate employer is in effect paying only approximately 50 percent of the pension contribution–varying slightly as corporate income-tax rates are varied.

Thirdly, during World War II, when wages were more or less frozen, the War Labor Board allowed pension contributions to be instituted or increased in lieu of cash-wage increases. This was a means of pacifying workers without being greatly inflationary.

Finally, in the Inland Steel Case, the United States Seventh Court of Appeals upheld the National Labor Relations Board in its ruling that pensions are a legal subject for collective bargaining as "conditions of employment" under the Taft Hartley Labor Law.[18] That these provisions affected the growth of pension plans is obvious. The Department of Commerce estimates that employers' contributions to pension trusts increased fourfold from $171 million in 1941 to $859 million in 1945. Also, in little more than 2 years, from September 1942 through December 1944, the Bureau of Internal Revenue approved 4,208 pension plans covering more than 715 thousand workers as compared to 1,360 plans covering 980 thousand workers in the entire previous twelve-year period.[19]

Teacher Retirement Funds in Perspective

Teacher retirement funds are part of a much larger overall retirement system which has grown up in the United States. In order to place teacher retirement funds in perspective with retirement systems as a whole, it is necessary to consider the present size of various types of systems presently operating in the United States.

Federal systems

There are basically 3 funded retirement systems operated under the direction of the United States government: Old Age, Survivors, Disability, and Health Insurance; Civil Service Retirement; and Railroad Retirement.

Old Age, Survivors, Disability, and Health Insurance

The federal government established Old Age and Survivors Insurance as its basic social insurance program with the passage of the Social Security Act in 1935. As indicated in Table 2-1, the program made eligible for coverage only slightly more than one-half of the paid employment force in 1940. Membership, however, was subject to changes as Congress amended the law during the years to come, and by 1967 coverage had been extended to 70.3 million of the 76.0 million workers in the paid employment force. Assets held by the OASDHI trust funds also had increased, as is shown by their growth from $2.0 billion in 1940 to $26.2 billion in 1967 (Table 2-2). The growth of these funds was quite rapid until 1955, when

TABLE 2-1—MAJOR RETIREMENT SYSTEMS MEMBERSHIP (thousands)

	1940	1950	1960	1966
Paid employment[a]	46,000.0	60,000.0	67,500.0	76,000.0
OASDHI				
Active[a]	26,800.0	38,700.0	62,000.0	70,300.0
Beneficiaries[b]	222.0	3,477.0	14,845.0	22,767.0
Railroad Retirement				
Active	1,177.0	1,494.0	862.0	738.0
Beneficiaries		251.0	384.0	480.0
Civil Service[c]				
Active		1,699.0	2,188.0	2,518.0
Beneficiaries		157.0	369.0	568.0
State and Local[c]				
Active		2,600.0	4,500.0	6,100.0
Beneficiaries		254.0	590.0	865.0
Teachers[d]				
Active				2,828.8
Beneficiaries				331.3
Private Insured[e]				
Active	695.0	2,755.0	5,475.0	7,835.0
Non-insured[f]				
Active		7,050.0	15,760.0	18,625.0

[a] U. S. Bureau of the Census, *Statistical Abstract of the United States, 1969* (90th. edition) Washington, D. C., 1969, p. 280.
[b] *Ibid.*, p. 28.
[c] Investment Bankers Association of America, *State and Local Pension Funds*, A Report Prepared by Thomas M. Adams and Gordon L. Calvert (Washington: Investment Bankers Association of America, 1968) p. 4.
[d] Compiled from: National Education Association, *School Law Summaries*, A Collection of school law summaries by the Council on Teacher Retirement (Washington: National Education Association), 1967.
[e] Institute of Life Insurance, *Life Insurance Fact Book* (New York, 1969), p. 39.
[f] Computed from: Investment Bankers Association of America, p. 4, and *Insurance Fact Book*, p. 39.

they composed a magnitude of $21.7 billion, but have grown more slowly since. The system presently pays benefits to over 22 million beneficiaries.[20]

Federal Civil Service Retirement

Membership in this plan tends to be compulsory for civil service employees; therefore, most of the 2.7 million civilian employees of the federal government are covered.[21] Its assets have grown rapidly, having reached $18.2 billion by 1967 (Table 2-2). In comparison with the $26 billion fund of OASDHI and in consideration of the much larger membership of the latter system, the FCSR fund is a large one.

Railroad Retirement

The third major retirement system operated by the United States Government is the Railroad Retirement System. It was initiated in 1884,

when the Baltimore and Ohio Railroad established a plan for its employees.[22] This was followed by 81 other plans for railroad employees, 76 of which were unfunded pay-as-you-go systems. During the 1930's, when the railroads found themselves, in many instances, unable to pay benefits to those eligible to retire, the government deemed it necessary to set up a federal system. This system is quite similar to the OASDHI insofar as the mechanics are concerned, but it differs in that contributions are made directly to the general fund of the United States treasury and maximum benefits are considerably higher. The assets of this fund amounted to approximately $4.2 billion in 1967, having grown from $.1 billion in 1940 (Table 2-2). It reached a peak in membership around 1945 when it had 1.8 million members, and has been declining as employment in the industry has decreased during recent years (Table 2-1). In 1966, it had an active membership of 738 thousand members while benefits were being paid to 480 thousand beneficiaries.

Private retirement systems

Private retirement plans are of two basic types: the insured type and non-insured types.

TABLE 2-2—ASSETS OF MAJOR RETIREMENT SYSTEMS
(billions of dollars)

Name of Fund	1940	1945	1950	1955	1960	1965	1967
Government Plans							
OASDHI[a]	2.0	7.1	13.7	21.7	22.6	19.8	26.2
Railroad[b]	.1	.7	2.6	3.5	3.7	3.9	4.2
Civil Service[b]	.6	2.2	4.2	6.5	10.5	15.9	18.2
State and Local[c]	NA	2.3[d]	6.2[d]	9.9	18.5	31.8	39.3
Teacherse				3.3	7.4	13.7	17.2
Private Plans							
Insured[f]	NA	NA	5.6	11.3	18.9	27.3	32.1
Non-insured[g]	NA	NA	6.5[h]	16.1	33.1	58.1	71.8
Totals	NA	NA	38.8	67.1	102.8	156.8	191.8

[a] U. S., Social Security Administration, *Social Security Bulletin* (1967), pp. 37-38.
[b] *Social Security Bulletin*, p. 23.
[c] U. S., Bureau of the Census, *Finance of Employee-Retirement Systems by State and Local Governments*, April 1961, p .3, and January 1966, p. 2.
[d] *Social Security Bulletin*, December 1966, p. 41.
[e] Calculated from: Investment Bankers Association of America, *State and Local Pension Funds*. A report Prepared by Thomas M. Adams and Gordon L. Calvert (Washington: Investment Bankers Association of America, 1960, 1962, 1966, 1968).
[f] Institute of Life Insurance, *Life Insurance Fact Book* (New York, Institute of Life Insurance, 1966), p. 36.
[g] U. S. Bureau of the Census, *Statistical Abstract of the United States:* 1969 (190th. edition) Washington, D. C., 1969. p. 288.
[h] *Statistical Abstract of the United States*, 1966, p. 294.

Insured plans

Insured plans are those in which an insurance company receives the contributions and assumes responsibility for paying benefits according to either a master contract covering a group of employees or a series of individual contracts covering each employee individually.[23] In 1966, there were 83.8 thousand of these plans[24] covering 7.8 million employees. In 1950, they had assets of $5.6 billion and had grown approximately fivefold by 1967, when they reached a magnitude of $32.1 billion.

Trusteed plans

Since insurance companies were subject to more legal restrictions than trusts with regard to investments, many companies elected to manage their own funds or to set up trusteed systems with a third-party trustee handling the system. These plans have been quite popular—a fact which can be observed from their rapid growth from $6.5 billion in 1950 to $71.8 billion of assets in 1967 (Table 2-2). It will be observed that trusteed funds increased tenfold during this period, which means that they were growing faster than any of the other major groups of pension funds. In 1966, the membership of these plans had risen to 18.6 million.

State and local retirement funds

Retirement funds provided by state and local governments for their employees have been growing at a rather steady pace. Their growth is evidenced by an increase in membership from 2.6 million members in 1950 to 6.1 million in 1966 (Table 2-1) and by an expansion of assets from $1.6 billion in 1940 to $39.3 billion in 1967 (Table 2-2).

Teacher retirement funds

Teacher retirement funds—a component group of state and local systems—cover 2.8 million active members and provide benefits for over 330 thousand beneficiaries. Their assets have grown from $3.3 billion in 1955 to $17.2 billion in 1967, which makes them the second-fastest-growing group of funds reviewed in this study (Table 2-2).

Teacher retirement funds compose approximately one-tenth of the total amount of all trust funds available for retirement systems. They are growing quite rapidly, and with the growing emphasis on education this trend should continue. Presently, the 3 million teachers of this country are interested in these systems as a matter of concern for future size and dependability of benefits. The general public, putting its tax money into these retirement systems, is also interested in how the money is being handled. As state legislatures have been making changes in the laws with reference to pension funds and may be interested in further changes, it is of interest to find out what policies and practices prevail and what changes might be beneficial.

Notes

1. U. S. Bureau of the Census, *Statistical Abstract of the United States,* 1969. (90th. edition.) Washington, D. C., 1969, p. 5.
2. *Life Insurance Facts Book* (New York: Institute of Life Insurance, 1969), p. 93.
3. *Statistical Abstract of the United States,* p. 10.
4. *Ibid.,* p. 310.
5. *Ibid.,* p. 590.
6. *Ibid.,* p. 324.
7. *Federal Reserve Bulletin,* 1949, Survey of Consumer Finance, January 1950. Table 10, p. 23.
8. Henry L. Pritchett, *The Social Philosophy of Pensions,* with a Review of Existing Pension Systems for Professional Groups (New York: The Carnegie Foundation for the Advancement of Teaching, 1930). Bulletin No. 25. p. 3.
9. Arthur Seldon, Pensions for Prosperity Institute of Economic Affairs (The Stellas Press, 1960) p. 8.
10. Abraham Epstein, *The Challenge of the Aged* (New York: The Vanguard Press, 1928), p. 173.
11. Charles L. Dearing, *Industrial Pensions* (Menasha, Wisconsin: George Bonta Publishing Company, 1954) p. 35.
12. *Ibid.,* p. 31.
13. Paul Studensky, *Teacher Pension Systems in the United States* (New York: D. Appleton and Company, 1920). pp. 4-9.
14. Abraham Epstein, *The Challenge of the Aged,* p. 174.
15. Paul Studensky, *Teacher Pension Systems in the United States,* p. XV.
16. Dearing, p. 20.
17. U. S. *Internal Revenue Code,* Section 165 (a) and 23 (p).
18. National Labor Relations Board, *Decisions and Orders of NLRB,* "Inland Steel Company vs. United Steelworkers of America (CIO)," Vol. LXXVII (1948), p. 4.
19. U. S. Bureau of Internal Revenue, *Pension Investment Statistics.* August, 1946. Table 2.
20. U. S. Bureau of Census, *Statistical Abstract of the United States,* 90th. ed. (1969), p. 280.
21. Victor L. Andrews, *Investment Practices of Corporate Pension Funds.* (Unpublished Ph.D. dissertation, Massachusetts Institute of Technology, 1958), p. 10.
22. Haskins and Sells, *The Pension System in the United States* (1964), p. 14.
23. *Ibid.,* p. 24.
24. Institute of Life Insurance, *Life Insurance Fact Book* (New York, 1969). p. 39.

CHAPTER III

ADMINISTRATIVE ORGANIZATION

Administrative organization is one of the essentials for successful operation of teacher retirement systems. An understanding of the organization for administration is important to an analysis of the investment practices and policies of these funds. Accordingly, it is essential to identify various administrative positions and to determine the methods by which participants are selected. It is also significant to locate the responsibility for various decisions and to determine the way in which officials go about carrying out their duties.

Administrative Boards

Teacher retirement funds are ordinarily administered by boards of trustees with help from an Executive Secretary and various other administrative officials. In order to find out about the size and composition of these teacher retirement boards, a review of the National Education Association's *School Law Summaries*[1] was made and supplemented with a survey of the actual statutes of twelve state funds.[2] The results, covering 48 systems for which information was available, are shown in Table 3-1. It will be observed that the size of boards ranges from 3 to 11 members. Five-member boards, found in 17 of these systems, were the most numerous, while 7 and 9 member boards represented 14 and 8 funds, respectively.

Turning to the table again (Table 3-1), one may observe that the board members receive their position in 3 ways. Information available for the 48 systems[3] indicated that they had a total of 318 board members. Of the 318 members, 111 received their position automatically as a result of holding an administrative or elective position in the government of the respective state. As the nature of these positions might have a bearing on a board member's performance with regard to the retirement board, tabulations of the particular positions were made, and in these tabulations it was found that the State Superintendent of Public Instruction appeared on 31 of the 50 boards. The second most likely ex officio board member was the State Treasurer, who was placed on 23 boards. These 2 officials were followed by the State Insurance Commissioner and the State Auditor, both of whom served on 8 teacher retirement boards. Other officials such as State Banking Commissioner, State Controller, Secretary of State, Attorney General, members of the State Board of Education, Chairman of the House Appropriations Committee, Chairman of the State Senate Finance Committee, and the Governor appeared on 3 to 5 of these retirement boards.

Of the 318 board members, another 124 received their position by appointment from the governor of the respective state. When this is the

TABLE 3-1–STATE TEACHER RETIREMENT SYSTEMS
Method of Selecting Board Members[a], 1967

States	Number of Members	Ex Officio	Appointed	Elected
Alabama	7	4		3
Alaska	1	1		
Arizona	7		7	
Arkansas	10	4		6
California	7	3	4	
Colorado	12	3		9
Connecticut	5	3		2
Delaware	NA			
Florida	9	7	2	
Georgia	9	4	1	4
Hawaii	7	1	3	3
Idaho	5	2		3
Illinois	5	1	2	2
Indiana	5		5	
Iowa	3		3	
Kansas	6	2	4	
Kentucky	7	3		4
Louisiana	9	4		5
Maine	7		3	4
Maryland	5	3		2
Massachusetts	3	1		2
Michigan	7	1	6	
Minnesota	7	3		4
Mississippi	10	4	2	4
Missouri	5	1	2	2
Montana	5	1	4	
Nebraska	5		5	
Nevada	5		5	
New Hampshire	5	3	2	
New Jersey	NA			
New Mexico	7	3	2	2
New York	9	1	5	3
North Carolina	8	2	6	
North Dakota	5	2	3	
Ohio	5	3		2
Oklahoma	9	4	5	
Oregon	5		5	
Pennsylvania	5	3	1	1
Rhode Island	9	6	1	2
South Carolina	5	5		
South Dakota	7	4	3	
Tennessee	8	2	6	
Texas	7		7	
Utah	7	1	6	
Vermont	5	3	2	
Virginia	9	4	5	
Washington	7	2	5	
West Virginia	7	4		3
Wisconsin	7			7
Wyoming	9	3	2	4
Totals	318	111	124	83

[a] National Education Association, *School Law Summaries*, A collection of school law summaries by the Council on Teacher Retirement (Washington: National Education Association, 1967).

case, occasionally it is specified that the appointee must be a member of the retirement system or some segment of the system, and in several cases it is stated that the appointee must be a layman—a nonmember of the system. The National Education Association's *School Law Summaries* reports that 20 states permit the appointment of one or more lay member—in some cases specifying that the appointee must be a lay member. Of the 20 states permitting the appointment of lay members, only 4 placed special qualifications on the position. Arizona specifies: one member shall be a representative of the law profession, one shall come from an investment background, and one shall have actuarial experience. California indicates that one member shall be an official of a life insurance company and another shall be a bank official. Utah requires one member to be experienced in investments and another to have banking experience. Mississippi requires that one of the board members be a life insurance official.[4] For the 124 board members who receive their position by appointment, qualifications other than citizenship are required in only 8 positions.

The remaining 83 positions on teacher retirement boards are filled by elections from the membership. This is less than one-third of the board members. With reference to teachers, this is made smaller by the fact that many of the laws do not specify a teacher member but leave the way open to election of school superintendents, principals, or other supervisory officials. A closer look at the table (Table 3-1) reveals that 23 funds, or almost one-half of the whole group, had no elected board members. While it is recognized that some of the appointed members are teacher members, it would appear that classroom teachers have a very small voice in the operation of their retirement systems. The author, having been a classroom teacher, recognizes that the great amount of technical know-how needed for operation of retirement systems generally is not part of the background experience of high school and elementary teachers. It may be unwise to have a majority of the members selected from the teaching profession, but in order to protect teacher interest and keep them informed concerning the system teaching membership should be given some direct recognition on each of these retirement boards.

Teacher retirement systems are generally operated by boards of trustees with a majority representing the state administration. It would appear from their titles that many are of recognized ability in the field of administration and as such should be capable of a responsible job in areas of their experience. On the other hand, many responsibilities are placed upon ex officio board members by virtue of their primary governmental positions and many of them may not have time or experience needed to carry out all phases of responsibility with regard to the actuarial soundness of the system or the investment of a continuous flow of funds coming into the retirement fund treasury. Some recognition of the administrative pressures upon board members can be seen by the fact that the law often makes provision for delegating part of the authority to specialists in the various technical aspects of the pension system operations.

Responsibilities

The board of trustees of a teacher retirement fund is charged with the responsibility of operating the respective retirement system.[5] This responsibility involves compliance with the state statute concerning acturial soundness, provision for administering the various member benefits, and the exercising of proper diligence with regard to custodial care and investment of funds flowing into the system.

Actuarial responsibilities

In setting up a retirement fund, the law usually states that the retirement board is responsible for hiring an actuary. This individual is expected to be a practicing member of his profession and certified by the Conference of Actuaries in Public Practice or the Society of Actuaries.[6] The board is responsible for collecting and making available the necessary data for the actuary's use in developing mortality and service tables to be used in setting up and administering the system. This is an important consideration because it is on these calculations that contribution levels are determined. If the calculations are inadequate, difficulty or failure may be encountered in meeting the promised benefit schedules. Accordingly, the board is also instructed to engage the actuary for "actuarial valuations" at intervals which usually range from 1 to 2 years. These valuations review the current operations to determine whether the basic assumptions with reference to the accumulation of necessary assets in meeting present and prospective liabilities are being fulfilled.[7] If it is learned that the contributions are not adequate to meet these liabilities, the actuary will recommend that the contributions be raised. At somewhat longer intervals of 5 to 10 years, the actuary is required to make a more detailed "actuarial investigation" to determine whether the various mortality and service tables need to be adjusted to meet the future needs of the system.

Administering accounts

Much of the work and responsibility of a retirement system involves the administering of accounts for individual members. The usual requirement is that each individual shall have an account to which his contributions are tabulated at regular intervals. Since most of these funds are committed to a certain specified rate of return on member contributions, the interest must be tabulated and added to each member account at least annually. The board must stand ready to answer the questions of members concerning the balance of their individual accounts and the arrangements necessary to the actual retirement of the member. Finally, they must handle the payment of benefits to a growing number of retired members on a monthly basis.

Guaranteeing fund safety

The board is also charged with safely keeping the funds for the public. Members are required to take an oath affirming their integrity toward the

system. The nature of this oath is seen in the statute governing the Ohio fund, which states the following:

> Each member of the state teachers retirement board upon appointment or election shall take an oath of office . . . that he will diligently and honestly administer the affairs of the said board and that he will not knowingly violate or willfully permit to be violated any law applicable to sections 3307.01 to 3307.72, inclusive, of the Revised Code.[8]

The board member can have no direct or indirect financial interest in investments or any other financial transactions with the fund. This limitation tends to prevent the board member from having the fund make loans to himself or from making "sweetheart" contracts on behalf of the board with the intent of receiving a "kickback" or other financial favor.

The funds are also required to furnish financial statements of their annual operations. As is indicated in the statute of the Virginia system,[9] these statements usually take the form of a balance sheet and a statement of income and expenditures. Also, many of the systems are required to have their accounts audited each year. This one may deduce from the fact that some statutes specifically mention auditing and several of the funds include the State Auditor as a member of the retirement board.

Finally, in order to assure that assets of the system will be properly protected, the State Treasurer—a bonded official—will most usually be the custodian of its cash and securities.

Responsibility for investments

The administrative board also has the responsibility for acting as a trustee in investing the funds of most of these systems. In fact, a survey of the statutes of 12 funds[10] revealed that this was true in 10 of the 12 instances. This responsibility may have been of minor significance in the early years of their existence, when they were small and when in the majority of cases investments were limited to government and municipal securities. Today, however, the funds are growing rapidly and 6 funds each have over 1 billion dollars in assets. Indeed, approximately one-half of the funds have over $200 million in assets per fund.[11] Furthermore, various developments concerning management of investments have led to changes in the ways funds may be invested. As a result, retirement boards have found themselves in need of different approaches to the handling of investment responsibilities.

Other responsibilities

The retirement board also has the responsibility of making many rules and regulations necessary to the operation of the system—many of which could not very well have been included in the basic statute. Among these items are the details of what forms will be filed, in what manner claims for benefits are to be made, and how investments are to be handled on a day-to-day basis.

Boards have also been given responsibilities not strictly involved with retirement in the usual sense. Included among these are items such as life insurance and health insurance provided by some systems, and even loans to members allowed in one system.[12] Responsibilities for the administrative officials of retirement systems are large and growing.

Staff and Procedures

Retirement boards usually carry out their responsibilities with the aid of an Executive Secretary and a staff to whom they delegate much of their day-to-day business. As mentioned earlier, an actuary is selected to aid in conducting the necessary acturial work toward starting and operating a retirement system. The board is empowered to obtain legal assistance for its protection and advisement in the various matters involving the law—a service which is often provided through the Attorney General's Office. The State Treasurer usually acts as custodian to keep the funds safe, and the board often has power to secure the services of the State Auditor in showing proof that funds are being accounted for in accordance with the state statutes.

Investments in the majority of the systems are handled through an Executive Secretary, who may or may not be assisted in his duties by investment counsel. The National Education Association *School Law Summaries* included very few funds as having outside investment counsel; however, this may be due to the fact that there was no direct question on this matter in the *Summaries*. In a discussion of this point, 4 fund managers indicated that each of the 4 funds represented had investment counsel.[13] Evidently, investment counsel services—offered by banks and private investment organization—are being employed by a growing number of teacher retirement funds.

Some systems also have hired investment managers who operate under the direction of the board and the Executive Secretary. From available data[14] and from an interview with the manager of the Ohio Teachers' Retirement System, this writer found that at least 4 systems have taken this step. In view of the growth of the assets of retirement funds, and with the increased interest in their performance, it is possible that more funds will find it necessary to follow this procedure in the future.

In a few systems, the administrative board has been separated from the investment function in one manner or another. Two of these states, Idaho and Maine,[15] are still responsible for investments but have turned the job over to bank trustees in much the same manner as many of the private funds have done. The board remains responsible but confines its investment activities to the role of periodic evaluations of the trustee's performance.

In two other state statutes studied, provisions were found which completely separate the investment responsibility from the administrative board's control. In Massachusetts,[16] this responsibility has been given to an Invest-

ment Committee which is composed of the State Treasurer, the Commissioner of Banks, and one member who is selected by the other two. In the other case, that of Wisconsin,[17] investments are handled by an Investment Board which is responsible for practically all of the investments carried out by more than 20 agencies of the State. This board consists of 7 members, 4 of whom must have had at least 10 years of experience in investments.

Summary

In summary, teacher retirement fund administration is largely centered in boards of trustees, who are responsible for handling both the retirement provisions and the investments of the systems. These boards delegate much of their authority to the Executive Secretary, who carries out the many facets of this responsibility through various professional, technical, and staff personnel.

Notes

1. National Educational Association, *School Law Summaries*, A Collection of school law summaries by the Council on Teacher Retirement (Washington: National Education Association), 1967.
2. Statutes reviewed were: Alabama, Colorado, Hawaii, Kentucky, Massachusetts, Maine, Montana, New Mexico, Ohio, South Carolina, Virginia, and Wisconsin. With one or two exceptions these were selected on the basis of every fifth fund in an alphabetical list.
3. National Education Association, *School Law Summaries*, 1967.
4. *Ibid.*, Arizona, California, Utah, Mississippi.
5. Statutes reviewed for twelve states as indicated earlier.
6. Kentucky, *Revised Statutes, Annotated* (Baldwin, 1966), Section 161.400.
7. Kentucky, *Twenty-fifth Annual Report of the Teachers' Retirement System of Kentucky* (Frankfort, 1965).
8. Ohio, *Revised Code, Annotated* (Cincinnati: Anderson & Company, 1965), Chapter 3307.08.
9. Virginia, *Code of Virginia, Annotated* (Charlottesville: Michie Company, 1966), Title 51-111.22.
10. Statutes reviewed for twelve states as indicated earlier.
11. Investment Bankers Association of America, *State and Local Pension Funds*, A Report Prepared by Thomas M. Adams and Gordon L. Calvert (Washington: Investment Bankers Association of America, 1968).
12. National Education Association, *School Law Summaries*, 1967. West Virginia.
13. Personal interviews conducted with the managers of the following four systems: Indiana, Kentucky, Ohio, and Virginia.
14. National Education Association, *School Law Summaries*, 1967, California, New York, and Texas.
15. *Ibid.*, Idaho and Maine.
16. Massachusetts, *Laws of Massachusetts, Annotated* (Matta, 1969), Chapter 32, Section 23.
17. Wisconsin, *Wisconsin Statutes, Annotated* (McGallow, 1969), Chapter 25.155.

CHAPTER IV

SIGNIFICANT FEATURES OF TEACHER RETIREMENT SYSTEMS

State teacher retirement plans are basically of two types (Table 4-1), those which are supplemental to the social security system and those which are independent of the federal system. Of 48 state plans for which statistics are available,[1] a total of 34 are supplemental plans while a total of 14 are independent of social security. Systems may further be divided into those which are open to teachers and school employees only and those which are open to teachers and other public employees. Of the 48 states reporting, there are 34 systems composed of teachers only, while 14 are open to other public employees, e.g., state highway employees, state hospital workers, and state police. Thus, it becomes clear that the predominating type of plan is the supplemental type which is primarily composed of both public school teachers and other school employees.

Membership

A typical statement present in the statutes of those funds which do not include other than educational groups in the system is found in the Missouri system as follows: "Membership comprises full-time teachers, supervisors, principals, superintendents, and other certificated employees of public schools . . ."[2] Some funds specify certain other groups such as clerical workers and school nurses, and in a very few cases they include maintenance workers, lunchroom workers, and bus drivers. The Texas fund specifies "teachers and all other employees of public schools . . ."[3] It is not uncommon to find some or all college and university teachers included, as they are in Texas, Kentucky and Virginia.[4] Moreover, the exception is to fail to require teachers to join. A thorough review of the statistics reveals only 1 state fund which does not make membership compulsory for teachers. Some administrative personnel, however, are elected for definite periods, and are frequently allowed to elect not to become members. As it is usually impossible to gain any significant retirement benefit in a short period of time, some funds also provide for exemptions to those who enter the teaching profession in later years.

Requirements for Retirement

The predominant practice among teacher retirement funds is to establish normal retirement age and service requirements, with normal age defined as the earliest age at which an employee may retire and receive full benefits according to his years of service and salary. A review of

Table 4-2 reveals that of 48 systems a total of 17 have a normal retirement age requirement of 65 while 25 systems have reduced the age requirement to 60. A few funds have reduced the retirement age as low as 55 while 2 funds simply state that retirement can take place at any age after certain periods of long service. Two funds specify ages of 62 and 63 respectively as the normal retirement age. A total of 31 or approximately 65 percent

TABLE 4-1—MEMBERSHIP, TYPE OF SYSTEM, AND GENERAL INFORMATION ON STATE TEACHER RETIREMENT SYSTEMS[a]
December 1967[b]

State	Active Members	Survivors and Retired Members	Social Security Teachers Only	Public Employees	Out of State Credit	Withdrawals and Refunds	Vesting and Deferred Allowance (after)	Disability Retirement (after)	Interest on Member Contributions	Tax Sheltered Annuities Not in Study
Alabama	42,000	5,388	x	x	no	x	10	10	4.00%	
Alaska	3,375	124		x	yes	x	15	5	3.50	
Arizona	58,042	3,432	x	x	no	x	5	5	3.75	
Arkansas	21,855	3,987	x	x	yes	x	10	10	2.50	
California	325,235	32,888		x	no	x	5	5	4.00	x
Colorado	32,060	1,828		x	no	x	5	15	none	
Connecticut	36,024	3,913		x	yes	x	10	10	4.75	
Delaware										x
Florida	70,000	6,200		x	yes	x	10	10	varies	
Georgia	54,000	5,093	x	x	yes	x	20	15	3.50	
Hawaii	33,750	4,175	x	x	no	x	5	10	4.00	
Idaho	3,036	986	x	x	no	x	10	10	4.25	
Illinois	100,000	15,992		x	yes	x	10	10	3.00	
Indiana	47,000	10,019	x	x	yes	x	15	7	3.00	
Iowa	95,000	13,608	x	x	no	x	8	no	2.00	
Kansas	38,262	4,893	x	x	no	x	10	15	4.00	
Kentucky	31,000	4,329		x	yes	x	10	10	3.00	x
Louisiana	40,310	4,833		x	no	x	20	5	4.00	
Maine	38,917	6,191		x	yes	x	10	10	none	
Maryland	40,410	1,995	x	x	no	x	20	5	4.00	x
Massachusetts	49,268	8,895		x	yes	x	20	15	3.00	
Michigan	160,000	14,716	x	x	yes	x	10	10	2.50	
Minnesota	43,029	2,635	x	x	no	x	10	10	4.00	
Mississippi	70,434	6,710	x	x	no	x	16	10	3.50	
Missouri	38,000	4,199		x	yes	x	20	8	4.00	x
Montana	10,000	1,850	x	x	yes	x	5	5	4.50	x
Nebraska	15,495	2,658	x	x	yes	x	5	15	3.00	
Nevada	19,425	1,464		x	no	x	25	10	none	
New Hampshire	1,313	910	x	x	yes	x	15	10	3.50	

TABLE 4-1–Continued

State	Active Members	Survivors and Retired Members	Social Security	Teachers Only	Public Employees	Out of State Credit	Withdrawals and Refunds	Vesting and Deferred Allowance (after)	Disability Retirement (after)	Interest on Member Contributions	Tax Sheltered Annuities Not in Study
New Jersey											x
New Mexico	20,000	2,153	x	x		yes	x	15	10	none	
New York	129,543	16,005	x	x		yes	x	15	15	3.00	
North Carolina	128,042	10,047	x		x	no	x	12	10	4.00	
North Dakota	9,000	1,330	x	x		yes	x	no	15	none	
Ohio	108,000	22,652		x		yes	x	no	5	4.00	x
Oklahoma	35,571	5,703	x	x		yes	x	20	10	4.00	x
Oregon	56,531	8,679	x		x	no	x	5	10	2.85	
Pennsylvania	150,000	26,006	x		x	yes	x	10	10	4.00	
Rhode Island	8,006	1,290			x	yes	x	10	7	none	
South Carolina	116,279	7,225	x		x	yes	x	15	10	4.00	
South Dakota	8,000	513	x	x		no	x	25	10	4.00	
Tennessee	40,000	4,000	x	x		no	x	15	10	4.00	
Texas	228,046	23,428	x	x		yes	x	10	0	2.50	
Utah	36,600	1,804	x	x		no	x	4	10	4.00	x
Vermont	5,556	787	x	x		no	x	no	15	4.30	
Virginia	104,258	3,659	x		x	no	x	10	10	2.00	
Washington	37,132	6,592	x	x		no	x	10	15	4.75	
West Virginia	32,947	6,835	x	x		yes	x	20	10	3.00	x
Wisconsin	45,000	7,460	x	x		no	x	0	5	5.80	x
Wyoming	13,000	1,220	x		x	no	x	4	15	3.50	
Totals	2,828,751	331,279									

[a] Compiled from: National Education Association, *School Law Summaries*, A Collection of school law summaries by the Council on Teacher Retirement (Washington: National Education Association), 1967.

[b] Data for Indiana, New York, Oregon, Tennessee and Wisconsin—not available in the NEA *School Law Summaries* for 1967—was secured from the same source for the year 1965.

of the 48 funds permit normal retirement at an age of less than 65. This compares quite favorably with a recent study of all state and local retirement systems in which approximately 60 percent of the funds permitted normal retirement before age 65.[5]

Early retirement

Provision for early retirement in teacher retirement systems is a usual practice. A review of the basic statistics (Table 4-3) reveals that 46 of the 48 funds surveyed contained an early retirement provision; however, the

TABLE 4-2[a]–NORMAL RETIREMENT AGE AND SERVICE REQUIREMENT AND COMBINATIONS[b]
December 1967

Requirement	Systems
Age Requirement Only	14
Age 60	6
" 65	8
Service Requirement Only	2
30 years	1
35 years	1
Age and Service Requirement	32
Age 55 with service of--	
5 years	1
25 "	1
Age 60 with service of--	
4	1
5	5
10	5
15	3
20	4
30	1
Age 62 with service of--	
10	1
Age 63 with service of--	
10	1
Age 65 with service of--	
4	1
5	3
10	4
15	1
Total	48

[a] National Education Association, *School Law Summaries.*
[b] Fourteen systems also offered one or more alternate age and service requirements–not included in this table.

benefits are ordinarily reduced for early retirement. The previously-mentioned Table 4-3 gives results of a sample of every fourth fund of the 48 funds studied, and reveals that this reduction in benefits is sometimes figured by using a lower benefit formula while in other cases it is done by simply computing the benefits as for normal retirement. In the latter case, it is necessary to reduce the over-all benefit by a certain percentage for each month of retirement prior to the normal age. This survey also reveals that it is not unusual to require longer periods of service for early retirement –a fact which was evidenced in 5 of the 13 funds in the sample.

Disability retirement

Of 48 funds reporting in 1965 and 1967, 47 make provisions for disability retirement benefits[6] (Table 4-1). The usual practice is to allow this type of benefit after a definite period of service. The period of service requirement ranged rather widely from zero years in Texas to 15 in 10 state systems. Several states have a 5-year service requirement while the most-often-mentioned requirement is 10 years—a period mentioned by almost half of the 48 funds.

Involuntary retirement provisions

Many pension plans require a member to give up his employment at some specified age. For convenience these provisions are divided into

TABLE 4-3[a]—EARLY RETIREMENT[b]
December 1967

State	Normal Age	Normal Service	Early Age	Early Service	Changes in Benefits Due to Early Retirement
Alaska	60	15	55	15	Reduce benefits 6% per year under 65
California	60	5	55	5	Normal allowance actuarially reduced
Florida	60	10	55	10	Benefit formula reduced by .5%
Illinois	60	20	55	20	6% reduction for each year under 60
Kentucky	60	0		30	Normal retirement formula
Massachusetts	65	0	55	0	Benefit formula reduced by 1%
Missouri	60	5		30	Normal allowance actuarially reduced
New Hampshire	60	0	None		
North Carolina	65	0	50	20	Benefits reduced 4% per year for each year under age 65
Oregon[c]	65	0	50	0	Normal retirement actuarially reduced
South Dakota	65	15	60	20	Reduce normal retirement by 6% per year under 65
Vermont	60	0		35	Benefits actuarially reduced for years under 60
Wisconsin[c]	65	0	50	0	Benefits actuarially reduced for years under 65

[a] National Education Association, *School Law Summaries.*
[b] A sample of every fourth fund of the forty-eight funds considered.
[c] Funds not reporting in the NEA *Summaries* for 1967—figures taken from NEA *Summaries,* 1965.

two types: the "compulsory" type, which specifies a certain age of involuntary retirement but allows the member to continue with special permission or at the request of the employer, and the "mandatory" type which requires the member to cease his employment on reaching a certain age or most likely at the end of the school term in the year on which he attains the specified retirement age.

Of the 48 funds reporting (Table 4-4), a total of 8 systems had a "compulsory only" requirement provision at age 65 while 3 specified this at age 70. Usually the fund simply specifies that the employee can continue in his position on a year-to-year basis upon the request of the employer. However, one fund added the provision that the employee may continue service beyond age 65 if he can pass a physical examination and if the individual school unit is willing to employ him.[7]

TABLE 4-4–INVOLUNTARY RETIREMENT[a]
December 1967[b]

Type of Provision	Systems
Compulsory	11
Age 65	8
Age 70	3
Mandatory	19
Age 68	1
Age 70	16
Age 72	2
Compulsory at age 65 and Mandatory at 70	5
Neither Compulsory nor Mandatory	13
Total	48

[a] National Education Association, *School Law Summaries.*
[b] December 1965 report was used for five funds not reporting in 1967.

Of the group of funds reporting a mandatory retirement age, 16 specified age 70 while 2 funds used 72 and 1 cited age 68.

Another group of 5 funds specify both a compulsory and a mandatory age which means that the member is allowed to continue in his employment beyond some compulsory age such as 65 with the employer's permission but can not continue beyond a mandatory age–e.g., 70.

Of the group, a total of 35 funds made provisions for involuntary retirement while the other 13 usually indicated that this was not a provision of the retirement fund at the state level. However, it was commonly stated by most of these 13 systems that local school boards may and some do set compulsory or mandatory age requirements. Thus, while it is certain that

approximately 75 percent of state teacher retirement funds require involuntary retirement, it can be assumed that the percentage is even higher. This is similar to the results obtained by Joseph Krislov in his study of state and local retirement funds.[8] The results of that study revealed that approximately 72 percent of the 151 systems studied had involuntary retirement provisions.

Benefit Provisions

Of utmost concern to the average retirement system member and to other interested individuals is a knowledge of the various benefits provided. Analysis of retirement provisions involves understanding the various types of benefits and the basis on which benefits are calculated.

Basis for calculating benefits

A review of 48 funds reporting (Table 4-5) permits dividing benefit methods as follows: 6 funds providing a straight annuity purchase, 1 fund basing retirement income on average salary during all years of employment, 24 funds employing final average salary, 11 funds employing average salary and an annuity purchased with employee's contributions, and 6 funds following procedures based on other than a single combination of these 2 factors.

For most of the funds, it becomes obvious that there are really three pertinent factors applicable in figuring benefits. First, there is the average salary. In the case of average salary during employment, it is obvious that

TABLE 4-5–BASIS FOR CALCULATING RETIREMENT BENEFITS[a]
December 1967[b]

Type of Provision	Systems
Straight Annuity Purchase	6
Average Salary During Employment	1
Final Average Salary	24
Pension Based on Average Salary and an Annuity Purchased with Employees' Contributions	11
Pension Based on Other than Final Average Salary and an Annuity Purchased by Employees' Contributions	6
Total	48

[a] National Education Association, *School Law Summaries.*
[b] Includes statistics for 1965 when not available for 1967–involves five systems.

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TABLE 4-6—DEFINITION OF "FINAL AVERAGE SALARY" UTILIZED IN CALCULATING RETIREMENT BENEFITS[a]
December 1967[b]

Number of Years	Systems
Average of--	
Highest 3 years	1
Highest 3 consecutive years	2
Highest 3 of last 10 years	1
Highest 5 years	6
Highest 5 consecutive years	4
Highest 5 consecutive years in last 10	7
Last 5 years	1
Highest 10 years	1
Highest 10 of last 15 years	1
Total	24

[a] National Education Association, *School Law Summaries.*
[b] Includes figures for 1965 in a few cases not available in 1967.

this means during all of the years worked. However, in the case of final average salary, it may mean several different periods. It is clear that one must study the specific plan in order to know just what salary is being applied in determining the benefit. However, since 21 of the 24 funds using final average salary applied the term to a period covering 10 or less years, it can be concluded that the provision usually will mean an average of 3 to 5 years in a period not exceeding 10 of the most recent years.

Needless to say, the shorter the number of years used in the final average salary computation, the higher the average salary computation on which one's benefit is based. This, of course, is one way of keeping benefits more nearly in line with rising salaries and prices during periods of inflation.

The second significant factor in figuring benefits is years of service. While funds have a variety of provisions as to rates applied and as to minimum and maximum benefits, all state teacher retirement funds rely on years of service as a main factor in arriving at final benefits.

Finally, a percentage per year is ordinarily applied to average salary to determine the benefit. As will be observed in Table 4-7, the percentage factor varies widely, running as low as 1 percent in 2 funds and ranging to

TABLE 4-7[a]—FORMULA FOR CALCULATING BENEFITS FOR A RETIRED MEMBER
December 1967[b]

Formula	Systems
Single percentage factor for each year service	
1 percent	2
1.1 percent to 1.43 percent	4
1.5 percent	3
1.6 percent to 1.74 percent	3
1.75 percent	2
2.00 percent to 2.40 percent	5
2.5 percent	1
Two percentage factors for each year of service--varies at specified level of final average salary	
to $4200	1
to $4800	1
to $5000	1
to $5600	1
to $6600	1
Total--Benefits Based on Final Average Salary or Average Salary	25

[a] National Education Association, *School Law Summaries.*
[b] Includes figures from 1965 in five cases not available in the 1967 summaries.

2½ percent in one fund, while others are rather evenly scattered among various levels between the two extremes. Some funds used two rates, the rates changing after a certain level of average salary is reached. The rate declined for higher levels of average salary in some cases while in others it was raised. This, of course, tends to favor the lower salary people in the former group while it tends to favor the higher salary employee in the latter case.

Benefits payable

A review of 35 state funds reporting median or average benefit payments (Table 4-8) reveals that the range of these median payments, ex-

clusive of social security, is $332 to $3388 for those drawing benefits in 1967. The same group of funds shows a range of median benefits of $324 to $4730 for those retiring in the year 1967. The picture, however, grows somewhat brighter when one studies the benefit schedules shown for future retirees. For a review of benefit schedules, funds have been divided into 4 groups shown in Table 4-9 as follows: Teachers-only—without social security, 10 systems; Teachers-only—with social security, 22 systems; Public Employee funds including teachers—without social security, 4 systems; Public Employee funds including teacher—with social security—12 systems.

TABLE 4-8[a]—BENEFITS PAID 1967[b]

State	Benefits on All Retired	Add Social Security	Benefits 1967 Retirees	Add Social Security
Alabama	med. $1870	x	med. $2068	x
Alaska	med. 2322		med. 4112	
Arkansas	ave. 1680	x	ave. 2066	x
Colorado	ave. 1557		ave. 2220	
Connecticut	med. 3120		med. 4337	
Florida	med. 3000		med. 4000	
Georgia	med. 2056		N.G.	
Idaho	med. 1037		N.G.	
Illinois	med. 2250		med. 3261	
Iowa	med. 732	x	N.G.	x
Kansas	med. 842	x	N.G.	x
Kentucky	ave. 1880		ave. 2667	
Louisiana	med. 3311		med. 4550	
Maine	med. 461		med. 308	
Maryland	ave. 2634	x	ave. 3065	x
Massachusetts	med. 3388	x	med. 4730	x
Michigan	med. 2032	x	med. 2878	x
Minnesota	med. 1346		med. 1875	
Mississippi	med. 818	x	med. 1399	x
Montana	ave. 1533	x	N.G.	x
New Hampshire	ave. 1389	x	ave. 1391	x
New Mexico	ave. 2153	x	ave. 2224	x
North Carolina	med. 1239	x	med. 1625	x
North Dakota	med. 1067	x	med. 1146	x
Ohio	ave. 2820		ave. 4182	
Oklahoma	med. 1544	x	N.G.	
Pennsylvania	med. 2612	x	med. 2692	x
South Carolina	med. 1058	x	med. 1400	x
South Dakota	med. 332	x	med. 324	x
Texas	med. 1743	x	med. 2370	x
Utah	ave. 1140	x	ave. 987	x
Vermont	ave. 1886	x	ave. 2122	x
Virginia	med. 1132	x	med. 1284	x
Washington	med. 1726	x	med. 2160	x
West Virginia	med. 1471	x	med. 1444	x
Wyoming	med. 700	x	med. 550	x

[a] National Education Association, *School Law Summaries*.
[b] Includes only those funds supplying figures in the *School Law Summaries* in 1967.

TABLE 4-9—BENEFITS PAYABLE[a] AND CONTRIBUTION RATE
December 1967[b]
(Age 65 years, Service 40 years, Salary $500 per month)

State	Benefit per month	Add Social Security[c]	Total Benefit	Contribution Rate	Social Security Contribution Rate	Total Contribution Rate
Teacher-Only Systems--with Social Security						
Alabama	$ 250	$177	$ 427	4%	4.4%	8.4%
Arkansas	242	177	419	5	4.4	9.4
Kansas	156*	177	333	4	4.4	8.4
Maryland	286	177	463	varies	4.4	
Michigan	230	177	407	3-5	4.4	8.4
Minnesota	134*	177	311	3	4.4	7.4
Montana	206	177	383	5	4.4	9.4
New Hampshire	300	177	477	4	4.4	8.4
Oklahoma	176	177	353	4	4.4	8.4
South Dakota	160	177	337	3 1/2	4.4	7.9
Texas	275	177	452	6	4.4	10.4
Vermont	250	177	427	varies	4.4	
Washington	238*	177	415	5	4.4	9.4
West Virginia	200	177	377	4 1/2	4.4	8.9
Total	$3103		$5581			104.8%
Average	$ 222		$ 399			8.73%
Teachers-Only Systems--without Social Security						
Alaska	$ 300			5%		
California	457*			varies		
Connecticut	375			6		
Florida	400			6 1/4		
Illinois	333			7		
Kentucky	307			7		
Louisiana	375			7		
Massachusetts	400			5		
Missouri	399			to 8		
Ohio	350			7		
Total	$3696			58.25		
Average	370			6.5		
Public Employees--including teachers--without Social Security						
Colorado	$ 250			6%		
Maine	282			5		
Nevada	325			6		
Rhode Island	334			5		
Total	$1191			22.0%		
Average	298			5.5		

TABLE 4-9—Continued

State	Benefit per month	Add Social Security[c]	Total Benefits	Contribution Rate	Social Security Contribution Rate	Total Contribution Rate
Public Employees--including teachers--with Social Security						
Arizona	$ 563*	$177	$ 740	5.0%	4.4	9.4%
Hawaii	400	177	577	6.5	4.4	10.9
Idaho	240	177	417	4.5	4.4	8.9
Iowa	252	177	429	3.5	4.4	7.9
Mississippi	240	177	417	4.5	4.4	8.9
North Carolina	253	177	430	5.0	4.4	9.4
New Hampshire	224	177	401	varies	4.4	
Pennsylvania	333	177	510	5.5	4.4	9.9
South Carolina	367*	177	544	4.0	4.4	8.4
Utah	200	177	377	4.0	4.4	8.4
Virginia	220	177	397	5.5	4.4	9.9
Wyoming	407*	177	584	3.0	4.4	7.4
Total	$3699		$5823			99.4%
Average	308		485			9.0

[a] Based on 40 years of service at age 65.
[b] National Education Association, *School Law Summaries.*
[c] U. S. Department of Health, Education, and Welfare, *Your Social Security* (Washington: U. S. Government Printing Office, May 1968), p. 12.
* These funds have two benefits schedules—one for men and another schedule of lower benefits for women. Benefits shown here are for men.

Basically, Table 4-9 shows the benefits payable by each state system to a member having an average salary of $500 per month or $6000 per year, with 40 years of service at age 65. However, in order to make the funds comparable, it was necessary to add to those funds which are supplemental to social security the approximate benefit expected from the federal system. Thus, $177 was added to each of the funds in this group.[9] From these computations, the reader may observe that the average expected benefit, based on a salary of $500 per month, ranged from $298 average monthly benefit for public employee-type funds without social security to $484 per month for public employee-type funds with social security. The group which tends to fair best in terms of expected benefits is the group in public employee systems with social security. After reflecting upon these computations, however, this writer concluded that they did not

represent conclusive evidence as to which type fund offered the most for one's contributions. As a result, tabulations of monthly contributions were compiled and compared with monthly benefits. The results of these computations (Table 4-10) shows average monthly benefits per dollar of monthly contributions as follows: Teacher-only—without social security—$11.38; Teacher-only—with social security—$9.14; Public Employees—without social security—$10.84; Public Employees—with social security—$10.78. Although public employee funds with social security show the more favorable results on a straight benefit-per-month basis, they fall behind both groups which do not provide social security when compared on a benefit-per-dollar-of-contribution basis. The Teacher-only systems with social security, which show the second-best average benefit schedule, turn out to offer the least in terms of benefits per dollar of contributions. Thus, while greater benefits are available to those having social security and supplemental benefits, these benefits come at a greater-than-proportional-per-dollar price.

TABLE 4-10—BENEFITS PER DOLLAR OF CONTRIBUTIONS[a]
1967
(Based on $500 monthly salary)

Type of System	Average Benefit Per Month	Add $177 Social Security to Supplemental Funds	Average Monthly Member Contribution	Average Monthly Benefit Per Dollar of Average Member Contributions
Teachers-Only--No Social Security	$370	$370	$32.50	$11.38
Teachers-Only--With Social Security	222	399	43.65	9.14
Public Employees--No Social Security	298	298	27.50	10.84
Public Employees--With Social Security	308	485	45.00	10.78

[a] Computations based on Table 4-9.

Minimum and maximum benefits

Of the 41 state funds reporting in 1967 in the NEA Summaries,[10] only 16 funds, or 39 percent, reported a minimum benefit. However, another

16 funds also have their members covered by a minimum benefit by virtue of the fact that they are state funds with social security, which provides a minimum benefit. Minimum retirement income may be quite low with some funds providing a social security minimum of $55, while some others have an even lower minimum—in one case as low as $45 annual benefit per year of service.[11]

A very small number of funds also reported a maximum benefit. These maximum provisions varied quite widely with some funds specifying a percentage ranging as low as 65 percent of final average salary, while some specified a flat amount such as $500 per month in one case and $12,000 per year in another.[12]

Cost of living adjustments

Teacher retirement funds make very little provision for cost-of-living increases. A thorough check of the National Education Association Summaries[13] for 1967 showed only 4 funds having mentioned this provision. This is similar to the findings of Krislov in his study of State and Local Government Systems in 1965 that only 11 of the 151 state and local funds made provision for the inflation problem.[14]

Disability benefits

As was true for normal retirement, benefits vary widely among the various funds. This is evidenced in the various formulas applied in the individual states. Alaska, for example, provided benefits equal to 50 percent of the base salary plus an additional benefit for each child up to a maximum of 4. On the other hand, 1 state specifies that the disability allowance is computed as for normal retirement, which means that a person becoming eligible with 15 years of service would receive benefits strictly in accord with his years of service.[15] Ohio allows credit for years of service plus the years one would have served if disability had not occurred, then applies the normal retirement formula. Disability benefits are subject to a maximum of 60 percent of final average salary and compares to an 80 percent of final average salary maximum for normal retirement in that state.[16]

Death and survivor benefits

Without exception, it is the policy of state teacher retirement funds to pay to the survivor an amount equal to the member's contributions. Most funds also include the interest on member contributions as provided for in the basic accumulation to the member's account. A few funds—e.g., Wisconsin, Arizona, and Iowa—include the state's matching contributions. Some systems also include an additional amount—e.g., California adds one-twelfth of annual salary for each year of service to a maximum of 6 years.[17]

Benefits available to beneficiaries are related to whether the funds are supplemental to or independent of social security. A survey of 11 funds of the 34 supplemental systems discloses that survivor benefits are available

in approximately 9 out of 10 cases but that usually in lieu of the lump-sum death benefit. Since none of the funds specified a figure for these optional benefits, it would appear that the primary survivor benefit in these systems depends on social security. In Table 4-11, survivor benefits have been estimated on the basis of social security for an average salary of $5400—a salary which is considerably below the national average of $6905[18] but which is probably low enough to include that of the average teacher who might die while employed.

A review of these 14 state funds which are independent of social security reveals that all of them make provision for survivors' benefits. Since comparable data were difficult to obtain, 2 funds which appear to offer average or above-average benefits were selected to represent this group in Table 4-11. It will be observed that for a widow 62 or older the monthly benefit for social security is $136 while the Ohio and California funds provide $96 and $90, respectively. For a widow under 62 with 1 child the social security benefit is $248 per month while the two funds without social security allow $186 and $180, respectively. Thus, it becomes clear that the funds having social security offer a clear advantage as to survivor benefits.

TABLE 4-11—DEATH AND SURVIVORS BENEFITS[a]
(per month)

	Social Security[b]	Ohio	California
Death Benefit	$255	Member Contributions + Interest	Member Contributions + Interest + 1/12 current annual salary[c]
		OR	PLUS
Widow under 62 caring for one child under 18	248	$186	$180
Widow under 62 caring for two children under 18	354	236	250
Widow at 50--deceased had minimum of 15 years service		106	
Widow 62 or older	136	96	90
Widow 60	118		
Surviving Child	124	96	

[a] National Education Association, *School Law Summaries.*
[b] U. S. Department of Health, Education, and Welfare, Social Security Administration, *Your Social Security: May 1968*, p. 12.

Vesting and Portability

Because of increasing mobility of workers, they have shown increasing interest in provisions which tend to assure that the member will not lose his benefits in the event of moving from one job to another. Major provisions on this matter have tended to fall into two main groups—those relating to vesting and those favoring protability.

Vesting

Vesting refers to one's right or interest in benefits derived from the contributions of the employer to the pension fund.[19] In one sense, vesting is provided for by all funds at the age of retirement, but the usual concern is with a vested right occurring prior to normal retirement age. In private industry, labor unions have shown considerable interest in vesting. This interest is evidenced by the following statement from an AFL-CIO publication: "Certainly, one of the most important developments in pension plans is that the retired employee has a non-forfeitable, legally-binding right to his pension."[20] Realization of the importance of vesting has resulted from pressures arising from the great changes in technology which necessitate a high rate of worker displacements. Moreover, workers are very much aware of the fact that pensions are an important method of tying one to a particular job. Vesting is of particular significance to the teaching profession. It can be a great deterrent to the more ambitious workers who would like to move from one state to another in search of greater opportunities.

Teacher retirement funds of the various states are almost unanimous in their adoption of vesting. Of the 48 funds reporting in the National Education Association *Summaries*,[21] only 2 funds did not make provisions for vesting (Table 4-1). However, for the group reporting the vesting privilege, there was a service requirement ranging from immediate in Wisconsin to 25 years in Nevada and South Dakota. A review of the service requirement for vesting reveals that the most usual requirement is 10 years, with 16 states having this provision while 7 states had a 5-year requirement and 7 others specified 15 years. It is significant that 17 funds of the group require 15 or more years of service before vesting takes place.

Vesting may also depend on age or service after a certain date. Michigan requires the member to be 50 years of age in order to have a vested interest with 10 years of service. Alaska adds service and age to get 75, which means that one may only have a vested interest at middle age and if he has several years of covered service; e.g., 50 years of age plus 25 years of service equals 75, which is the necessary figure to provide a vested interest in that state's fund. Also, some funds include a clause requiring a year or more of service after a given date, as in Kentucky, where it is specified that "benefits vest after ten years of Kentucky service, five of which must be after July 1, 1941, with at least one year after July 1, 1959."[22] However, for most funds in the group the practice is to provide for vesting at any age.

Thus, while vesting is available to members of most funds, this does not mean that it will be available immediately or under all circumstances.

Portability

Portability is the right of the member to move his pension benefits from one employment to another. It tends to substitute for vesting and is arranged in two steps, namely withdrawal of one's contributions and buying into the new fund.

Withdrawal

Of the 48 funds reporting in 1965 and 1967 (Table 4-1), there are no cases in which the member contributions are not returnable if the member acts in accord with the law by making the usual required formal request following his change of position. In fact, most funds provided for the return of contributions and of the accumulated interest. However, no fund provided for the return of employer-matching contributions and a few funds did not allow for the withdrawal of interest earned on member contributions. This, of course, is significant with reference to one's willingness to shift from one state to another.

Buying-in

In 27 of the 48 funds reporting,[23] there is a provision for portability. Under these provisions, one simply buys into the state system to which he moves. However, this is not without limitations. Most funds specify a limit of a certain number of years, e.g., 5, 10, or 15 with 10 being the most usual. Also, some funds have other limiting provisions, such as reciprocity with other states—and in some cases there is a requirement of a certain number of years of service under the new system prior to claiming credit for the years of service under the old one.

The employee usually loses in the transfer of membership to a new fund. It has already been noted that he does not receive the employer contributions to carry along to the new fund and quite often he does not receive the accumulated interest. However, when he pays into the new system he may find that he has to pay in at a higher rate than the current employee rate, and almost always he will find it necessary to pay interest on the contributions. Especially difficult is the position of the employee who transfers and has no vested interest in his original state fund only to find that the system to which he is transferring has no provision for buying-in. Because of reciprocity provisions in some funds, this may occur because of transferring from a state which has no provision for buying-in. For example, if a person employed in Vermont, a state which neither provides for vesting nor for buying-in,[24] decides to seek employment in West Virginia, a state which has a reciprocity provision, he may withdraw his contributions from Vermont; but since West Virginia will not allow him

to buy into its fund, he loses his retirement credit for years worked in Vermont.

Thus, it is clear that while vesting and portability are available in a majority of the funds, this does not mean that every employee is entitled to the provisions. No doubt, many teachers who change jobs lose part or all of their retirement benefits and many others are deterred from seeking employment elsewhere.

Other Significant Features

Two other features of state teacher retirement systems which appear to be significant to this study are those dealing with tax-sheltered annuities and those providing insurance.

Tax-sheltered annuities

Under tax laws of the United States, provision has been made for encouraging employees and employers to provide for the future of employees through making contributions to tax-sheltered annuities.[25] These provisions, originally available to employees of companies and non-profit associations, in 1961 were extended to employees of educational institutions.[26]

Actually, the contributions are made by the employer but may be handled as a reduction in salary or in lieu of a salary increase. Roughly, they may amount to 20 percent of one's salary.[27]

The advantage of these provisions is that the contributions are not taxable as current income. This means that employees in the middle- and upper-income bracket can make tax-free contributions and pay taxes on the annuity benefits during retirement years when their incomes will very likely be much lower. Moreover, the success of mutual funds and other investments has shown the possibilities of large returns on funds invested in common stock. Since the law also exempts the investment income of the annuity funds, the annuity can be larger than would be possible if one simply invested his own funds in stock or in an investment fund.

State teacher retirement funds have not been extremely fast in arranging for contributors to take advantage of tax-sheltered annuity provisions. That this is true is evidenced by the fact that only 10 systems of the 48 reviewed in this chapter were making any provision at all for allowing their members this opportunity[28] (Table 4-1). However, one system which supplied information concerning the number of contributors and the amount of their contributions indicated that approximately 1000 of its 45,000 members contributed $1,290,470 to tax-sheltered annuities in 1965.[29]

Insurance

As there appears to be some tendency for teacher retirement funds to adopt provisions for insurance protection on behalf of their members,

a review of the statistics was made for the purpose of determining how much has been done in this direction.

Health Insurance

Of the 48 systems reporting in 1965-67, 3 had taken steps to provide some type of health insurance.[20] This insurance is generally designed to fill the gaps left by Medicare. The gaps referred to involve the lack of coverage for those not eligible for Medicare and much expense which is not covered under "Plan A" (Hospital Insurance) of this federal program. One fund[21] has two plans of its own, one of which is designed to provide benefits to those not eligible for Medicare and the other which is set up to supplement the benefits of Medicare.

The financing of the health insurance program ranged from full-financing by contributions of active members to full-financing out of retirement benefit checks. One fund covered one-half the benefits with regular contributions and the other one-half with a deduction from retirement benefit payments.

With the coming of Medicare, it seems likely that other state teacher retirement funds will feel compelled to develop similar systems in order to meet the needs of their members. This is particularly true of those systems whose members do not have social security and are, therefore not automatically covered by the federal program.

Life Insurance

Of the 48 state systems mentioned above, 2 systems offer a program of term life insurance to their members. The 2 systems[22] appear to be offering plans which are quite similar in nature and cost. Both systems allow the insured to purchase insurance in the amount of approximately 2 times his current salary. The cost of this service is 60 cents per month for each $1000 of coverage on a 12-months-salary basis. At age 65, the insurance coverage begins to decline by 2 percent of salary for each month until it has declined to a minimum of 25 percent of the average salary figure.

The life insurance provision should be a very attractive feature to the young teacher who needs maximum protection at a minimum cost. It is also a good opportunity for older members and encourages them to carry adequate insurance protection. However, as was true of some other features of retirement systems, this is another provision which probably tends to make teachers less mobile.

Summary

This chapter has reviewed state teacher retirement systems with reference to their significant retirement features. It has been found that while some systems are of the public-employee type which includes teachers, a majority are independent teacher plans. A majority of the systems also are supplemental systems with social security. Concerning

retirement provisions, this research has revealed that retirement eligibility is usually based on age and years of service with 60 being the earliest permissible age in slightly over 50 percent of the systems. Most funds also allowed for early retirement with reduced benefits, and disability benefits after several years of service.

In most cases, retirement benefits were found to be computed on the basis of average salary and years of service, with average salary usually being derived on a basis of 10 years or less. Benefits payable under the systems tend to vary quite widely, with "teacher-only" funds without social security offering the highest average benefit per dollar of contributions.

A number of other types of retirement and retirement-related benefits are provided by teacher retirement systems. Among these are death and survivors benefits, these provisions varying quite widely among funds, generally not being very large. Supplemental systems, as a group, tend to make better provision than nonsupplemental systems in providing for death and survivor benefits.

Either vesting or portability is found in most state teacher retirement funds; however, the member often loses part of his retirement or finds that he must pay extra contributions in order to make a transition from one system to another.

A few funds have begun to offer term life insurance and health insurance. Although the number of funds providing this type of service is small, in view of the fact that a majority of the funds are without social security, it seems quite likely that more funds will feel compelled to provide health insurance in the future.

Retirement income presently being received by retired members is usually quite low in comparison with average teacher salaries. Benefit schedules and retirement checks received by the most recently retiring members indicate that the level of average teacher retirement benefits is improving; however, as prices and wages continue rising the average retirement income check tends to lag behind in the price-wage rise. In consideration of the less-than-adequate benefits and the lack of suitable vesting and portability provisions, improvement in the investment performance becomes a highly desirable goal for teacher retirement systems.

Notes

1. National Education Association, *School Law Summaries*, A Collection of school law summaries by the Council on Teacher Retirement (Washington: National Education Association, 1967).
2. *Ibid.*, Missouri.
3. *Ibid.*, Texas.
4. *Ibid.*, Texas, Kentucky, and Virginia.
5. Joseph Krislov, *State and Local Government Retirement Systems 1965*, U. S. Department of Health, Education, and Welfare (Washington: U. S. Government Printing Office, 1966), p. 8.
6. National Education Association, *School Law Summaries*.
7. *Ibid.*, Indiana.

8. Krislov, p. 19.
9. U. S. Department of Health, Education, and Welfare, *Your Social Security* (Washington: U. S. Government Printing Office, May 1968), p. 12.
10. National Education Association, *School Law Summaries.*
11. *Ibid.*, Kentucky.
12. *Ibid.*, Illinois.
13. *Ibid.*, Arizona, Colorado, Massachusetts, and Utah.
14. Krislov, p. 13.
15. National Education Association, Nebraska.
16. *Ibid.*, Ohio.
17. *Ibid.*, Wisconsin, Arizona, and Iowa.
18. Gertrude N. Stieber, "Teachers' Salaries, 1966-67," *The Journal of the National Education Association*, Vol. LVI, No. 7, (October 1967), p. 36-37.
19. Haskins & Sells, *The Pension System in the United States*, A Booklet prepared by Haskins & Sells, 1964, p. 29.
20. AFL-CIO, *Pension Plans Under Collective Bargaining*, Publication No. 132 (Washington: AFL-CIO), p. 19.
21. National Education Association, Ohio and North Dakota.
22. State of Kentucky, *Kentucky Revised Statute*, 161.600.
23. National Education Association, *School Law Summaries.*
24. *Ibid.*, Vermont.
25. U. S., *United States Code*, 1958 Edition, V, Titles 22-26, Chapter 26, Section 403b.
26. U. S., *United States Code Supplement*, 1964, II, Titles 20-39, Chapter 26, Section 403b.
27. U. S., *United States Code*, Titles 22-26.
28. National Education Association, Kentucky, Ohio, and Oregon.
29. *Ibid.*, Wisconsin.
30. *Ibid.*, Kentucky, Ohio, and Oregon.
31. State of Kentucky, *Teachers' Retirement System of the State of Kentucky—Comprehensive Medical Insurance Plan and Medicare Supplement*, A pamphlet prepared by Teachers' Retirement System of the State of Kentucky (Frankfort).
32. National Education Association, Maine and Virginia.

CHAPTER V

CHARACTERISTICS OF INVESTMENT POLICY

The purpose of this chapter is to identify basic investment policies and practices employed by state retirement systems for teachers. Specifically, the aim is to find out what they are doing with reference to distribution of assets, diversification, investment timing, and to consider various external constraints which restrict the managers in the performance of their task.

Portfolio Distribution

Distribution of assets refers to the quantities of funds apportioned to various investment media. Data showing aggregate portfolio distribution for state teacher retirement systems are presented in Tables 5-1 and 5-2. These data, compiled from National Education Association[1] and Investment Bankers Association[2] publications, show both magnitudes and relative proportions of assets in various types of investment media for selected years beginning in 1952 and continuing throughout a 15-year period to 1967. It is necessary to consider each segment of investment media in order to fully comprehend the policies of retirement systems with reference to asset distribution.

Cash and deposits

Presently the overall investment in cash and deposits is $86.2 million or only .5 of one percent of the average portfolio. In order to be more definite concerning cash and deposits, a review of the data for the 50 funds was made as shown in Table 5-3. Twenty-five funds show no cash at all, while 13 others are holding less than 1 percent of their assets in this form. At the opposite extreme, 12 systems were maintaining a more liquid position with cash and deposits ranging as high as 34.5 percent of the portfolio. Funds holding more than 2 or 3 percent in this form, however, are in the minority. Although one may surmise that some alert fund managers may make certain that no cash is on hand when balance sheets are prepared and thus show no cash in their report, it seems reasonable to assume that cash-holding generally comprises a relatively small amount of the average teacher retirement fund portfolio.

United States government obligations

This category includes all United States Government obligations, U. S. Government agency obligations and all government guaranteed obligations except Federal Housing Administration and Veterans Administration mortgages. It will be observed that holdings of these securities amounted

to $3.2 billion in 1967 or an average of 18.9 percent of the aggregate portfolio. When the record of individual funds (Table 5-4) is reviewed, however, it is observed that 10 systems have over 35 percent of their funds invested in this type of investment securities. Seven funds have over 50 percent so invested and 3 funds are over 90 percent invested in this manner. The Nebraska fund, in fact, is virtually 100 percent invested in government securities. Yet, there are 2 funds which have no government

TABLE 5-1—DISTRIBUTION OF ASSETS
State Teacher Retirement Systems[a]
(in Thousands)

	1952	1955	1957	1959	1961	1963	1965	1967
Cash and Deposits[b]				15106.5	29650.0	28867.7	44250.0	86218.7
U. S. Govt. Obligations[c]	1600017.0	1848147.0	2080401.0	2288670.1	2408638.3	2666748.1	3256235.5	3221225.6
Municipal Bonds	295480.0	471244.0	805319.0	1043335.4	1126412.0	734749.8	562603.8	488982.7
Corporate Bonds	319407.0	816694.0	1461435.0	2399646.9	3478628.2	5197265.6	6841527.0	9255195.5
Mortgages	78940.0	148404.0	207174.0	424656.0	888833.3	1357175.0	1836061.7	2239943.4
Preferred Stock				56721.0	65102.7	63463.4	52163.9	52307.0
Common Stock	20531.0[d]	99503.0[d]	112013.0	129246.1	203582.4	459249.3	840927.1	1404151.3
Canadian Bonds				80418.5	117599.9	158404.7	250720.5	339925.5
Other	17384.0	36126.0	67500.0	24856.1	25354.7	32199.6	48532.4	63645.4
Total	2331722.0	3380118.0	4733844.0	6462656.6	8343801.5	10698123.2	13733321.9	17151595.1

[a] Compiled from: National Council on Teacher Retirement of the National Education Association, *Proceedings of the Annual Meeting* (Washington, 1952, 1955, 1958) and Investment Bankers Association of America, *State and Local Pension Funds*, A Report Prepared by Thomas M. Adams (Washington: Investment Bankers Association of America, 1968).
[b] Includes cash, deposits, short-term obligations.
[c] Includes bills, bonds, notes, agency, and Government guaranteed bonds.
[d] All stock.

TABLE 5-2—PERCENTAGE DISTRIBUTION OF ASSETS[a]
State Teacher Retirement Systems

	1952	1955	1957	1959	1961	1963	1965	1967
Cash and Deposits[b]				.2	.4	.3	.3	.5
U. S. Govt. Obligations[c]	68.6	54.7	43.9	35.4	28.9	24.9	23.7	18.9
Municipal Bonds	12.6	13.9	17.0	16.1	13.5	6.9	4.1	2.9
Corporate Bonds	13.7	24.2	30.9	37.2	41.6	48.6	49.9	54.2
Mortgages	3.4	4.4	4.3	6.6	10.7	12.7	13.4	13.2
Preferred Stock				.9	.8	.6	.3	.3
Common Stock	.9*	1.8*	2.4	2.0	2.4	4.2	6.1	8.2
Canadian Bonds				1.2	1.4	1.5	1.8	1.4
Other	.8	1.0	1.5	.4	.3	.3	.4	.4
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

[a] Compiled from: National Council on Teacher Retirement of the National Education Association, *Proceedings of the Annual Meeting* (Washington, 1952, 1955, 1958) and Investment Bankers Association of America, *State and Local Pension Funds*. A Report Prepared by Thomas M. Adams (Washington: Investment Bankers Association of America, 1968).
[b] Includes cash, deposits, short-term obligations.
[c] Includes bills, bonds, notes, agency, and Government guaranteed bonds.
* All stock.

securities at all. It is clear that there is a wide variance in the policy followed by teacher retirement funds with regard to investment in government securities.

Municipal bonds

The term municipal bonds refers to obligations of the states and their municipal subdivisions including cities, counties, and school districts, and

TABLE 5-3 -STATE TEACHER RETIREMENT FUNDS'
Cash and Deposits
1967

State	Total Assets (thousands)	Cash and Short Term (thousands)	Cash and Short Term (percent of assets)
Alaska	17,702.8	6,063.9	34.5
Idaho	24,954.7	4,360.9	18.4
Delaware	901.6	46.1	5.1
North Dakota	23,83 .3	1,152.6	5.0
New Hampshire	47,332.9	1.676.9	3.6
Hawaii	272,693.3	9,400.0	3.5
Iowa	251,642.5	6,683.6	2.7
Missouri	219,235.2	5,700.0	2.6
Massachusetts	201,053.4	4,414.9	2.2
Minnesota	653,234.6	11,968.0	1.8
Vermont	42,745.9	639.9	1.4
New Jersey	1,361,268.5	18,319.2	1.3
13 funds			.003-.9
25 funds			None

* Calculated from: Investment Bankers Association of America, *State and Local Pension Funds*, A Report Prepared by Thomas M. Adams (Washington: Investment Bankers Association of America, 1968).

is made up of general obligations, revenue bonds and special assessment bonds. Presently, these securities comprise a magnitude of $489 million or 2.9 percent of the average portfolio. When one turns to the record of individual funds (Table 5-5), it is significant that these systems vary widely in their practice with regard to municipals. Two funds have over 20 percent of their assets invested in them while 2 others have over 10 percent so invested. On the other hand, 18 funds have no municipals. Thus, the general observation is that teacher retirement funds usually do not invest heavily in municipal securities.

Corporate bonds

Bonds of all types of private corporations, including manufacturing, transportation, public utilities and finance companies, are referred to as corporate bonds. They include mortgage bonds, debentures, and equipment trust obligations, the sum of which equals $9.3 billion or just over 50 percent of the aggregate portfolio of teacher retirement systems. These

corporate securities constitute the largest single component of assets of teacher retirement funds. When the individual portfolios of the various state teacher retirement systems (Table 5-6) are considered, it is clear that most of them have corporate bonds. In fact, only 2 funds have no corporate bonds while 11 have over 60 percent of their assets in them, and 1 system—that of Tennessee—is over 80 percent invested in corporate debt. Thus, while a few funds have negligible amounts invested in corporate bonds, a majority of the systems consider this one of their most important outlets for investment.

Mortgages

Items tabulated as mortgages include all types of real estate mortgages. A review of the data presented in the Investment Bankers Association material[2] shows that while some few retirement systems are buying conventional mortgages, most of them are presently purchasing the F.H.A.-insured and V.A.-insured mortgages. Currently, this type of investment composes the third-largest part of the assets, standing at $2.2 billion or

TABLE 5-4—STATE TEACHER RETIREMENT FUNDS[a]
United States Government Securities
1967

State	Total Assets (thousands)	U. S. Governments (thousands)	U. S. Governments (percent)
Nebraska	36,734.0	36,504.0	99.5
Wyoming	29,561.8	27,705.1	93.6
West Virginia	125,989.2	113,839.0	90.3
Kansas	48,915.8	39,962.1	81.8
Florida	260,995.0	152,934.0	58.6
Oklahoma	107,165.0	62,405.0	58.3
Louisiana	419,193.0	232,077.0	55.4
Texas	1,077,164.4	444,270.4	41.2
Mississippi	100,407.0	36,224.0	36.2
North Carolina	586,652.4	209,449.4	35.7
38 funds			1.0-34.3
Arkansas			None
Idaho			None

[a] Calculated from: Investment Bankers Association of America, *State and Local Pension Funds*, A Report Prepared by Thomas M. Adams (Washington: Investment Bankers Association of America, 1968).

TABLE 5-5–STATE TEACHER RETIREMENT FUNDS*
Municipal Bonds
1967

State	Total Assets (thousands)	Municipals (thousands)	Municipals (percent)
Mississippi	100,407.0	27,843.4	27.7
Louisiana	419,193.0	94,152.5	22.5
South Carolina	284,559.1	45,435.5	16.0
Minnesota	653,239.6	66,757.9	10.2
New York	1,871,841.4	119,803.2	6.4
27 funds			.01-5.5
18 funds			None

* Calculated from: Investment Bankers Association of America, *State and Local Pension Funds*, A Report Prepared by Thomas M. Adams (Washington: Investment Bankers Association of America, 1968).

13.2 percent of t aggregate portfolio. Among individual state portfolios (Table 5-7), 15 funds had no mortgages while 2 funds, Missouri and Montana, had over 40 percent so invested, and another 9 funds were so invested to the extent of 25 percent or more.

Corporate stock

The fourth most numerous item in the average retirement fund portfolio is common and preferred stock, an item which aggregates a total of $1.7 billion or 8.5 percent of the aggregate portfolio. When individual retirement systems are considered (Table 5-8), it is found that 17 funds hold no stock, while 11 hold over 20 percent of their investments in this medium. However, it is significant that only 1 fund, Idaho's, has over one-third of its funds invested in stock; this means that stock has not been overly popular as a means of investment where teacher retirement systems are concerned.

Canadian bonds

Included under this category are all bonds issued by Canada and its provinces. The ownership of these securities is relatively small, with only $339.9 million or 1.4 percent of the aggregate portfolio involved. When one considers the individual portfolios of the numerous state systems, it is interesting to note that these bonds are held by only 12 funds. They

are quite popular with a few systems located primarily in the northern part of the United States. In fact, it will be noticed (Table 5-9) that one fund has 10 percent of its assets invested in this manner while 3 others are over 7 percent so invested.

Miscellaneous

Tables 5-1 and 5-2 include one final item entitled "other." Its magnitude of $63.6 million amounts to only .4 percent of the overall portfolio. It includes 3 cases in which the item was not explained in the original source. However, in 7 of 9 other instances this category refers to real estate, an item which sometimes is held as a means of providing office space.

In retrospect, the record shows that state teacher retirement funds generally are invested quite conservatively. This conservatism can be seen in the heavy proportion of over 70 percent invested in bonds, 18.9 percent of which is in U. S. Government obligations, and in the very small 9.6 percent which has been committeed to common and preferred stock.

TABLE 5-6–STATE TEACHER RETIREMENT FUNDS[a]
Corporate Bonds
1967

State	Total Assets (thousands)	Corporate Bonds (thousands)	Corporate Bonds (percent)
Tennessee	165,350.6	134,137.1	81.1
California	1,226,906.5	976,628.5	79.6
Iowa	251,642.5	197,613.7	78.5
Virginia	341,052.7	245,941.4	72.1
Pennsylvania	1,552,641.8	1,089,732.8	70.2
Maine	120,717.0	83,693.0	69.3
New Jersey	1,361,268.5	942,223.3	69.2
Massachusetts	201,053.4	133,889.0	66.6
Illinois	396,111.1	245,363.7	62.0
Maryland	498,155.8	312,411.3	62.7
Arkansas	46,479.0	75,628.7	61.5
30 funds	10,185,282.0	4,689,201.9	29.2-59.5
7 funds	804,939.0	128,734.1	2.0-21.5
2 funds			None
Total funds	17,151,594.9	9,255,195.5	

[a] Calculated from: Investment Bankers Association of America, *State and Local Pension Funds*, A Report Prepared by Thomas M. Adams (Washington: Investment Bankers Association of America, 1968).

TABLE 5-7–STATE TEACHER RETIREMENT FUNDS[a]
Mortgages
1967

State	Total Assets (thousands)	Mortgages (thousands)	Mortgages (percent)
Missouri	219,235.2	96,777.7	44.2
Montana	40,523.8	17,435.0	43.0
Michigan	446,515.4	172,692.2	38.7
Colorado	260,699.8	90,919.3	34.9
Arkansas	75,628.7	25,914.6	34.3
Vermont	42,745.9	13,932.2	32.6
Mississippi	100,407.0	27,585.6	27.5
Utah	85,273.6	23,251.2	27.3
Indiana	142,020.3	37,637.6	26.5
Kentucky	178,411.1	45,589.0	25.6
Oregon	247,316.1	63,074.6	25.5
24 funds			.2-24.9
15 funds			None

[a] Calculated from: Investment Bankers Association of America, *State and Local Pension Funds*, A Report Prepared by Thomas M. Adams (Washington: Investment Bankers Association of America, 1968).

Trends in portfolio distribution

During the 15-year period, 1952-67, significant trends in portfolio distribution have appeared (Tables 5-1 and 5-2). These center around 5 segments of the aggregate portfolio, including U. S. Government obligations, municipal bonds, corporate bonds, mortgages, and capital stock. Referring to Table 5-2, it will be observed that government obligations accounted for 68.6 percent of the aggregate portfolio or a magnitude of $1.6 billion in 1952. This magnitude had grown to $3.2 billion in 1967, but as a relative amount there had been a decline to 18.9 percent of the total investments. On the other hand, corporate bonds have shown a marked growth both as to magnitude and as to relative proportions of assets invested. It is noted that corporate bonds composed $319 million or 13.7 percent of the aggregate portfolio in 1952 but had grown steadily both in magnitude and relative amount to $9.3 billion or 54.2 percent of the average 1967 portfolio. Mortgages also showed a steady rise from $78.9 million in 1952 or 3.4 percent of the aggregate portfolio, to $2.2 billion which was just over 13 percent of the assets of these systems in the more recent year. Common stock had a meager beginning of $20.5 million

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or .9 percent of the portfolio in the initial year but rose to $1.4 billion or 8.2 percent of assets in 1967. Municipal bonds composed a substantial amount of $295.5 million or 12.6 percent of the total portfolio in 1952 and continued to increase in importance until around 1957, when they accounted for 17 percent of the funds' assets. After 1957, municipal bonds continued to rise as a magnitude for some time, but as a relative amount they have declined; in 1967, these securities amounted to only $488.9 million or 2.9 percent of the overall portfolio. Thus, while investment in all types of government bonds, both federal and municipal, had declined, the other three–corporate bonds, mortgages, and common stock–had been increasing as a relative portion of teacher retirement fund investments.

Many of the reasons for these changes go deep into the technicalities of investment management to be considered later in this study; however, some of the more obvious reasons for change center around scarcity of investment media and conservatism. To begin with, in 1952 the United States had just come through a major war and had found it necessary to issue large quantities of government bonds in order to finance the conflict. At the same time, the states, counties, cities, and private corporations were

TABLE 5-8–STATE TEACHER RETIREMENT FUNDS[a]
Corporate Stock
1967

State	Total Assets (thousands)	Common and Pref. Stock (thousands)	Stock (percent)
Idaho	24,954.7	8,515.9	34.0
Alaska	17,702.8	4,402.1	24.9
Hawaii	272,693.3	62,520.2	22.9
Minnesota	653,239.6	146,469.2	22.4
New Hampshire	47,332.9	10,561.5	22.4
Rhode Island	91,855.8	20,639.8	22.4
Wisconsin	472,277.8	104,936.5	22.2
New Mexico	63,169.4	13,287.7	21.0
Georgia	346,933.4	72,070.7	20.8
Ohio	1,200,403.0	237,711.0	19.8
23 funds			.5-19.4
17 funds			None

[a] Calculated from: Investment Bankers Association of America, *State and Local Pension Funds*, A Report Prepared by Thomas M. Adams (Washington: Investment Bankers Association of America, 1968).

TABLE 5-9—STATE TEACHER RETIREMENT FUNDS[a]
Canadian Bonds
1967

State	Total Assets (thousands)	Canadian Bonds (thousands)	Canadian Bonds (percent)
Washington	230,649.5	23,108.0	10.0
Connecticut	392,080.9	31,020.8	7.9
New York	1,871,841.4	131,751.9	7.0
Wisconsin	472,277.8	33,114.0	7.0
Ohio	1,200,403.0	44,004.0	3.7
7 funds			.4-2.9
38 funds			None

[a] Calculated from: Investment Bankers Association of America, *State and Local Pension Funds*, A Report Prepared by Thomas M. Adams (Washington: Investment Bankers Association of America, 1968).

forced to hold back on investments. Materials simply could not be allocated to these less essential needs; this led to a scarcity of investment media in these areas and indirectly forced investors to put their surplus funds into government securities. As the country moved out of the wartime economy and adjusted to peacetime conditions, it became possible to make new purchases of securities largely in the private sector where bond yields ranged from 25 to 100 base points higher. Also, with so much emphasis on providing housing for veterans and non-veterans, the government opened up an opportunity to place considerable money in the housing market in the form of insured mortgages. At the same time, the great need for improvements in state and local facilities provided opportunity for increasing amounts to flow into the municipal bonds category. Furthermore, it was often considered patriotic to one's state to invest at home. These forces working together encouraged considerable growth in municipal investments by teacher retirement funds until around 1961, when it was realized that, due to low yields and tax-exempt status, these securities were not desirable for retirement fund investment.

On the other hand, the 1950's saw a growing desire to shift more funds to common stock. This trend developed as investment advisers and fund managers came to realize that inflation was not just a temporary occurrence but a continuing force which could hardly be reckoned with by fixed income securities.[4]

Diversification

Having considered the assets distribution of the various teacher retirement funds, the study now turns to a second important characteristic of investment policy—diversification. Diversification is sometimes referred to as a policy of not "putting all of one's eggs in one basket."[5] By this, it is meant that one is careful to select securities in more than one company, industry, or quality to avoid the danger of loss from adverse business conditions which may fall more heavily on one company or industry than another.

In order to find out how much significance is attached to diversification in teacher retirement fund management, several funds were contacted and a request was made for copies of their portfolios. Success was moderate, but 5 funds responded with portfolios which represent a wide variety of different types of systems. Three of the funds which responded—Kentucky, Ohio, and West Virginia—represent teachers only, while those of Virginia and South Carolina are state-wide employee systems which include teachers. Three of the systems have social security while 2 have elected to remain outside the Social Security System. More important, however, is the fact that the 5 funds vary quite widely in size. Ohio, the fourth largest state teacher retirement system in the United States, has $1.2 billion in assets while West Virginia is slightly smaller than average with $125 million in its fund (Table 5-10). Thus, a review of these 5 portfolios tends to give one an over-view of state teacher retirement portfolios and policies in general with regard to diversification.

Company diversification

In order to find out how well diversified the funds were with regard to companies, the number of companies represented in the corporate bond portion of each of the sample fund portfolios was tabulated and recorded in Table 5-11. The Ohio fund led this list in company representation with a total of 278 companies. West Virginia had no corporate bonds but the other 2—Virginia and Kentucky—had rather wide representation with 235 and 186 companies, respectively.

Company representation was tabulated for the stock portion of the 5 sample portfolios (Table 5-12), and it was noticed that only 3 of the 5 funds buy any stock at all. Kentucky, which had 9.9 percent of its assets in stock, was diversified into 56 companies. Stock made up 8.1 percent of the Virginia fund and 19.8 percent of the Ohio fund, and the latter 2 portfolios were much more widely diversified with 91 and 161 companies included, respectively. As to companies, these funds, therefore, are widely diversified.

Industry diversification

In order to gain further understanding of diversification of teacher retirement funds, each security in the corporate bond portion of the sample

TABLE 5-10--DISTRIBUTION OF ASSETS[a]
State Teacher Retirement Systems
1967
(dollar--thousands)

States	Plan[b]	Cash	U.S. Govt. Obligations	Municipal Bonds	Corporate Bonds	Mortgages	Preferred Stock	Common Stock	Other	Canadian Bonds	Total
Alabama	T	611.6	42847.0	2238.4	117328.4	39378.3	8583.2	6536.9			217523.9
Alaska	T	6063.9	1341.0		1479.1	4416.8		4402.1			17702.8
Arizona	E	839.7	38262.1		96921.4	46076.8	1282.8	19694.8	264.6		203342.2
Arkansas	T	550.0		2685.0	46479.0	25914.6					75628.7
California	T		209108.2	6568.6	976628.5					34601.2	1226906.5
Colorado	E	770.7	78723.1		82296.2	90818.3	500.0	6294.5	1196.1		260699.8
Connecticut	E	1341.1	134355.3		200239.0	4862.2	2300.9	17961.7		31020.8	392080.8
Delaware	E	46.1	855.5								901.6
Florida	T		152934.0	17136.0	90925.0						260995.0
Georgia	T		30212.6		225738.4	18686.7	7903.4	64167.3	225.0		346933.4
Hawaii	E	9400.0	7197.3	3907.3	120802.4	67876.8	3974.0	58546.2	989.3		272693.3
Idaho	E	4630.9			11181.5	626.4	428.9	8087.0			24954.7
Illinois	T		26188.0		245363.7	81143.3		43416.2			396111.1
Indiana	T	1114.4	34505.0		41509.0	37637.6	7011.2	17616.4	26.7	2600.0	142020.3
Iowa	E	6683.6	47345.2		197613.7						251642.5
Kansas	T		39962.1		7248.7			1705.0			48915.8
Kentucky	T		18026.3	2143.0	95035.0	45589.0		17616.9			178411.1
Louisiana	T	270.0	232077.0	94152.5	88997.0		3554.1	142.3			419193.0
Maine	E		5200.8		83690.0	20554.3	7.8	11112.0	152.3		120717.0
Maryland	E		46075.0	1026.0	312411.3	61177.4		68998.0	8468.1		438155.8
Massachusetts	T	4414.9	60499.0	965.9	133889.0			1284.6			201053.4
Michigan	T		72535.3	5576.0	176810.0	172692.2		18902.0			446515.4
Minnesota	T/C	11968.0	134829.5	66757.9	290714.8		.7	146468.5		2500.0	653239.6
Mississippi	E		36224.0	27843.4	8754.0	27585.6					100407.0

Missouri	T	5700.0	1300.0		97154.4	96777.7		18303.0			219235.2
Montana	T	24.7	4150.9		18913.3	17435.0					40523.8
Nebraska	T		36504.0	230.0							36734.0
Nevada	E		21922.2	4326.8	45185.7			6160.0			77594.8
New Hampshire	T	1676.9	7619.7		26161.9	516.4	97.7	10463.8		796.5	47332.9
New Jersey	T/C	18319.2	185422.8	14343.1	942223.3	123221.6		33624.7	10835.1	33278.5	1361268.5
New Mexico	T		20833.3	12.0	13655.3	15381.1		13287.7			63169.4
New York	T		129408.2	119803.2	919439.4	397325.4		174113.4		131751.9	1871841.4
North Carolina	E		209449.4	8811.6	317894.5	8060.0		42526.9			586652.4
North Dakota	T	1152.6	4024.4	6161.0	7140.0	5357.3					23835.3
Ohio	T		94875.0	6885.0	539755.0	270543.0	11671.0	226040.0	6630.0	44004.0	1200403.0
Oklahoma	T		62405.0		44760.0						107165.0
Oregon	E	57.0	63562.4		120449.3	63074.6			172.8		247316.1
Pennsylvania	T		97949.2	11643.0	1089732.8	353316.9					1552641.8
Rhode Island	E		30323.1	1869.0	39024.0		496.4	20143.4			91855.8
South Carolina	E		86305.0	45435.5	152818.6						284559.1
South Dakota	T		3723.0		7889.0	1044.1					12656.1
Tennessee	T		17280.4	36.0	134137.1	5929.7		4967.4		3000.0	165350.6
Texas	T	9201.4	444270.4	18077.8	396285.8			209329.0			1077164.4
Utah	E	155.0	7913.1	8.0	50032.7	23251.2		3913.6			85273.6
Vermont	T	633.9	3384.8	194.9	24308.7	13932.2	82.8	58.0		150.6	42745.9
Virginia	E		52357.3	9202.9	245941.4			27743.6	5807.6		341052.7
Washington	T	580.0	40550.5	9341.0	104864.7	52205.3				23108.0	230649.5
West Virginia	T		113839.0	573.0	8000.0	3577.2					125989.2
Wisconsin	T	13.1	4843.1	903.9	256863.8	42725.7	4412.1	100524.4	28877.8	33114.0	472277.8
Wyoming	E		27705.1	125.0	600.0	1131.7					29561.8
Total		86218.7	3221225.6	488982.7	9255199.5	2239943.4	52307.0	1404151.3	63645.4	339925.5	17151594.9

[a] Compiled from: Investment Bankers Association of America, *State and Local Pension Funds*, A Report Prepared by Thomas M. Adams (Washington: Investment Bankers Association of America, 1968).

[b] Teacher plans—T, Public Employee plans, E.

TABLE 5-11—DIVERSIFICATION BY INDUSTRY AND COMPANY[a]
Corporate Bonds
(percent)

Industry Groups	Kentucky 1967	Virginia 1966	South Carolina 1966	Ohio 1966
Gas, Electric and Water	47.5	43.1	46.0	43.6
Telephone	10.0	15.4	24.1	20.9
Transportation	18.3	8.1	5.2	6.5
Automobiles, Parts, and Rubber	.3	.2	1.6	.4
Banks, Finance and Insurance	9.2	9.1	---	10.5
Building Materials	--	1.9	--	.5
Chemicals	1.2	.6	2.5	1.8
Drugs	--	.5	--	.4
Food, Tobacco, and Beverages	1.3	2.9	.5	1.8
Glass	.2	.1	--	.9
Mining, Machinery and Metal Products	3.3	8.4	7.1	6.2
Electrical Products	1.4	--	--	.6
Office Equipment and Electronics	.4	.6	--	--
Paper and Plastics	.7	.4	--	.6
Petroleum	1.4	2.7	10.5	4.3

TABLE 5-11—Continued

Industry Groups	Kentucky 1967	Virginia 1966	South Carolina 1966	Ohio 1966
Retail Trade	1.5	3.1	2.0	.6
Textiles	.4	.2	--	.2
Aircraft	.4	--	--	--
Printing and Publishing	.3	--	--	--
Cosmetics and Soap	--	.1	--	.2
Private Colleges	1.3	--	--	--
Miscellaneous	--	2.5	.5	.2
Total	100.0	99.9	100.0	100.2
Number of Companies in Portfolio	186	235	57	278

[a] Compiled from: Portfolios of the Kentucky, Virginia, South Carolina and Ohio Teacher Retirement Funds.

TABLE 5-12—DIVERSIFICATION BY INDUSTRY AND COMPANY[a]
Capital Stock
(percent)

Industry Groups	Kentucky 1967	Virginia 1966	Ohio 1966
Gas, Electric and Water	17.8	37.1	41.4
Telephone	2.2	2.2	2.5
Transportation	1.4	--	.1
Autqmobiles, Parts, and Rubber	7.1	.8	2.0
Banks, Finance, and Insurance	14.4	10.0	11.9
Building Materials	2.1	2.4	.6
Chemicals	7.8	4.6	4.1
Drugs	3.4	1.8	3.2
Food, Tobacco, and Beverages	8.2	9.0	11.8
Glass	.8	2.2	1.6
Mining, Machinery, and Metal Products	6.2	6.9	5.7
Electrical Products	4.8	--	1.2
Office Equipment and Electronics	5.1	2.6	1.6
Paper and Plastic	3.3	4.8	2.1
Petroleum	9.7	8.4	8.1

TABLE 5-12—Continued

Industry Groups	Kentucky 1967	Virginia 1966	Ohio 1966
Retail Trade	5.9	1.9	1.4
Printing and Publishing	--	3.1	--
Cosmetics and Soap	.3	1.5	.6
Miscellaneous	--	1.3	--
Total	100.5	99.9	99.9
Number of Companies in Portfolio	56	91	161

[a] Compiled from: Portfolios of the Kentucky, Virginia, and Ohio Teacher Retirement Funds.

portfolios was classified with reference to Standard and Poor's Classified Index of Industrial Companies,[6] as summarized in Table 5-11. It will be observed that 3 of the funds are holding bonds in 18 of the industry groups. The fourth fund having corporate bonds, that of South Carolina, is not widely diversified by industry and holds securities in only 10 of the industry segments.

All of the funds in the sample hold sizable proportions of their bonds in industries well known for possessing greater-than-average stability. Ohio has 64.5 percent of its bond portfolio in utilities; 10.5 percent in banks, insurance, and finance; and 1.8 percent in food, tobacco, and beverages, or a total of 76.8 percent in these highly stable industries. The other 3 systems had heavy proportions of the portfolio invested in these same stable industries with South Carolina having 72.2 percent, Virginia 70.5 percent, and Kentucky 68.0 percent of assets invested in these categories. When one looks at the remaining portion of the sample portfolios, it is observed that they are generally well diversified, with only 1 fund holding more than 10.5 percent in any one industry group. As these remaining industry categories are generally found to be more cyclical[7] in nature than the utilities, finance, and food segments, the fund managers evidently feel the need to diversify much more widely in the securities of these industries.

The stock portion of the 3 sample funds allowing capital stock as an investment media also was classified according to the classification system used for the bond portfolio and appears in Table 5-12. Inspection of this table makes it quite clear that the stable types of industry have also received favored treatment in stock investment. Here it is found that utilities, banks, insurance, finance, and the food category make up 42.6 percent of the Kentucky stock portfolio portion, while this runs much heavier in the Ohio system which has 67.7 percent of its stock fund in these industries, and in the Virginia fund which has 58.3 percent of the stock segment invested in this manner. When stock investments were discussed with the Executive Secretary of the Kentucky fund, he indicated that stocks are selected for moderate yield with emphasis on growth prospects.[8]

This policy appears confirmed in that the Kentucky fund tends to place considerable emphasis on automotive, drugs, chemicals, electrical equipment, office equipment, electronics, and machinery and metal products. While there is some difference of emphasis among these funds and while heavy consideration is given to 3 or 4 industry groups, diversification is quite adequate. The main emphasis is in the stable industries and diversification is generally quite wide in the more cyclical types of industry.

Geographical diversification

In order to find out whether the investments of teacher retirement funds tend to be concentrated in any given section of the country, a sample of companies represented in the bond and stock portions of each sample fund portfolio was compiled and appears in Table 5-13. Merely glancing through this list reveals that the portfolios are widely diversified geo-

TABLE 5-13
Geographical Distribution[a]

Companies in Bond Portfolio:

Kentucky

American Telephone and Telegraph
Illinois Bell Telephone Company
Pacific Telephone and Telegraph Company
Appalachian Power Company
Columbia Gas System
Consolidated Natural Gas Company
Gulf States Utilities Company
Kentucky Power Company
Michigan Wisconsin Power and Light Company
Nevada Power Company
North Indiana Public Service Company
Pacific Power and Light Company
Public Service of Colorado
Southern Electric Generating Company
Texas Eastern Transportation Corportation
Union Electric Company
Allis Chalmers Manufacturing Company
Montgomery Ward Company, Inc.
Sunbeam Corporation
C. I. T. Corporation
Seaboard Finance Company
Chesapeake and Ohio Railway Company
Kentucky and Indiana Railroad
Southern Pacific Railroad

Ohio

Central of Georgia Railway
Chicago Burlington and Quincy
Brockton Edison Company
Consolidated Gas Electric Light and Power Company
Indiana and Michigan Electric Company
Narragansett Electric Company
Philadelphia Electric Power Company
Tenneco, Inc.
Bell Telephone Company of Pennsylvania
Northern Ohio Telephone Company
Atlantic Refining Company
Diamond Alakali Company
International Milling Company
Rockwell Manufacturing Company

South Carolina

American Telephone and Telegraph Company
Boston and Main Railroad
Consolidated National Gas
B. F. Goodrich
Illinois Bell Telephone Company
National Steel Corporation
Oklahoma Gas & Electric
Plantation Pipe Line

TABLE 5-13—Continued

Rochester Gas & Electric
Southern California Edison Company
Texas Company
Virginia Electric Power Company

Virginia

Alabama Power Company
Brooklyn Union Gas Company
The Columbia Gas System
The Gas Service Company
Gulf States Utilities Company
Laclede Gas Company
Mountain States Telephone and Telegraph Company
Northern States Power Company
The Pacific Telephone and Telegraph
Rochester Telephone Corporation
Texas Electric Service Company
Wisconsin Telephone Company
Carnation Company
The Flintkote Company
Ingersol Rand Company
Marine Midland Properties
North American Car Corporation
Reproco, Inc.
Timprop, Inc.

Companies in Stock Portfolio:

Kentucky

American Electric Power
Bank of America NTSA California
Commonwealth Life Insurance Company
Eastman Kodak Company
Franklin Life Insurance
Goodyear Tire and Rubber Company
International Business Machines
Louisville Gas and Electric Company
Kraftco Corporation
Reliance Universal Company
Standard Oil Company of New Jersey

Ohio

Arizona Public Service
Consolidated Edison of New York
Niagara Mohawk Power Corporation
Public Service of Colorado
Atchinson Topeka and Santa Fe
Central Illinois Light
Duke Power Company
Northern States Power
Wisconsin Electric Power
Associates Investment
Manufacturers Hanover Bank
United States Gypsum

TABLE 5-13--Continued

	American Home Products
	Corn Products Refining
	Owens Illinois Glass
	Kimberly Clark
	Standard Oil of New Jersey
	R. J. Reynolds
	Proctor and Gamble
Virginia	
	Abbott Laboratories
	Bankers Trust Company of New York
	The Connecticut Light and Power Company
	Eastman Kodak Company
	International Paper Company
	Merck and Company
	Pacific Telephone and Telegraph
	Public Service Company of Colorado
	Southern Company
	F. W. Woolworth

[a] Companies in bond funds were selected on a one-for-each-twenty company basis except in the South Carolina fund where it was on a one for each five companies in the portfolio basis. Companies in the stock funds were selected on a one-for-each-five company basis.

graphically, with many large national corporations represented and a generally wide selection of regional corporations from many areas of the country included in each. Since the regular flow of funds tends to dictate investment at regular intervals, it is likely that the selection process will usually favor a wide geographical diversification, and it is not unlikely that most of the other teacher retirement funds are following a similar pattern with regard to geographical diversification.

Diversification as to quality

Each portfolio has been reviewed as to quality of its securities and rated according to Moody's[9] or Standard and Poor's[10] Investment Service insofar as ratings were given, and the results are presented in Table 5-14.

United States government securities

All of the funds in the sample have some United States government securities. Proportions of the portfolio in this type investment are as follows: South Carolina 30.3 percent, Virginia 15.4 percent, Kentucky 10.1 percent, Ohio 7.8 percent, and West Virginia over 90 percent. Some of these securities are direct obligations of the United States government and are rated "Aaa," while others are issued by agencies of the United States government. Of those which are agency issues—Federal National Mortgage Association, Export-Import Bank, Farmers Home Administration, Federal Deposit Insurance Corporation and Federal Savings and Loan Insurance Corporation—many are not guaranteed but only carry a moral

TABLE 5-14—STATE TEACHER RETIREMENT SYSTEMS[a]
Portfolio Quality Ratings[b]
(percent of each item)

Investment Media	Magnitude (thousands)	Aaa	Aa	A	Baa	Ba	NRP[c]	NR	Total Percentage
Kentucky									
Fixed Income	$157087.6								
U. S. Government (Bills and Bonds)	11249.7	100.0							100.0
Agencies	6636.1	16.0	28.3					55.6	100.0
Municipal bonds	2396.1			9.5		3.3		87.1	99.9
Mortgages									
(Govt. Ins.)	37402.6							100.0	100.0
Conventional	6576.7							100.0	100.0
Corporate Bonds	92826.4	13.5	13.6	39.5	22.7		2.3	8.4	100.0
Capital Stock									
Preferred Stock	241.8	--	AAA						

Common Stock		A+	A	A-	B+	B		NR	
Common Stock	$17323.1	37.0	31.1	11.9	5.6			14.6	100.0

TABLE 5-14—Continued

Investment Media	Magnitude (thousands)	Aaa	Aa	A	Baa	Ba	NRP	NR	Total Percentage
Ohio									
Fixed Income	$891475.6								
U. S. Govts. (Bills and Bonds)	87875.0	100.0							100.0
Agencies	6300.0							100.0	100.0
Municipals	7219.1							100.0[d]	100.0
Mortgages (Govt. Ins.)	261222.0							100.0	100.0
Canadian Bonds	40190.0		50.3	49.7					100.0
Corporate Bonds	470266.8	25.6	33.8	39.8	1.1	.1			100.0
Capital Stock		AAA	AA	A	BBB	BB		NR	
Preferred	$ 11671.0	16.7	40.2	37.2	3.1	1.1		1.7	100.0
Common		A+	A	A-	B+-	B-		NR	
Common	$183885.6	29.6	37.6	14.4	5.0	.7		12.6	99.9

TABLE 5-14—Continued

Investment Media	Magnitude (thousands)	Aaa	Aa	A	Baa	Ba	NRP	NR	Total Percentage
South Carolina									
Fixed Income	$259596.5								
U. S. Govts. (Bills and Bonds)	73650.0	100.0							100.0
Agencies	28890.0	29.9						70.1	100.0
Municipal Bonds	41397.0	45.2		2.2	.9			51.7	100.0
Corporate Bonds	115080.5	28.7	36.8	8.0			19.9	6.7	100.1
Virginia									
Fixed Income	264098.9								
U. S. Govts.	33548.8	100.0							100.0
Agencies	13340.8	47.2						52.8	100.0
Municipal Bonds	9451.3		18.3	33.2	23.9			24.5	99.9
Corporate Bonds	205879.3	12.6	20.7	20.1	1.3	.3	28.4	16.9	99.8
Real Estate	1778.7							100.0	100.0
Capital Stock		A+	A	A-	B+	B-		NR	
Common Stock	$22618.9	25.7	42.0	18.9	2.2			11.3	100.1

TABLE 5-14—Continued

Investment Media	Magnitude (thousands)	Aaa	Aa	A	Baa	Ba	NRP	NR	Total Percentage
West Virginia									
Fixed Income	$113364.6								
U. S. Govts. (Bills and Bonds)	110660.4	100.0							100.0
Agencies	2034.2							100.0	100.0
Municipals	670.0		31.1	10.5	5.2			53.1	99.9

[a] Based on portfolio of Kentucky's fund for 1967; Virginia's, Ohio's, and South Carolina's for 1966; West Virginia's for 1965.
[b] Ratings from: *Moody's Bond Record*, Moody's Investors Service, Inc. (Lancaster: March 1970), Vol. 37. No. 3. Ratings for stock and finance bonds: *Standard and Poor's Stock Guide* (New York: May 1970). *Standard and Poor's Bond Guide*, Standard and Poor's Corporation (New York: April 1970).
[c] Refers to nonrated private placements.
[d] Names of municipalities not supplied for the Ohio fund.

obligation on the part of the federal government. These agency securities compose approximately one-fourth to one-third of the United States government portion of the Virginia, South Carolina, and Kentucky funds. On the other hand, they make up only a small proportion of the government segment in the West Virginia and Ohio funds. As a total, they are quite small except in the South Carolina fund in which they compose an amount of $28 million, 70 percent of which is not rated. While a large percentage of these agency securities are not rated by either major investment service, there is some precedent for believing that the government would not allow them to default. In fact, in 1932 the government came to the support of one of these agencies—the Federal Land Banks—by providing additional capital and preventing its failure.[11]

Mortgages

As has been noted earlier, a large percentage of the teacher retirement funds are holding mortgages, a relative proportion of 20 to 25 percent of the respective portfolios not being uncommon. Among the 5 individual portfolios studied for this section, only 2 were buying mortgages. Of these 2 systems, Kentucky had approximately 25 percent of its assets in this investment outlet, while Ohio had 22.5 percent invested in these securities. Ohio's mortgages were made up entirely of the F.H.A.- and V.A.-insured mortgages while Kentucky had 88 percent of its mortgages in this type. In effect, these government-supported mortgages are guaranteed by the federal government.[12] The remainder of Kentucky's mortgages are conventional mortgages, amounting to $6.5 million, the strength of which could not be determined. In an interview with the Executive Secretary of the Indiana Teachers' Retirement System, it was learned that the Indiana fund also buys only F.H.A.- and V.A.-insured mortgages.[13] Since dealing in conventional mortgages has been frought with many problems and a great deal more servicing than retirement funds are prepared to provide, it is probable that most teacher retirement funds investing in mortgages are buying the government-guaranteed mortgages predominately.

Canadian bonds

One fund of the sample group, Ohio, had $40 million in Canadian bonds. These were high quality and medium-high-grade quality with ratings about equally divided between "A" and "AA."

Municipal bonds

Of the 5 portfolios received, the municipal portion was generally quite small. South Carolina, with 16.0 percent so invested, had the largest percentage of the group in this type of securities. Of the others, Virginia had the second largest percentage, with 2.7 percent in municipals. As for ratings, Ohio did not furnish the names of municipalities represented in its portfolio; therefore, they have not been rated. Municipal bonds of the others were rated according to Moody's Bond Record[14] and Standard

and Poor's Bond Guide[15] and found to vary somewhat as to quality with Kentucky having 87.1 percent of its municipals not rated at all. The other funds also had large numbers of nonrated municipal bonds as follows: West Virginia 53.1 percent, South Carolina 51.7 percent, and Virginia 24.5 percent. The holding of low-rated or non-rated securities in retirement funds has sometimes resulted from pressure on the part of various localities to have the funds supply money for schools, water systems or other local civic-oriented projects. One retirement system manager with whom the author talked indicated that, although municipals are being sold by the funds, it becomes quite difficult to sell those which are the obligations of small unrated communities. Perhaps this accounts for the large number of municipal securities which are unrated or of a low-rated category in these portfolios.

Corporate bonds

As was recognized earlier, the largest single item of investment by teacher retirement funds is the investment in corporate bonds. Of the 5 portfolios reviewed, one did not allow corporate bonds as a form of investment at all. The Ohio fund, which furnished ratings for its securities, shows over 98 percent of its bond portfolio to be in the 3 top grades, and it was also explained that the others had moved to grade "Baa" and "Ba" after they had been purchased. The corporate bonds of the other funds were rated by the author with reference to Moody's and Standard and Poor's bond services. These securities were generally medium to high grade with the top three grades making up 73.5 percent for South Carolina, 66.6 percent for Kentucky, and 53.4 percent for Virginia. Kentucky had 22.0 percent of its corporate bonds in the "Baa" class, while the others had only nominal amounts so rated. A very small group of "Ba" bonds were held—these having had their ratings reduced after they were purchased. The 3 funds which did not supply ratings for their bonds had several issues for which ratings were not available. The reader will notice that these unrated bonds amounted to 45.3 percent of the corporate bonds in the Virginia fund, 26.6 percent for the South Carolina fund and 10.7 percent for the Kentucky fund. This category was further divided into "non-rated" and "non-rated-private placements." When this was done, much of the uncertainty was removed from this portion of the South Carolina and Virginia funds. One does not know what ratings would be applied to these securities; however, it does explain that 28.4 percent of the Virginia corporate bond fund and 19.9 percent of the South Carolina bond fund was composed of private placements which were not publicly rated. A review of Kentucky's investments revealed that over 50 percent of its unrated securities were composed of conditional sale agreements and bank, finance, and insurance securities. Neither of these groups is rated by Moody's Investment Service and they are only partially rated by Standard and Poor's Investment Service. Since the law requires that all corporate bonds purchased for Kentucky's fund must be rated in "the three highest

classifications established by one or more major rating services,"[16] it is probably safe to assume that private ratings were secured and that most of these nonrated securities were not lower than the "Baa' class.

Virginia had a large percentage of its corporate bonds in the nonrated class; however, almost 50 percent of these were invested in banks, insurance, finance, and conditional sale agreements. Several of the securities were non-rated notes and some were simply with companies not mentioned by Moody's or Standard and Poor's investment manuals. Although several of these securities may be with companies which are too small to be rated by the investment services, they should not be of overly weak issues. This deduction, one may surmise, since bond investments of this fund must conform to standards set for life insurance companies, operating in the state of Virginia.[17] In like manner, it was found that South Carolina's fund must buy securities of not lower than the 3 top grades placed on them by 2 of the major investment services.[18] Thus, it would appear that most of the corporate bonds purchased by teacher retirement funds are likely to be diversified among the top 4 ratings of securities as rated by nationally recognized investment services.

Corporate stock

As was discussed earlier, corporate stock has been becoming more popular with the teacher retirement funds during the past few years and it is of interest to know what grades are purchased. Of the 5 funds furnishing portfolios, 3 hold stock among their assets. In the Ohio fund, stockholdings amount to 19.8 percent of the assets while Virginia and Kentucky had 8.1 percent and 9.9 percent of their portfolios invested in stock. As for quality, it was found that 80 to 85 percent of these stock funds were invested in the top 3 categories, as rated by Standard and Poor's Guide,[19] and 25 to 37 percent of these securities were rated in the top classification. From this, it is clear that while retirement funds are beginning to buy stock they are following a defensive policy of buying primarily from the higher grades of securities.

Investment Timing

Teacher retirement funds have generally been quite *defensive* with regard to investment timing. To begin with, their flow of funds has tended to remain rather constant as contributions are deducted from the payroll each month and turned over to the retirement system. Since they usually keep their funds fully invested,[20] this makes them naturally inclined toward spreading maturities for bonds and toward dollar-cost-averaging for stock. Spreading maturities is defensive since it permits the fund to meet any needs for expenditures through normal maturities and avoids the problem of selling securities at discounts. Dollar-cost-averaging means putting the same amount into stock at regular intervals so as to permit the average cost of the securities to fall below the peak of the market.

Some of the systems follow dollar averaging as deliberate policy in purchasing stock. In fact, of four managers with whom stock purchases were discussed,[21] three indicated that they used the policy in one form or another. It was specified by the managers of the Kentucky and Ohio funds that they operate from a list but make changes in the list if some security can be replaced with one which appears to offer better opportunities with regard to growth and moderate income. The manager of the Virginia fund indicated that purchases of approximately one-half million dollars per month are made from a list developed and kept up to date by Moody's Investment Service. However, it was indicated that this fund and the Kentucky fund would occasionally delay regular purchases if it appeared exceptionally bad timing to make the regularly scheduled purchase on a given date.

These systems also follow a defensive policy with regard to timing in that securities are held for long periods of time. Calculation of longevity was made from available data on corporate bonds held by the funds of Kentucky, Ohio, and Virginia (Table 5-15). The tabulations were made on the basis of what each fund owned in 1961 and what changes had taken place with respect to the original items in this portfolio during the 1961-67 period for Kentucky and the 1961-66 period for Virginia and Ohio. It will be observed that the highest annual turnover of the 3 funds, that of Kentucky, was approximately 9 percent while it fell much lower for

TABLE 5-15--STATE TEACHER RETIREMENT FUNDS
Changes in 1961 Corporate Bond and Stock Portfolios
1961-66
(dollars--thousands)

Fund	1961[a]	1966[b]	Sold, Called Matured	Percent[c] 1961 Holding Liquidated
Corporate Bonds				
Kentucky	31971.0	14893.0	17078.0	53.6
Ohio	276766.0	244891.0	31870.5	11.5
Virginia	81914.0	76154.0	5760.0	7.2
Common Stock				
Kentucky	1509.8	1118.6	391.2	2.6
Ohio	31517.1	28244.4	3272.7	10.2
Virginia	4510.4	4346.9	163.5	.2

[a] Stock in Virginia fund June 30, 1963.
[b] Bonds in Kentucky fund June 30, 1967.
[c] Calculated from portfolios of the various funds represented.

Ohio and Virginia where it amounted to less than 2 percent and 1.4 percent, respectively—the latter representing normal turnover of maturing securities for the funds. Kentucky has been following a much more active management policy than the other two funds and some criticism has resulted from this policy.[22] When active management was discussed with the manager of this fund and that of Ohio it was revealed that they have a rule of thumb which applies in deciding to sell low yielding issues. The rule they are inclined to follow is that securities will be sold if new quality securities can be purchased which will provide sufficient increases in income to make up for losses on sales during the following 5 years.

When one turns to the stock portion of the sample portfolios (Table 5-16), it will be observed that Kentucky and Virginia annually traded less than 1 percent of their corporate stock portfolios while Ohio traded 2 percent per year. Certainly this is not a great turnover of these stock portfolios. In discussing stock purchases with the manager of the Indiana fund, it was learned that they also buy for long-haul. Thus, while Kentucky has tended toward more trading than the others, it appears that the average fund buys its securities for the long-haul, a policy which tends to eliminate much of the short-run timing of the market.

TABLE 5-16—STATE TEACHER RETIREMENT FUNDS
Length of Maturities
Corporate Bonds Held[a]

Term (yrs.)	Kentucky	Ohio	South Carolina	Virginia
1-5	2%	7%	0%	2%
6-10	4	8	--	8
11-15	7	18	3	3
16-20	11	26	17	13
21-25	24	22	21	28
26-30	26	14	37	34
31-35	23	3	17	9
36-40	3	2	3	2
Over 40	--	--	2	1
Total	100	100	100	100

[a] Purchases of corporate bonds July 1, 1965 to June 30, 1967 for the Kentucky fund. Others calculated from the portfolios of the various funds represented.

Teacher retirement funds also seek to avoid the short-run timing problem by following an aggressive policy insofar as term of securities is concerned. In this instance, they are long-term investors, taking the added risk of longer term uncertainty in order to secure higher rates of interest. Table 5-16 which deals with bond maturities, is partially based on what these funds have in corporate bonds rather than on what they buy. Even though this tends to understate the term of bonds which are being held in the portfolios, the sample portfolios are shown to represent long-term investments. Such analysis reveals that none of the funds had less than 66 2/3 percent of its bond account in securities maturing in 15 years or more. In fact, the figures which were computed from purchases for the Kentucky fund showed over 70 percent of their corporate bonds with maturities of 20 years or more.

While it is evident that managers do become active in their timing of investments and hold funds in short-term commercial paper, as was indicated by the manager of the Virginia fund, it appears that most of them tend to solve their timing problems rather routinely through long-term bonds held for long periods and through dollar-cost-averaging procedures.

External Constraints on Portfolio Policy

The managers of teacher retirement systems operate under certain external constraints which tend to limit them as to the type and quantities of investments they make. As these constraints are quite significant in determining various investment policies and practices of the respective retirement systems, it is necessary to review some of these restricting influences.

Legal restrictions

One of the most significant external constraints upon teacher retirement systems is the legal restriction. These pension systems have been established through statutes passed by the state legislature in each respective state. The laws vary somewhat in nature but for the most part all have certain common features. Main features with reference to investments concern the trustees and administrators and the quantities and qualities of various types of securities which are permitted for investment.

Types of laws

The statutes regulating the investments of teacher retirement funds of the states are generally patterned after laws governing the action of savings banks and insurance companies and, to some extent, fiduciaries.

An intensive survey of the data[23] shows 4 funds—Connecticut, Massachusetts, New York, and Rhode Island—specifically mentioning that the investment rules for savings banks apply to the investment of their funds. The statute of Connecticut states the following:

> The secretary of the retirement board shall pay to the state treasurer all sums collected by him under the provisions of this section. All funds of the retirement system shall be in the custody of the state treasurer, and he shall invest such funds as are not required for current disbursements in accordance with the statutes governing the investment of savings bank funds.[24]

Looking further into the matter, one finds the savings bank law of Connecticut is quite detailed as to kind and quantity of securities which shall be purchased. A casual survey of Table 5-17 reveals that the savings bank law of Connecticut and the statutes of most states patterned for savings banks laws, for the most part, are legal list laws. By this, it is meant that the law states kinds of assets in which funds may be invested and per-

TABLE 5-17–SAVINGS BANK INVESTMENT LAW*
Connecticut

Investment Media	Percentages
U. S. Government Securities	100% of assets
International Bank for Reconstruction	2% of assets
Housing Authority Obligations	5% of assets
States	20% of assets
Municipals (of Connecticut)	25% of assets
Regional School District Obligations of Connecticut	6% of assets
Revenue Bonds	5% of assets
Canada and its Provinces	7-1/2% of assets
Funded debt of public utility companies	25% of assets
Connecticut Water Company obligations	15% of assets
Telephone Corporate bonds	15% of assets
Railroad Corporate bonds	20% of assets
Bank Stock	50% of surplus and profit and loss
Public Utility Stock	5% of assets
Investment Co. Stock (all held by savings banks)	25% of surplus and profit and loss
Bank Acceptances	5% of assets
Limits on Investments in one Corporation	
Political subdivisions of Connecticut (each)	5% of assets
Political subdivisions of other states (each)	1% of assets
Any one Water Company	2% of assets
Any one Telephone Company	5% of assets
Canadian Provinces (each province)	2% of assets
Public Utilities (each company)	5% of assets

TABLE 5-17–Continued

Quality Standards	
Political subdivisions of states	No default of over 90 days in past 20 years Net debt not to exceed 7-1/2% of full value or 9% of assessed value of taxable property of subdivision
Water Companies	Company shall be the sole company supplying water to subject community Outstanding debt--not to exceed 50% of its total capital Interest charges for all debt must be covered at least two times after taxes
Telephone Companies	80% or more of revenue in most recent year must be derived from telephone service property Interest charges on funded debt must have been covered at least three times during four of the last five years
Stock	Any one public utility corp. 1/2% of assets Equity value of com. stock must at least equal 25% of assets Interest Charge coverage during each of most recent 4 years 2-1/2 times int. and pref. dividends.

[a] Connecticut, *The General Statutes, Revised,* sections 36-96.

centages allowed in each type of security. Furthermore, as is the case with Connecticut, it often means that an actual list of securities which are eligible is drawn up each year by the banking commissioner of the state.[25]

Connecticut law does, however, make provision for a very small 7½ percent of their deposits to be invested according to the "prudent man" rule, which means that ordinarily the trustee is legally required to:

> . . . employ such prudence and such diligence in the care and management of the estate or property as men or ordinary prudence, discretion, and intelligence employ in their own like affairs, not with a view of speculation, but rather to the permanent disposition of their funds, considering the probable income as well as the probable safety of the capital to be invested.[26]

However, the prudent man rule in the Connecticut statute is not applied to any and all types of investment but only to bonds which have not been included in the legal list. Thus, the Connecticut fund is limited primarily to a legal list of securities determined once a year during the first 15 days of July and does not include stock in manufacturing companies.

Since Massachusetts, New York and Rhode Island also mentioned the savings bank law as a basis for their teacher retirement investments, these savings bank statutes were reviewed. Generally, the laws in the latter 3 states are all quite similar to that of Connecticut in that they tend to make provisions for specific types of investment media and percentages of assets which may be invested in each category. Massachusetts includes a prudent man rule and Rhode Island is slightly more lenient than Connecticut in that it allows purchase of stock in manufacturing companies.

Another basis often used in developing investment law for teacher retirement systems is the statutes applicable to life insurance companies. A review of the data[27] indicates that 14 funds refer to the life insurance statutes of the respective states as a basis for their teacher retirement fund investments. Since life insurance law forms the basis for so many retirement funds, 3 of these laws were studied in detail and the major provisions of the Maryland life insurance investment law are presented in Table 5-18.

Life insurance investment law as found in the state of Maryland allows investment in media similar to that allowed by the savings bank laws but tends to drop the fixed percentages that may be invested in individual categories. It also drops the restrictions concerning the proportion of assets which may be invested in one institution. The requirement for life insurance investments is particularly less stringent with reference to the investment in corporate securities. It will be recalled that in the case of savings banks it was usual for investment to be limited to public utility and transportation types of corporation while in the case of life insurance companies this type of restriction was not found. Of particular interest here is the fact that, in purchase of either bonds or stock, many opportunities which would not be available to the fund operating under savings bank law would be available to systems operating under life insurance law. However, both laws tend to play down opportunities for investment in corporate stock. Of the laws considered thus far, 10 percent of the portfolio has been the maximum allowed in common stock. In essence, the tendency of these laws is to emphasize short-term investment policy which tends to ignore purchasing power risk. Thus, while the insurance law tends somewhat more toward long-term policy than savings bank law, it also has followed short-term emphasis on safety in that purchase of common stock has been quite limited. Moreover, since the savings banks have usually followed a rather strict legal list for most investments, it has meant that good opportunities to invest have often had to be ignored or passed up pending issuance of a new legal list. In short, more decisions are left to the prudence of the fund managers operating under the insurance statutes than to those under savings bank law.

TABLE 5-18—LIFE INSURANCE INVESTMENT LAW[a]
Maryland

Permissible Investments	
Cash and Deposits	National banks, state banks, savings and loan assoc.--if insured
U. S. Government Securities	Bonds, notes, bills--direct obligations or fully guaranteed, as to principal and interest
Municipals	Bonds of any state, city, or county
Canadian	Bonds of Canada or its provinces
Corporate securities	Bonds and notes of any corporation chartered in: The U.S. or its subdivisions Canada or its subdivisions Common Stock 10% of assets Pref. Stock 10% of assets
Real Estate	Unincumbered real estate 20% of assets
Mortgages	FHA and VA mortgages Conventional--not to exceed 75% of the value of property offered as security

Permissible Investment in one Corporation	
Stock	5% of assets

Quality requirements	
Bonds	Net income to fixed charges--1-1/2 times --an average of the last 5 years --for the most recent year
Preferred Stock	Net income to fixed charges and pref. dividends--1-1/2 times --average of past 5 years

[a] Maryland, *Code of Maryland* (Mitchie Company, 1957) Article 48, Sections 96-104.

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A review of the investment laws for 8 additional systems[28] tends to show the influence of savings bank and insurance company law on the remaining 30 teacher retirement funds of the various states. For example, Kentucky's fund has a very definite legal list statute similar to that for savings banks in that definite investment media are prescribed along with percentages for each category. Likewise, some funds, such as those of Ohio and Kentucky, show the savings bank influence in the standards set for corporate bonds; both require that the security be in the top three grades as determined by a national rating service.[29] Further study revealed that several funds set these high standards for safety of principal and interest.

The influence of savings-bank and life-insurance-company law can also be seen in the limitations on common stock. A review of all the funds in the study revealed that definite information concerning the allowable proportions of funds which may be placed in common stock (Table 5-19) is available for 36 systems. Of this group, 4 could not invest in common stock, while 11 indicated that only 5 percent of their assets could be invested in either common or preferred stock. Ten systems had an overall limitation

TABLE 5-19—STATE TEACHER RETIREMENT FUNDS[a]
Capital Stock Investment
Legal Restrictions

Percentage of Stock in Investments	Number of Funds
5	11
10	10
15	2
20	5
25	4
33-1/3	1
35	2
40	1
Total Funds Allowing Stock	36
Total Funds Allowing Common Stock	32[b]

[a] Calculated from: Investment Bankers Association of America, *State and Local Pension Fund*, A Report Prepared by Thomas M. Adams (Washington: Investment Bankers Association of America, 1967).

[b] Four funds allowing stock allowed only preferred stock.

of 10 percent of assets and 7 were permitted varying amounts up to 20 percent of the portfolio. Only 8 funds were allowed to invest as much as 25 percent of their assets in these equity securities. One, the Hawaii fund, allows as much as 40 percent of the portfolio in stock while two others permit 33-1/3 and 35 percent, respectively. Thus, the influence of savings bank and insurance company law is very pronounced in these statutes in that over 50 percent of the funds either are allowed no stock or a very nominal 10 percent while only 4 funds are allowed to purchase an amount of stock exceeding 25 percent of their assets.

State and local considerations

Although teacher retirement funds are not generally restricted to investments within the home state and its localities, there is good evidence that they sometimes feel pressure under the law and from governmental officials to invest part of their funds in this manner. To begin with, it has already been shown that some of these systems invest as much as 20 to 27 percent of their assets in municipal bonds. Discussion with fund managers revealed that this often comes not as a legal requirement but as a type of arm-twisting from legislators and other public officials as part of the routine of favoring one's constituents. School officials, too, are interested in securing new buildings and equipment, and as a result often go to their own retirement funds hoping for the opportunity of placing their bonds at lower yields and with greater convenience.

In some cases the law goes further to favor not just municipalities but businesses in general within the state. This is seen in the statute governing the Kentucky fund, which states the following:

> The board of trustees in keeping with their responsibilities as trustees and wherever feasible shall give priority to the investment of funds in obligations calculated to improve the industrial development and enhance the economic welfare of the Commonwealth.[30]

California has a similar provision in its statute,[31] and Roger Murray points to a state-favoring provision with regard to construction and lease of properties for New York state governmental agencies by the New York State Teachers Retirement System.[32] While it is difficult to say just how extensive this constraint is, it is likely that many more instances occur than appear in print, and that due to these home-state pressures probably some funds are somewhat restricted in the free exercise of the investment function.

Size and age of fund

Since the retirement system management has little to do with the size and age of the individual fund, these 2 characteristics are treated here as external constraints upon the investment processes. Just as size and age affect the policies of companies, in like manner they affect the policies and practices of retirement funds. To begin with, it appears that size has an effect on the type of management. Of the four funds (Indiana,

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Kentucky, Ohio, and Virginia) whose managers were interviewed by the author, only one–the large Ohio fund– has an investment manager who is not also the manager of the whole retirement system. This factor may be significant with regard to active management of the portfolio. Evidence of the effect of size appears to be shown, also, in the distribution of assets by size of funds. As is shown in Table 5-20, calculations were made which revealed that 22 percent of the state teacher retirement plans are over 40

TABLE 5-20–PERCENTAGE DISTRIBUTION OF ASSETS[a]
State Teacher Retirement Systems
1967
(By State)

States	Cash	U.S. Govt. Obligations	Munic. Bonds	Corp. Bonds	Mortgages	Common & Pref. Stock	Other	Canadian Bonds	Total
Alabama	.3	19.7	1.0	53.8	18.1	7.0			100.0
Alaska	34.5	7.3		8.5	24.9	24.9			100.0
Arizona	.4	18.8		47.7	22.7	10.3	.1		100.0
Arkansas	.7		3.7	61.5	34.3				100.0
California		17.0	.5	79.6				2.9	100.0
Colorado	.3	30.2		31.6	34.9	2.6	.5		100.0
Connecticut	.3	34.3		51.1	1.2	5.2		7.9	100.0
Delaware	5.1	94.9							100.0
Florida		58.6	6.6	34.8					100.0
Georgia		8.7		65.1	5.4	20.8	.1		100.0
Hawaii	3.5	2.6	1.4	44.3	24.9	22.9	.04		100.0
Idaho	18.4			44.4	2.4	34.4			100.0
Illinois		6.6		62.0	20.5	10.9			100.0
Indiana	.8	24.3		29.2	26.5	17.3	.01	1.8	100.0
Iowa	2.7	18.8		78.5					100.0
Kansas		81.8		14.7	3.4				100.0
Kentucky		10.1	1.2	53.3	25.6	9.9			100.0
Louisiana	.07	55.4	22.5	21.2		.8			100.0
Maine		4.3		69.3	17.1	9.2	.2		100.0
Maryland		9.1	.2	62.7	12.3	13.8	1.7		100.0
Massachusetts	2.2	30.1	.5	66.6		.6			100.0
Michigan		16.2	1.3	39.6	38.7	4.2			100.0
Minnesota	1.8	20.6	10.2	44.5		22.4		.4	100.0
Mississippi		36.2	27.7	8.8	27.5				100.0
Missouri	2.6	.6		44.3	44.2	8.3			100.0
Montana	.005	10.4		46.7	43.0				100.0
Nebraska		99.4	.6						100.0
Nevada		28.2	5.5	58.2		8.0			100.0
New Hampshire	3.6	16.1		55.4	1.1	22.4		1.7	100.0
New Jersey	1.3	13.6	1.1	69.2	9.1	2.5	.8	2.4	100.0
New Mexico		32.9	.02	21.5	24.4	21.0			100.0
New York		6.9	6.4	49.1	21.2	9.3		7.0	100.0
North Carolina		35.7	1.4	54.2	1.4	7.2			100.0
North Dakota	5.0	16.8	26.1	29.8	22.7				100.0
Ohio		7.8	.6	45.0	22.5	19.8	.5	3.7	100.0
Oklahoma		58.3		41.8					100.0
Oregon	.02	25.7		48.7	25.5		.1		100.0
Pennsylvania		6.3	.7	70.2	22.8				100.0
Rhode Island		32.9	2.1	42.4		22.4			100.0
South Carolina		30.3	16.0	53.3					100.0
South Dakota		29.1		62.2	7.9			1.8	100.0
Tennessee		10.5	.02	81.1	3.6	3.0			100.0
Texas	.9	41.2	1.7	36.8		19.4			100.0
Utah	.2	9.3	.01	58.5	27.3	4.6		.5	100.0
Vermont	1.4	7.7	.5	56.9	32.6	.5			100.0
Virginia		15.4	2.7	72.1		8.1	1.7	10.0	100.0
Washington	.3	17.1	4.0	45.5	22.6				100.0
West Virginia		90.3	.5	6.3	2.9				100.0
Wisconsin	.003	1.0	.2	54.4	9.0	22.2	6.1	7.0	100.0
Wyoming		93.6	.3	2.0	3.7				100.0

[a] Calculated from: Investment Bankers Association of America, *State and Local Pension Funds*, A Report Prepared by Thomas M. Adams (Washington: Investment Bankers Association of America, 1968).

percent invested in cash and U. S. Government securities–2 segments—which require very little investment management and which tend toward rather high liquidity. On the other hand, when this is compared to the investment policies of very large funds having over $1 billion in assets per fund, it is found that only 14.3 percent of their funds are invested in this manner. Likewise, the small funds invest a much smaller proportion of their assets in corporate bonds than do larger funds.

Age, too, may affect the investment policies and practices of the systems. After all, it does take some time to get a fund established and operating in the manner the state would like it to operate. In order to get some interpretation of the effect of age, a review of the Investment Bankers Association summaries[33] was made for the purpose of determining the age of the various systems. This aging process revealed that the large funds do tend to be older on the average than the small funds. However, 8 of 11 funds in the small-fund group were established before 1950, which means that they have had sufficient time to adjust; and while age is significant, size is probably more important than age in the investment process. It appears that teacher retirement funds are presently somewhat affected in their investment policies and practices by both age and size.

Taxes

Taxes, while an important consideration to the investment practices of insurance companies and individuals, are of no significance to teacher retirement funds or, indeed, to any public retirement fund. As institutions of the states, they are subject neither to income nor capital gains taxes. As a result they do not need the tax exempt municipal bonds, and if they should happen to receive a short-term capital gain on a security this would have no tax significance for them.

Summary

It was pointed out in this chapter that the average fund is rather defensive as to financial risk in that it distributes its assets in such manner as to give considerable emphasis to securities of the United States government and its agencies, and little emphasis to corporate stock. They are, likewise, quite defensive in that they usually have portfolios of rather high quality and in that they are careful to diversify their investments into a large number of companies or industries. Because the flow of funds is regular, they are naturally inclined toward the defensive timing policy of investing their funds on a dollar-cost average basis.

In carrying out their policies, teacher retirement funds were found to incur considerable external restraint in the form of influence from savings bank and insurance laws, state and local patriotic considerations, and size and age characteristics. These restraints tend to influence them toward defensive investment policies and practices.

Notes

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2. Investment Bankers Association of America, *State and Local Pension Funds*, A Report Prepared by Thomas M. Adams and Gordon L. Calvert (Washington: Investment Bankers Association of America, 1960, 1962, 1964, 1966, 1968).
3. *Ibid.*, 1967.
4. Paul L. Howell, "High Cost of Conservatism in Pension Funds Investing," *Commercial and Financial Chronicle*, Vol. 187, p. 741 ff.
5. Harry Sauvain, *Investment Management* (third edition; Englewood Cliffs, New Jersey: Prentice Hall, 1967). p. 401.
6. *Standard Corporation Descriptions* (New York: Standard and Poor's Corporation, 1970). Special Table Section, pp. 4-32.
7. Merrill Lynch, Pierce, Finner and Smith, Inc. *Security and Industry Survey* (New York: Merrill Lynch, Pierce, Finner and Smith, Inc., Spring 1970), pp. 6-46.
8. Interview with Executive Secretary, Kentucky Teachers' Retirement Fund, July 12, 1967.
9. *Moody's Bond Record*, Moody's Investors Service, Inc. (Lancaster: March 1970) Vol. 37, No. 3.
10. *Standard and Poor's Stock Guide*, Standard and Poor's Corporation (New York: 1970).
11. Ralph E. Badger and Harold W. Torgerson, *Investment Principles and Practices* (fifth edition; Englewood Cliffs, New Jersey: Prentice Hall, 1961). p. 403.
12. *Ibid.*, p. 410.
13. Interview with Executive Secretary, Indiana Teachers' Retirement Fund, August 9, 1967.
14. *Moody's Bond Record*, pp. 84-132.
15. *Standard and Poor's Bond Guide*, pp. 146-173.
16. Kentucky, *Revised Statutes, Annotated* (Baldwin, 1943). sec. 161.430.
17. Virginia, *Code of Virginia, Annotated* (Mitchie Company, 1950) Title 51-111.24.
18. South Carolina, *Code of Laws, Annotated* (Mitchie Company, 1962) Vol. 1, Title 1.789.
19. *Standard and Poor's Stock Guide*, (May 1970).
20. Investment Bankers Association, (1968).
21. Interviews with Executive Secretaries of Indiana, Kentucky, Virginia, and Ohio Teacher Retirement Funds.
22. Kentucky, Teachers' Retirement System, *Twenty-ninth Annual Report* (Frankfort, 1969) p. 16.
23. Investment Bankers Association, 1968. Connecticut, Massachusetts, New York, Rhode Island.
24. Connecticut, *The General Statutes of Connecticut* (Norwalk, Connecticut: The O'Brien Press, 1962) Vol. II, Chapter 167, Section 10-179.
25. *The General Statutes of Connecticut*, Vol. VII, Chapter 641, Section 36-96.
26. Francis J. Ludes and Harold J. Gilbert, Editors, *Corpus Juris Secundum*, Vol. 90, Section 320, p. 506-507.
27. Investment Bankers Association, 1968. Alabama, Georgia, Kansas, Louisiana, Maryland, Michigan, Missouri, Nebraska, New Hampshire, New Jersey, Tennessee, Vermont, Virginia, Wisconsin.
28. Investment Bankers Association, 1968. Alaska, Colorado, Illinois, Kentucky, Minnesota, Nevada, Ohio, Texas.
29. Ohio, *Revised Code, Annotated*, Chapter 3309.15, Sub-section E.

30. Kentucky, *Revised Statutes*, Section 16.430, Sub-section E. (1966).
31. Investment Bankers Association, 1968. California.
32. Roger F. Murray, "Investment Management Performance of the System," *A Report Prepared by the Review Committee for New York State Teachers Retirement System* (New York: McKinsey & Company, 1964), p. 95.
33. Investment Bankers Association, 1968.

CHAPTER VI

SUGGESTED INVESTMENT POLICIES AND PRACTICES

A hypothesis presented in the introduction of this report was that it is possible to alter investment policies and practices of teacher retirement funds in such manner as to permit substantial increases in retirement benefits or corresponding reductions in the contribution rates. In the previous chapter, the various policies and practices presently being followed with regard to the investment of teacher retirement funds were explored. The study now will further analyze these policies and practices with reference to standards or norms and suggest possible ways in which policies may be altered in order to permit improved yields on the portfolios.

Objectives and Internal Constraints

An investment manager has two basic objectives—to keep the funds safely invested, and to earn a satisfactory rate of return on the assets entrusted to him. In order to bring out the significance of these major objectives for teacher retirement funds, they will be analyzed in light of the basic investment requirements of the funds.

Yield objective

One author[1] states the yield objective in the following manner:

> The primary investment objective of a pension fund administrator is to make the funds put at his disposal by state and employee contributions as productive as possible so that as large a sum as possible is available at time of retirement . . .

Another author[2] states that the objective is ". . . to maximize the rate of return on money invested." While the emphasis here is on a high rate of return, it does not mean that safety is to be ignored. In fact, the acceptance of too much risk for a given contractual yield, e.g., 7 percent, may result in losses of such magnitudes as to reduce the effective yield below the maximum possible at a lower contractual yield. On the other hand, acceptance of unnecessarily low contractual yields in order to secure unneeded safety will result in less income than would be possible under less conservative practices.

The importance of a high percentage yield has been emphasized by various authors interested in the management of portfolios and is demonstrated in Tables 6-1 and 6-2. In the first table, it will be observed that $100 of annual contributions invested at a compound rate of 5 percent would earn $258 over a 10-year accumulation period, $1307 over a 20-year

period, and $3644 over 30 years. In Table 6-2, it can be seen that $1000 in contributions ($100 x 10 years) plus these earnings provides an amount equal to $1258 at the beginning of the retirement period. If the average individual draws benefits over a 20-year period, this provides an annuity of $101 per year.

On the other hand, if the funds are invested at a 6 percent yield (Table 6-1), the $1000 of contributions would produce a fund of $1318 over a 10-year accumulation period and provide an annual annuity of $115 (Table 6-2), thus increasing the benefits by 13.9 percent. Further observation will reveal that extension of the accumulation period to 20 years raises the annual annuity to $265 if based on a 5 percent yield. With a 6 percent yield, the annuity is raised to $321 which results in an increase of 20.8 percent in the annual annuity for the 1 percent increase in yield. Carrying the process one step further to a 30-year accumulation plus a 20-year benefits period—a supposition which Moody's Investment Service holds not unlikely in the case of teachers[3]—it is shown that the 1 percent increase in yield leads to a 29 percent increase in the annuity (Table 6-2). In recognition of these findings, it seems obvious that teachers and state administrators cannot afford to ignore reasonable possibilities for increasing the yields on retirement portfolios.

TABLE 6-1–IMPORTANCE OF YIELD*
During Accumulation Period
(Investment assumed–$100 per year)

Accumulation Period	5% Yield	6% Yield
10 years		
Investment	$ 1000	$ 1000
Accumulation--end of 10th. yr.	1258	1318
Interest earned	258	318
Increase over 5%	--	23.3%
20 years		
Investment	$ 2000	$ 2000
Accumulation--end of 20th. yr.	3307	3679
Interest earned	1307	1679
Increase over 5%	--	28.5%
30 years		
Investment	$ 3000	$ 3000
Accumulation--end of 30th. yr.	6644	7909
Interest earned	3644	4909
Increase over 5%	--	34.7%

* William R. Minrath, *Handbook of Business Mathematics* (2d. ed.; Princeton: Van Nostrand Company Inc., 1967) p. 313.

TABLE 6-2—IMPORTANCE OF YIELD[a]
During Benefit Period
(Assumes 20 years—Benefit Payments)

Accumulation Period	5% Yield	6% Yield
10 years		
Amount accumulated[b]	$ 1258	$ 1318
Annual Annuity	101	115
Annuity Increase over 5%	--	14
Percent of Increase	--	13.9%
20 years		
Amount accumulated	$ 3307	$ 3679
Annual Annuity	265	321
Annuity Increase over 5%	--	55
Percent of Increase	--	20.8%
30 years		
Amount accumulated	6644	7909
Annual Annuity	535	690
Annuity Increase over 5%	--	155
Percent of Increase	--	29%

[a] William R. Minrath, *Handbook of Business Mathematics* (2d. ed.; Princeton: Van Nostrand Company Inc., 1967) p. 354.
[b] Accumulations are those at the end of accumulation periods—Table 6-1.

Safety

A second important objective is safety, which is a many-sided consideration for the retirement fund. In this section safety shall be considered from the viewpoint of the various risks involved with investments—namely, financial, interest rates, and purchasing power risks.

Financial risk

Traditionally, safety was usually looked upon as security of principal. This meant that at some definite future date the investment manager would return to the owner the same number of dollars as was initially received. It also meant that the owner could expect a steady flow of regular interest payments according to a pre-arranged contract. That teacher retirement funds have continued to emphasize this notion of safety is demonstrated by the relatively large proportion of their portfolios held in fixed-income securities (Table 6-2).

It is important to be concerned with financial risk to a certain extent, but financial risk has apparently been given too much consideration by some funds which hold over three-fourths of their respective portfolios in U. S. Government securities (Table 5-4). In other words, an investment

manager must balance this risk against yields and other investment risks in meeting the particular needs of each retirement system.

Interest-rate risk

Safety is also affected by other types of risk. One such risk is known as the interest-rate risk and results from changes in the interest rate on new securities. Many bonds which qualify as high grade in financial risk would incur considerable difficulty for an investor who might buy such a bond and hold it during a period when interest rates for new securities were rising. As many bonds specify 20 to 50 or even more years in their contracts, this condition has been prevalent with regard to bonds sold during the 1940's and 1950's and which have not yet matured during the current period. A review of the securities analyzed in one of the standard investment services reveals that there are many of these bonds.[4] A good example is American Telephone and Telegraph, which has high grade "Aaa" rated bonds (Table 6-9) outstanding, issued in 1946, carrying a contract yield of 2¾ percent, and maturing in 1982. While these securities are of unquestioned quality in financial risk, the owner has been subjected to a very high interest rate risk, and if he had desired to sell on September 15, 1969 the bid price would have been around $640.

Even U. S. Government securities incur interest-rate risk—a fact which is observed with regard to a treasury issue carrying a 3½ percent contract rate, issued in 1960, and due in 1990. Although very few people would question the safety of these securities, they were being offered for sale at a quoted rate of 69 or $690 on September 15, 1969. It becomes obvious that the principal could not be returned intact to the owner until these bonds have matured or the interest rate on new bonds has returned to somewhat lower levels.

A review of the portfolios of 4 retirement funds[5] reveals that they contain many bonds which have suffered from the interest-rate risk. It should be made clear, however, that there is no loss here in dollar amounts of principal for the retirement fund in the long-run. The retirement fund can hold the security until it matures at which time it will ordinarily be redeemed at face value. Because the fund can hold securities for a long term, and have them redeemed at face value, it does not need to be overly concerned about the interest-rate risk. The only real problem concerning interest-rate risk for the retirement fund is having to carry these low-yield securities during periods when higher yields are available on equally high-quality securities. While many of the managers would like to sell and replace them with higher yielding new issues, accounting methods tend to discourage it.[6]

Purchasing-power risk

Purchasing-power risk is the uncertainty attached to the investment with regard to the return of the same amount of purchasing power at some future date. Difficult as it may be to conceive of, there have been relatively

long periods in American history when this was not a problem. A review of the statistical record[7] reveals that the 1865-1890 period was one of declining prices as evidenced by the wholesale price index, which, based on 1910-1914, fell from 185 to 82 during the period. Also, in the more recent period, 1920-1932,[8] the wholesale price index, as based on 1947-49 prices, declined considerably from 63.4 to 42.1.

On the other hand, there were other periods when inflation was the general rule. During the 1901 to 1920 period, wholesale prices were rising. This rising price level is evidenced by an upward movement of over 25 percent in wholesale prices between 1901 and 1910 and a steeper rise exceeding 100 percent during the brief World War I period. It was during these two initial decades of the twentieth century that authors began to pay more attention to the problem of protecting investments against the purchasing-power risk.[9] Beginning in 1932, prices began to rise and have generally continued to rise, with only small interruptions, during the entire 38-year period to 1970. During this period, the wholesale price index has moved upward at a rate of over 2 percent annually.[10] With this kind of change in the price level, it is readily seen that the purchasing power of a long-term investment is being eroded away quite fast. For example, if a bond had been bought in 1940 with a 30-year maturity and paid in full in 1970, the owner would have received $1000 but he would have lost approximately 60 percent of his purchasing power. In view of this continuous inflation, investment advisers and managers must give increasing attention to the purchasing-power risk.

Liquidity

Liquidity is a safety precaution which involves holding funds in cash or in investment media which may be turned into cash in a very short time without monetary loss.[11] The investment manager needs enough liquidity to make sure he can meet obligations for benefits, payrolls of employees, forward commitments for security issues contracted for, and any other expenditures likely to arise. In order to make certain of having enough liquidity, one might simply place the whole fund in highly liquid items such as: savings accounts, short-term government securities, or prime commercial paper. This, however, would usually result in much lower return on the investment than could be obtained in reasonably safe longer-term securities. From these considerations, it can be seen that the investment manager is always on a tight rope trying to provide enough liquidity for safety but not so much that the yield turns out to be unacceptably low.

For the teacher retirement fund, however, liquidity does not need to pose a great problem. Education is a growing business that finds teacher employment continually increasing—a factor which is reflected in the growth of retirement funds. In Table 6-3, a sample of 10 funds, selected on the basis of every fifth fund in the basic data, shows the growth of fund assets to range from 10 to 16.7 percent annually during the biannual period of

TABLE 6-3–STATE TEACHER RETIREMENT FUNDS
Growth of Assets[a]
1965-1967
(Sample–Every Fifth Fund)

State	Annual Percent of Growth
California	13.0
Georgia	16.0
Iowa	13.8
Maryland	10.0
Missouri	14.8
New Jersey	11.8
Ohio	12.3
South Carolina	15.6
Vermont	10.8
Wyoming	16.7

[a] Compiled from Investment Bankers Association of America, *State and Local Pension Funds*, A Report Prepared by Thomas M. Adams (Washington: Investment Bankers Association of America, 1966 and 1968).

1965-67. Looked at from another viewpoint, annual receipts exceed payments for benefits and withdrawals. Table 6-4 shows that for 32 funds representing teachers and school employees only, payout was exceeded by receipts in all cases and ranged from 1.3 times in Indiana's fund to 6.9 times in the relatively young fund of South Dakota. In fact, 15 of the funds in this group, or approximately one-half of them, had ratios of receipts to payments equaling or exceeding 3 times. Furthermore, the major items are all highly predictable. Contribution rates are set by law and are unlikely to change drastically or suddenly. Benefits, also, are set by law and are reasonably predictable according to experience tables developed over the years of past operations. As it seems reasonable to assume that emphasis on educational training will continue to grow in the future, withdrawals from the funds should be rather orderly and predictable. In other words, a teacher retirement fund does not face the kind of liquidity problem which is prevalent in commercial banking where the bank must be ready to meet extraordinary demands of depositors rather quickly. Since its payments are more highly predictable, it is not susceptible to the kind of bunching that can befall a life insurance company; therefore, the retirement fund only needs to keep a very small portion of its assets

liquid in the form of cash, savings deposits, or other near-cash items. A second line of defense can be built by arranging maturities of long-term bonds and mortgages in such manner as to have some maturing each year. It is admitted that a fund may occasionally find it necessary to hold short-term items in anticipation of higher long-term interest rates; however, holding a large percentage of the portfolio in short-term investments is unnecessary in meeting normal liquidity needs of the system.[12]

TABLE 6-4—STATE TEACHER RETIREMENT SYSTEMS
Comparison of Receipts and Payments[a]
(Teachers and School Employees Only)

State	Receipts (1000)	Payments (1000)	Times Payments Covered
Alabama	35,150	11,602	3.0
Alaska	4,563	808	5.6
Arkansas	16,849	7,589	2.2
California	263,742	128,633	2.0
Florida	55,909	22,997	2.4
Georgia	58,409	15,229	3.8
Illinois	90,572	43,370	2.1
Indiana	32,831	25,371	1.3
Kansas	12,301	6,342	1.9
Kentucky	35,059	10,372	3.4
Louisiana	58,623	17,668	3.3
Massachusetts	56,842	41,184	1.4
Michigan	121,269	32,693	3.7
Minnesota	31,674	5,611	5.6
Missouri	37,984	10,768	3.5
Montana	7,425	3,712	2.0
Nebraska	5,052	2,208	2.2
New Hampshire	7,238	1,783	4.1
New Jersey	113,427	44,452	2.6
New Mexico	15,971	5,441	2.9
New York	291,117	68,553	4.2
North Dakota	3,079	1,927	1.6
Ohio	197,540	72,652	2.7
Oklahoma	20,602	10,323	2.0
Pennsylvania	182,391	80,121	2.3
South Dakota	2,456	354	6.9
Tennessee	23,394	8,301	2.8
Texas	171,912	56,313	3.1
Vermont	5,830	1,852	3.1
Washington	43,200	14,115	3.1
West Virginia	17,654	11,635	1.5
Wisconsin	65,310	14,170	4.6
Totals	2,085,355	778,149	2.7

[a] U. S. Bureau of Census, *Employee-Retirement Systems of State and Local Governments* (Vol. 6, No. 2 of the 1967 Census of Governments), pp. 32-58.

Marketability

Marketability means that a security enjoys a regular market within the system of security markets. Its relative marketability may be judged on the basis of bid and asked prices, with a wider spread between the two indicating a lower marketability. It is well to note that marketability and liquidity are not the same thing. That a security may be sold on the New York Stock Exchange signifies high marketability, yet it may be selling at a price far too low to cover the cost of the initial investment. During a period when stocks are depressed in price, many highly marketable issues are selling at prices much below the present owners' purchase price. They are highly marketable; but due to the financial sacrifice involved in limited to stock. As mentioned earlier, many high-grade bonds were selling their sale, they are presently highly illiquid. Furthermore, this trait is not in the New York bond market in 1969 and 1970 at prices far below their purchase price. As was true of the interest-rate risk, the teacher retirement fund does not need to worry about marketability to the extent an individual or a commercial bank might. This is true because it has almost no real liquidity problems and would not need suddenly to sell off securities in large quantities to meet payments. Its liabilities are rather long-term in nature—a fact which makes possible the holding of securities over rather long periods. As with liquidity, planning maturities will also aid in solving whatever problem may exist with respect to marketability.

Diversification

Another objective growing out of the safety problem is that of providing a diversified portfolio. Diversification was discussed in Chapter V as being a policy of investing in more than one industry, company, geographical region, or grade of security. This is a sound policy calculated to spread the risk. In quality, this means selecting some high grade securities to go along with medium-grade securities, thus making it possible to accept some of the medium-grade securities into the portfolio and raise the over-all yield without incurring too much overall risk to the fund. It also makes possible the giving of consideration to the purchasing power risk while continuing to pay a great deal of attention to the financial risk.

On the other hand, while diversification is beyond question as a policy for retirement funds, it must not be misused. To begin with, it should not be employed to cover up for poor investment analysis. A fund needs both diversification and good investment evaluation. Also, diversification should not be overused. Douglas Hayes[13] indicates that one of the most common undesirable features of portfolios which have been constructed without proper planning is that they may contain an excessive number of securities. Lawrence Jones[14] indicates that there is probably a limit to the reduction in risk obtainable by adding more assets to the portfolio and that this limit is probably around 50 to 100 items. A large fund may hold issues in many more companies than would be necessary for diversification, but

this may come about due to the large flow of funds seeking investment outlet relative to the size of individual security issues available. A small fund would probably find that adding more and more issues after a point would be unwise both because risk is not likely to be greatly reduced and because added items of investment tend to greatly increase investment expense. Of particular concern here is the investment in numerous issues of common stock—a media which requires constant analysis and review.

Timing

One other objective which grows out of the overall safety objective is that of purchases and sales of securities at the right time with reference to the level of prices in the securities market. In the previous chapter, it was brought out that since these funds have a rather even flow of contributions they have a natural inclination to use dollar-cost-averaging in the purchase of their securities. This means that they tend to put the same amount of money into securities at regular intervals; therefore, they buy more security units at low than at high prices and receive them at slightly below-average prices over the long run. Also, along with this policy, they ordinarily buy and hold securities for the long run. An alternate policy would be to take a more active managerial role with regard to timing the turns in the market, buying only when technical and economic indicators seem to indicate rising prices, and selling when the price of securities appears likely to decline. The latter type of management practice, however, is generally not considered good investment practice by experts in retirement-fund investment. In fact, Moody's Investment Service, in a report to the Ohio Teachers Retirement Fund, states:[15]

> Pension funds should be invested as received, i.e., fully invested at all times. This amounts to "dollar-cost-averaging." Forecasting of security prices and interest rates should not be indulged in to any important degree.

While this study subscribes to these defensive policies, this does not mean that securities are never to be sold. Securities which appear to be weakening should be removed from the portfolio. Bonds which carry very low contractual yields probably should be sold when newer high-yielding bonds can be purchased to replace them and raise the yield sufficiently to cover capital loss on the old bonds within a reasonable period.[16] There may be times when the market is so clearly in a downward tail-spin that funds should be held in short-term securities in anticipation of a more favorable investment climate. These variations in the defensive policy, however, should be applied with moderation. Especially, the policy of holding short-term securities should be employed only in very exceptional times.

A Model Portfolio

On the basis of considerations just discussed, proposed herewith is what may be regarded as an appropriate long-term portfolio distribution

for the average teacher retirement fund, including suggested types of investment media and corresponding proportions of assets. This "model" is presented in Table 6-5.

In developing this model, the writer gave much consideration to the investment objectives and constraints discussed in the previous section. Further support for a distribution of assets corresponding to the model portfolio is found in the investment experience of private retirement systems and in the investment counsel and advice of professional consultants (Table 6-6).

The proposed portfolio distribution offers a great deal of flexibility. Flexibility follows the recommendation of Soldofsky[17] for the Iowa Public Employees Retirement System and appears to be a sound practice for several reasons. In the first place, it would be difficult to say that there is exactly any one percentage which should apply to one of these categories of investment for any one fund, at any and all times. Using a flexible range also permits adjustments to allow for adapting to changes in the market situation; e.g., mortgages at one time may be quite attractive in terms of yields relative to corporate bond yields. As a result, the fund manager may be justified in increasing the flow of new money into mortgages while slowing up on purchases of corporate bonds. At another time, the reverse may be true and the fund manager may buy heavily in corporate bonds while leaving off purchases of mortgages. With regard to cash and government securities, it permits adaptation to the varying liquidity needs. Certainly, a fund with a low ratio of inflow-outflow of 1½ to 1 would need to be more concerned with cash and government securities than one which had a rather high ratio of 3 or 4 times in the ratio of receipts to payments.

TABLE 6-5—STATE TEACHER RETIREMENT FUNDS
Proposed Portfolio Distribution

Investment Media	Percent of Assets
Cash and Deposits	.5- 1.0
U. S. Government Securities	2.0- 4.0
Municipal Bonds	None
Corporate Bonds	30.0-60.0
Mortgages	15.0-25.0
Common Stock	25.0-35.0
Preferred Stock	None
Other	.0- 5.0

TABLE 6-6—RETIREMENT FUND PORTFOLIOS
(Relative Distribution)
Experience and Recommendations

Investment Media	State Teachers Retirement Funds[a] (1967)	Private Noninsured Retirement Funds[b] (1967)	TIAA-CREF[c] (1967)	Paul Howell[d] (1962)	Robert M. Soldofsky[e] (1964)	Roger F. Murray[f] (1964)
Cash and Deposits	.5	1.8	.5			
U.S. Governments	18.9	3.0	.3	0-5	2-5	2
Municipals	2.9	0	0	0	0	0
Corporate Bonds	54.2	35.6	22.2	40-60	30-60	40
Mortgages	13.2	5.5	32.8	20-25	10-25	30
Stock	8.6	48.5	38.8	20-25	15-25 5-10[g]	20
Foreign Governments	1.4		.9			
Real Estate			3.1			8
Other	.4	5.7	1.3		0-5	

[a] Compiled from Investment Bankers Association, *State and Local Pension Funds*, (1967).
[b] Securities and Exchange Commission, *Statistical Bulletin* (December 1969), p. 26.
[c] Compiled from the *Annual Report of Teachers Insurance and Annuities Association and College Retirement Equities Fund* (New York, 1967), pp. 14-26.
[d] Paul L. Howell, "Management of California Pension Funds" *California Management Review*, (Fall 1962), pp. 33-42. Mr. Howell is a pension consultant and Third Deputy Controller of the City of New York in charge of a $3.2 billion investment portfolio belonging to the city's pension fund.
[e] Robert M. Soldofsky and Ernest V. Zuber, *The Investment Policies of the Iowa Public Employees Retirement System—Review and Recommendations*, Bureau of Business and: Economic Research, College of Business Administration, University of Iowa (Des Moines, 1964), p. 1.
[f] Roger F. Murray, "Investment Management Performnnce of the System," *New York State Teachers Retirement System Studies*, A Report Prepared by the Review Committee (New York: 1964) p. 97. Roger Murray has served as Investment administrator for the Bankers Trust Company of New York City, Executive Vice-President of the TIAA-CREF, and has been Associate Dean of the Graduate School of Business of Columbia University.
[g] This recommendation was for preferred stock.

In the second place, management is an important variable in investment practices. It will be observed that there is considerable variance among the recommendations of expert financial advisers; therefore, it seems logical to assume that equally good management may vary considerably in its analysis of the future with regard to each of these categories.

One is reminded, also, that one of the major criticisms presently leveled at retirement funds is that legislatures have tended to set inflexible requirements in designating securities and relative quantities of each which may be purchased.[18]

In setting forth this portfolio distribution, it must be emphasized that changes in the distribution to conform to the recommendation may take some time, i.e., 3 to 5 years. This will be necessary because of the various changes which take place among yield differentials over time, due to the

adjustments which would be necessary in management and the fact that an established fund may not be able to sell off securities and reinvest the funds immediately without undue losses.

In presenting this proposed portfolio, the following assumptions are being made:

1) that teacher retirement funds will continue their growth for a considerable period into the future;
2) that security prices and yield differentials will continue similar patterns in the future as have been observed in the past;
3) the tax policies toward securities will not change significantly;
4) that statutes can and will be altered when the logic of change is presented to the various state officials; and
5) that the model fund is approximately $300 million—a magnitude which stands slightly below the arithmetic mean size of $340 million but somewhat above the median size of $218 million (Table 5-10).

Cash and deposits

Cash and deposits for a retirement fund held for liquidity purposes should be sufficient to meet the needs of the system for payments of all benefits, withdrawals, and other expenditures without delay. As all of these items are highly predictable, cash flow should be planned in such manner as to make sure there will be enough but not too much held in this liquid form. Even 1 percent of a fund's assets needlessly held in this manner can be quite a sacrifice. If the model fund of approximately $300 million held 1 percent of its fund needlessly in a savings account at 5½ percent when the funds could be invested at 8 percent or better in high grade bonds, this would cause the fund to lose $75,000 in interest annually. On observing the significance of this, one is led to ask how much should be kept in cash and savings deposits. In order to estimate the cash needs for meeting payments, the payments of every fifth fund for teachers or teachers and school employees only were compared with fund assets (Table 6-7). From these calculations, it will be seen that the annual payments compose an amount equal to 4.3 to 8.8 percent of the assets of each respective portfolio. Cash to meet the entire payments for one month would not need to exceed .8 of one percent in any of the funds in the sample. In fact, 5 of the 7 funds could have met their payments with cash in the amount of .5 of one percent of the assets if they had incurred no inflow of funds at all during the month. Since inflow of funds exceeds outflow in every case for the 50 funds, and as there is no reason why fund flow should not be reasonably regular, the cash holding does not need to be large. It would appear that an average of .5 of one percent should be adequate. In support of this conclusion, it will be observed that TIAA-CREF has been getting along with .5 of one percent in cash, and neither Murray, Howell, nor Soldofsky mentioned cash in his recommendation (Table 6-6). Finally, as the teacher retirement funds on the average have been operating with only .5 of 1 percent of their assets in cash, it appears

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TABLE 6-7—STATE TEACHER RETIREMENT SYSTEMS
Payments Related to Assets
(dollars—thousands)
1966-1967

State	Portfolio[a] Size	Payments[b]	Payments Percent of Portfolio
Alabama	217,523.9	11,602.0	5.3
Florida	260,995.0	22,997.0	8.8
Kentucky	178,411.1	10,372.0	5.8
Missouri	219,235.2	10,768.0	4.9
New Mexico	63,169.4	5,441.0	8.6
Pennsylvania	1,552,641.8	80,121.0	5.2
Vermont	42,745.9	1,852.0	4.3

[a] Compiled from Investment Bankers Association *State and Local Pension Funds*, 1967.
[b] U. S. Bureau of Census, *Employee-Retirement Systems of State and Local Governments*, (Vol. 6, No. 2, of the 1967 Census of Governments), pp. 32-58.

that .5 of 1 percent of assets in this form is a reasonable recommendation for the average fund.

U. S. Government securities

A retirement system should set up a small portion of its funds to act in a similar manner as a secondary reserve for a bank in meeting liquidity needs. For a retirement fund, this secondary reserve does not need to be large. It should be invested in highly marketable U. S. Government securities, some of which should be in short-term maturities of not more than 5 years. As short-term securities are susceptible to much less fluctutation in price than long-term securities, holding short-term securities tends ot prevent loss due to interest rate changes; therefore, the more likelihood there is that these funds would need to be liquidated to meet contingencies, the greater the portion which should be placed in very short maturities.

Turning to Table 6-6, it will be observed that private noninsured pension funds have 3.0 percent of their assets in U. S. Government securities, while TIAA-CREF maintains an amount equal to only .3 percent of the portfolio in this form. On considering the counsel of the 3 investment advisers (Table 6-6), it is significant that neither of them advised that more than 5 percent of the portfolio be maintained in this medium. It is proposed here that if U. S. Government securities, in relatively short maturities, were maintained at an amount equaling approximately one-half

of the annual payments for benefits, withdrawals, and expenses, these securities would provide ample protection in case of a delay in the flow of funds from the respective state, or in case withdrawals should turn out to be much higher than anticipated. It will be recalled from the previous discussion on cash that annual payments tend to range from 4.3 to 8.8 percent of assets (Table 6-7). Accordingly, approximately 2.2 to 4.4 percent of the portfolio in short-term U. S. Government securities would be needed in order to meet the usual possible needs for secondary reserves. While the management of each fund should carefully study its own particular needs in this regard, the foregoing analysis appears to support the conclusion that U. S. Government securities in the amount of 2 to 4 percent of assets—the proposed recommendation of this study—should be more than adequate for any contingencies which may arise. If, due to state failure to pass along cash or provide money appropriated immediately, a fund cannot get along on this amount in government securities, it would seem that this fact should be brought to the attention of officials involved so as to make more productive investment management possible.

As was indicated in Chapter V, an average teacher retirement system has 18.9 percent of its funds in U. S. Government securities. If an average fund had only 4 percent of its assets so invested, it would be possible to invest the other 14.9 percent in higher yielding securities, or $44,700,000 out of the $300,000,000 model fund at the higher yield. Referring to Table 6-8, one may see that over the past 10 years, 1959-68, this amount could have been invested in high grade "Aaa" rated corporate bonds at an average yield of 4.74 percent, while in long-term government bonds the yield would have been approximately 44 basic interest points lower at 4.30 percent over the same period. As the average of the four top grades of corporate bonds reported in Moody's Investment Service was 5.05 percent for this period, surely the fund manager could have invested these contributions in such manner as to have gained as much as 60 basic interest points. A change of this nature would have meant that approximately $268,000 additional income could have been taken in on the average by the model fund each year.

Municipal bonds

As has been mentioned earlier in Chapter V of the study, the term "municipal bonds" is used to refer to both bonds issued by states and their respective local governments. Referring to Table 6-8, it is of interest that the yields on these bonds are generally much lower than either those for corporate bonds or U. S. Treasury bonds. During the past ten years, the differential between "Aaa" long-term government bonds and "Aaa" municipal bonds has often been 125 basic interest points or more. The difference between the average corporate bond and average municipal bond yield as reported by Moody's over the ten-year period 1959-68 (Table 6-8) was computed at 1.44 percent. The reason for this differential is not that the risk is less for a municipal bond than for a U. S. Government

TABLE 6-8—YIELD TABLE[a]

Securities	1952	1955	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	Average 1959-1968
U. S. Govt's. Long term	2.68	2.84	4.07	4.01	3.90	3.95	4.00	4.15	4.21	4.65	4.85	5.25	4.30
Municipals													
Aaa	1.80	2.17	3.35	3.26	3.27	3.03	3.06	3.09	3.08	3.67	3.74	4.21	3.38
Aa	2.00	2.32	3.55	3.51	3.46	3.17	3.17	3.19	3.25	3.76	3.86		
A	2.37	2.66	3.83	3.77	3.66	3.32	3.30	3.32	3.38	3.95	4.08		
Baa	2.70	2.88	4.24	3.97	4.33	3.67	3.58	3.54	3.57	4.21	4.30	4.88	
Composite	2.14	2.48	3.60	3.92	3.56	3.55	3.22	3.29	3.18	3.56	3.74	4.48	3.61
Corporate													
Aaa	2.96	3.06	4.38	4.41	4.35	4.33	4.26	4.40	4.49	5.13	5.51	6.18	4.74
Aa	3.04	3.16	4.51	4.56	4.48	4.47	4.39	4.49	4.57	5.23	5.66	6.38	
A	3.23	3.24	4.67	4.77	4.70	4.65	4.48	4.57	4.63	5.35	5.86	6.54	
Baa	3.52	3.53	5.05	5.19	5.08	5.02	4.86	4.83	4.87	5.67	6.23	6.94	
Composite	3.19	3.25	4.65	4.73	4.66	4.62	4.50	4.57	4.64	5.34	6.82	6.02	5.05
Mortgages													
F.H.A.[b]		4.59	5.71	6.18	5.69	5.60	5.46	5.45	5.47	6.38	6.55	7.21	5.97[c]
Conventional[b]								6.35	6.23	6.85	7.14	7.72	6.86

[a] *Moody's Investment Service*, Industrials and Municipals and Governments Manuals.
[b] *Federal Reserve Board*, Federal Reserve Bulletin.
[c] Five-year Average.

bond or a corporate bond of the same grade. To the contrary, it is due to the autonomous nature of the states which frees them and their agencies from taxation by the Federal Government. This being the case, they can issue bonds paying interest which is not subject to the federal income tax—a factor which means that individuals in the higher income tax segment of the population are willing to purchase the bonds at lower yields than if they were not tax-exempted.

As has been shown in the earlier discussion, teacher retirement funds once purchased municipal bonds in quite large quantities and still hold some of them in their portfolios. In fact, it was considered the loyal thing to do to help one's community build schools or provide funds for other worthy projects. It was not generally understood that, as tax-exempted state agencies, the retirement funds were losing a great deal of potential income by this practice. Their present holding of 2.9 percent of the average portfolio does not seem large; however, for the model fund of $300,000,000, this means applying a lower rate to approximately $8,700,000 of the assets. Even a 1 percent increase in yield would amount to $87,000 in annual interest, and there should have been no trouble at all in doing much better throughout the period. Furthermore, 1 fund which had $94,152,500 in these securities was losing the opportunity to receive at least $1 million more in annual income which would have been available in high-grade corporate bonds.

Corporate bonds

Corporate bonds, as used here, shall refer to mortgage bonds, debentures, equipment trust certificates, and conditional sales agreements. These securities represent loans to the corporation and as such bear fixed rates of interest. Since there are many corporations in the United States, there are thousands of issues of corporate bonds available in various grades and carrying many different provisions as to yield, call option, and length of maturity. It is the contention of this author that a retirement fund should give considerable consideration to these securities in developing a suitable portfolio.

Quality

Corporate bonds are available in varying degrees of financial risk. Fortunately, the investor has an abundance of information available for analyzing the quality of securities—a factor which was not always present in the past. Among the various investment services are the well-known services offered by Moody's Investment Service, Inc.,[19] and Standard and Poor's Corporation.[20] Since the ratings offered by the two services are quite similar, those of Moody's have been included in the text as Table 6-9. The investment manager finds these quite helpful as a source of ready information but should be able to go to the basic source of information contained in the large manuals of these services and many other useful

TABLE 6-9
KEY TO MOODY'S CORPORATE RATINGS[a]

Aaa

Bonds which are rated Aaa are judged to be of the best quality. They carry the smallest degree of investment risk and are generally referred to as "gilt edger." Interest payments are protected by a large or by an exceptionally stable margin and principal is secure. While the various protective elements are likely to change, such changes as can be visualized are most unlikely to impair the fundamentally strong position of such issues.

Aa

Bonds which are rated Aa are judged to be of high quality by all standards. Together with the Aaa group they comprise what are generally known as high grade bonds. They are rated lower than the best bonds because margins of protection may not be as large as in Aaa securities or fluctuations of protection elements may be of greater amplitude or there may be other elements present which make the long term risk appear somewhat larger than in Aaa securities.

A

Bonds which are rated A possess many favorable investment attributes and are to be considered as higher medium grade obligations. Factors giving security to principal and interest are considered adequate but elements may be present which suggest a susceptibility to impairment sometimes in the future.

Baa

Bonds which are Baa are considered as lower medium grade obligations, i.e., they are neither highly protected nor poorly secured. Interest payments and principal security appear adequate for the present but certain protective elements may be lacking or may be characteristically unreliable over any great length of time. Such bonds lack outstanding investment characteristics and in fact have speculative characteristics as well.

Ba

Bonds which are rated Ba are judged to have speculative elements; their future cannot be considered as well assured. Often the protection of interest and principal payments may be very moderate and thereby not well safeguarded during both good and bad times over the future. Uncertainty of position characterizes bonds in this class.

B

Bonds which are rated B generally lack characteristics of the desirable investment. Assurance of interest and principal payments or of maintenance of other terms of the contract over any long period of time may be small.

Caa

Bonds which are rated Caa are of poor standing. Such issues may be in default or there may be present elements of danger with respect to principal or interest.

Ca

Bonds which are rated Ca represent obligations which are speculative in a high degree. Such issues are often in default or have other marked shortcomings.

C

Bonds which are rated C are the lowest rated class of bonds, and issues so rated can be regarded as having extremely poor prospects of ever attaining any real investment standing.

[a] *Moody's Bond Record*, Moody's Investment Service, Inc. (Lancaster: March 1970) Vol. 37, No. 3, p. 3.

available sources to conduct his own analysis when any question arises in the decision-making process.

As for the qualities of securities which the pension fund should purchase, there is obviously a great deal of difference of opinion. State statutes have generally favored the top 2 or 3 grades. On the other hand, there is a great deal of evidence that funds should have the privilege of purchasing these securities as low as the fourth or fifth grades. As a matter of fact, Sidney Homer,[21] a specialist in bond financing, feels that there may be times when it would be advisable to buy bonds of the Caa class—those in default. These contentions get support from two sources.

First, it is contended by some students of finance that the ratings of the various services tend to be overly conservative. Soldofsky reviews a number of conditions which have changed with reference to the earnings coverage and cash flows since the ratings were developed—conditions which he indicates have not been considered in the ratings. These conditions are:

1. Now corporate bonds are almost always repaid regularly over their lifetime rather than the total amount of the original issue being paid at maturity.
2. The accounting policies selected among those permitted by the Internal Revenue Service generally understate or dampen net income and earnings coverage. For example, when part of research and development expenditures may be reported as an asset or charged as an expense, the latter policy is often followed. A number of corporations, including U. S. Steel, have varied their pension costs from year to year depending upon their profitability in each year. In the simpler world prior to 1940 and before the era of high federal income tax rates, such considerations were relatively unimportant.
3. The three-year net operating loss carryback section of the *Internal Revenue Code* provides firms that have been profitable with large potential cash refunds in the event of losses. The net operating losses may also be carried forward for five years if not exhausted by the carryback provisions.
4. Depreciation, a noncash charge, has grown to three times the size of net corporate income. Almost no depreciation was acknowledged in income statements prior to World War I. The rise of accounting, the growth in the use of plant and equipment in the productive process, and the increase in federal income tax rates beginning in World War II have made depreciation the dominant factor in corporate cash flows. The cash flow, which includes depreciation, is not used in the traditional coverage test. For corporation after corporation, these depreciation charges alone are several times the interest charges . . .[22]

In the second place, evidence that purchase of medium and lower-rated bonds is often a good buy comes from the work of Hickman[23] who did a study on corporate bond quality and performance covering straight bonds of domestic corporations for the period 1900 to 1944. This study indicated that, even after defaults were compensated for, the bonds rated from fifth through tenth rank offered a considerably better return than the highest-rated securities. Also, if purchased at the time of default, defaulted bonds held to maturity would have earned an average of 18.3 to 23.1 percent.

While this paper does not take the view that these low-grade defaulted bonds should be purchased, it is the contention that the investment manager should be free, on proper analysis and with attention to diversification, to purchase from among the top 4 or 5 grades. That this is not an untried procedure is evidenced in Table 6-10, which shows recent quality

TABLE 6-10–SELECTED RETIREMENT SYSTEMS
Corporate Bonds Quality Distribution

Name of System	Aaa	Aa	A	Baa	Ba or less	NR[a]
TIAA[b]	18.26	26.47	33.88	16.02	5.37	
Wisconsin[b]	16.11	27.44	40.92	13.22	2.31	
Kentucky	13.50	13.60	39.50	22.70		10.7

[a] Kentucky fund ratings were compiled by the author from Moody's Investment Service. NR refers to those which were not publicly rated–usually direct placements.
[b] Robert M. Soldofsky and Ernest V. Zuber, *The Investment Policies of the Iowa Public Employees Retirement System–Review and Recommendations*, Bureau of Business and Economic Research, College of Business Administration, University of Iowa (Des Moines, 1964), p. 39.

diversification in the bond portfolios of Teacher's Insurance and Annuity Association, the Wisconsin Investment Board, and the Kentucky Teachers' Retirement System. It will be observed that TIAA and KTRS have over 20 percent of their bond portfolio in the fourth and fifth grades, while the Wisconsin Investment Board has invested the funds of the various agencies of that state to the extent of over 15 percent in these securities.

In this discussion of medium- and low-grade bonds, it will be noticed that the stipulation above is not that they should be bought at any one particular time but only when and if the yield differential is sufficient to make them attractive. Sidney Homer, writing in 1964, pointed out that the yield differentials had been greatly reduced over the past few years until spreads were sometimes as low as 10-20-40 base points while some years ago the spreads might have run 50-100-200 among the top 4 grades. It is his feeling that these low differentials are not sufficient to compensate for the risk and that the best values are among the highest quality issues. Homer is thinking in terms of the price fluctuation of the bond in case its credit position weakens, and says that taking a real risk for 20 basic interest points may mean the possibility of 25 points in principal.[24] However, it will be noticed from Table 6-8 that yield spread has improved considerably since 1964 and that the yield differential between "Aaa" and "Baa" bonds is currently ranging around 75 basic points. At a time when interest rates are quite high and likely to decline, the fund manager may well find it desirable to purchase some of the "Baa" securities. This would be especially

true if protected with good call protection or deep discounts. Although the portion in "Ba" class bonds should be kept to a very small proportion largely composed of those issues which may have weakened after purchase, the combination of "Baa" and "Ba" bonds in the amount of 20 percent of the portfolio probably would not be too high if balanced against a similar relative amount of "Aaa" bonds.

Maturities

In order to assure that some securities will be maturing each year, care should be taken to set a schedule of needed maturities for the bond and mortgage portions of the retirement fund. In this manner, as the fund matures and the inflow-outflow ratio declines, it is assured that funds will be available on an orderly basis for meeting any unforeseen needs which may arise.

While keeping the idea of staggered maturities in mind, the investment manager also has to think in terms of length of maturities available with reference to available yields. One usually expects a greater yield for long-term securities than for intermediate or short-term issues. Since a pension fund can hold its portfolio over a long period, it should seek these long-term securities and reap the added benefits. This is especially true when interest rates are abnormally high—a condition existing during the 1969-70 period. On the other hand, if interest rates are abnormally low it may be wise to make new purchases from the intermediate and short-term issues in anticipation of shifting to longer term securities when interest rates have risen.[25]

Call protection

The call feature permits the issuer to recall the bond at par or some specified price above par value after a designated date. This feature is usually not of great significance if the interest rate is quite low. On the other hand, when interest rates are abnormally high as at present, it is important to seek bonds which are protected by a rather lengthy call or which have no call feature at all. Since many bonds presently carry a call feature, a great deal of protection may be afforded against the call by purchase of high or medium quality deep discount bonds—a feature which, in effect, tends to make them immune to call options.

Direct placements

Thomas Atkinson and Elizabeth Simpson[26] feel that the most important single change in bond offering in the 1900-1943 period and in the post World War II period has been that direct placements have moved from 7 percent of total bonds offered to almost 50 percent of all bonds sold in the latter period. Private placement simply means that the issue is handled privately between the issuer and the purchaser, thus allowing the issuer to avoid registration with the Securities and Exchange Commission and making it possible to negotiate charges in the contract with much

greater ease. As a result, the issuer can afford to offer a higher yield to the lender. On the other hand, there is some inconvenience to the lender in that his bond is not as marketable as a public issue. It will be recalled that for the retirement fund, with its built-in ability to hold long-term securities and its small need for liquidity, marketability does not pose a serious problem. The only significant reason that a fund might need the marketability of public issues would arise in case of rising interest rates. During periods of high interest rates, the fund might desire to trade off some of its low-yielding bonds and secure higher-yielding issues. This would require finding a market; however, there would be no great hurry. Marketability probably is of little significance even in such cases.

As already discussed, many of the state teacher retirement funds are buying directly placed corporate bonds. Approximately one-third to one-half of the corporate portfolio of Virginia's fund is composed of privately placed issues (Table 5-14). The manager of the Ohio fund has indicated that a high proportion of its current bond purchases are direct placements. Although the yield differential over publicly placed issues has been declining for direct placements in recent years, these issues continue to be desirable for the average and large pension fund as a means of securing large quantities of securities in one transaction.[27]

Corporate bonds offer high yields in comparison with municipal and government issues (Table 6-8). One may observe that over the past 15-20 years, yields on "Aaa" corporate bonds have consistently exceeded yields on "Aaa" municipal bonds by approximately 110 to 190 basic interest points. They have also exceeded United States government long-term bond yields by 25 to 100 points. Yields on the medium-grade corporate issues have ranged as much as 1.8 percent greater in contractual yield than on long-term U. S. Government securities.

Portfolio proportion

In consideration of the strong yield, regular flow of income, and the satisfactory amount of safety which tends to flow from investment in corporate bonds, they should occupy a very strong position in the average teacher retirement fund portfolio. Referring to Table 6-6, it will be seen that corporate securities compose 35.6 percent of the average private noninsured pension fund portfolio, and 22.2 percent of the TIAA-CREF fund. One may recall that the advice of the 3 investment advisers (Table 6-6) is that between 30 and 60 percent of the portfolio be placed in this investment medium. In consideration of this investment experience, the author proposes that a suitable range would be 30 to 60 percent of assets in corporate bonds—the variance to depend on a number of differences among the funds. A great deal of the difference will depend on opportunities arising in other investment media, e.g., mortgages and common stock. Investment in corporate bonds may also depend on how well prepared management may be with regard to handling mortgages, common stock, and other types of investments. Likewise, the relative amount held in

this form may depend somewhat on management's judgment with reference to future expectations for each type of investment opportunity.

For most funds, holding 30-60 percent of assets in corporate bonds would not involve a drastic change in the proportion of these securities in the portfolio. Since a few funds do not invest in corporate bonds to a great extent, it is believed that they could improve their performance considerably by increasing their holdings in a well-diversified group of these securities. On the other hand, a few funds may be putting too much emphasis on this medium. These few might improve their overall yield by buying more of other suggested investment securities, i.e., mortgages or common stock.

Mortgages

Real estate mortgages are usually broken down into two groups: those which are F.H.A.-insured and V.A.-guaranteed, and the conventional type. Both are generally held suitable for retirement funds providing certain conditions are met.

Safety

When properly selected, mortgages are evidently a reasonably safe investment. This was not always true, but during recent years following the bad experience of the depression years, a number of changes were made which have improved their safety. Of particular importance in these changes have been the long-term amortization of loans, more thorough investigation and evaluation of property involved, and the creation of the F.H.A.-insured mortgage. When the loan is an F.H.A. or V.A. loan it is generally assumed to be as safe as the United States government. However, when conventional mortgages are concerned, the management of a pension fund must be much more expert in the field in order to evaluate properly the safety of the loan. To be sure, these loans may be handled by a mortgage broker and serviced under a contract which is carried out for a fee of one-half of one percent of the principal balance of the loan.[28] Although it is possible to operate under these conditions even in conventional mortgages, the retirement fund probably should not enter the conventional loan market unless it is prepared to employ management qualified to evaluate real estate property.[29]

Yields

The reader will observe that during the past 10 years (Table 6-8), yields on F.H.A. and V.A. mortgages have often averaged as much as 150 basic interest points more than for "Aaa" bonds. Further study reveals that an average of the yields over the past ten years, 1959-1968, was 5.05 percent on the top four grades of corporate bonds while the F.H.A.-V.A. mortgages averaged 5.97 percent. If servicing is done by a mortgage broker, this lowers the effective yield on mortgages by the one-half of 1 percent servicing fee. Even after the servicing fee is paid, however,

40 basic interest points would have been earned over the average corporate bond. There were times during the period, on the other hand, when the mortgage yield differential was not sufficient to make them very attractive—particularly in the F.H.A.-V.A. group.

As for conventional mortgages, their yield even in the most recent years has generally been 80 to 100 base points above the average yield on "Baa" corporate bonds. This has made them attractive to those institutions with management facilities enabling them to carry out the necessary administration. It would appear that an average teacher retirement fund should take advantage of opportunities for increasing its overall yield through mortgages.

Portfolio proportion

It will be recalled that the suggested portion of the model fund to be composed of mortgages in the long run is 15 to 25 percent (Table 6-5). This follows the basic approach of diversifying the portfolio so as to prevent undue loss of income or principal in the event of unforeseen changes in the financial picture at some time in the future. It also offers the chance for greater earnings than can be obtained in municipal bonds, U. S. Government bonds, and often in the average of the top 4 grades of corporate bonds. Furthermore, it will be seen in Table 6-6 that while private noninsured funds have not invested a great portion of their assets in mortgages, TIAA-CREF has invested heavily in these media. In fact, when considered alone, TIAA has invested over 50 percent of its funds in mortgages, with approximately two-thirds of the holdings in conventional loans.[30] Likewise, a survey of life insurance investments reveals that companies are investing a growing amount in mortgages—heavy emphasis having been placed on conventional mortgages while slightly deemphasizing the F.H.A.-V.A. group.[31] Further support for placing moderate portions of the portfolio in mortgages comes from the investment advice given by the three investment advisers mentioned earlier. It will be observed that they recommend that from 10 to 30 percent of the portfolio be placed in mortgages (Table 6-6).

Noting that teacher retirement funds have an average of 13.2 percent of the assets invested in mortgages, a change to 20 percent so invested for the average fund of $300,000,000 would involve a change of 7.8 percent or $23,400,000 from other media to this type of investment. As F.H.A. and V.A. mortgages have averaged 123 basic interest points more than the average of "Aaa" grade corporate bonds during the past 10 years, it would seem fair to assume that even a fund which hires its servicing done could have secured an additional one-half of 1 percent yield on the average, by placing this additional $23,400,000 in F.A.A.-V.A. mortgages. This would have brought in an additional amount of revenue equal to $117,000. If the fund had employed sufficient management to handle conventional mortgages, an additional 50 points could have been earned annually, over the period.

At present, however, it appears that funds desiring to purchase mortgages must prepare to handle the conventional type. If they are not able to do so, they may just have to place their funds in bonds or other media until mortgage yield differentials become more attractive.

Common stock

A main contention here is that the average retirement fund should increase its holdings in common stock. While some of the retirement system members and state administrators may not be highly receptive to this proposal, conservatism toward common stock appears to be causing the funds to miss a great opportunity to raise benefits or decrease contribution rates.

Yield and safety

It is the contention of this author that yield in the long run can be raised considerably by purchasing common stock and that the additional income can be secured with a reasonable degree of safety. That this contention stands on a sound foundation is backed by a considerable amount of research.

Beginning in 1924, Edgar L. Smith presented the idea which has since come to be known as the "Theory of Common Stock." Presented in his book, *Common Stock and Long Term Investments*, it is as follows:

> (1) Over a period of years, the principal value of a well-diversified holding of the common stocks of representative corporations, in essential industries, tends to increase in accordance with the operation of compound interest.
>
> (2) Such stock holdings may be realized upon over a term of years to pay an average income return on such increasing values of something more than the average of current rate on commercial paper.[32]

Smith based his theory on a series of twelve tests in which he selected ten stocks for a hypothetical investment of $1000 per stock selection, and an equal investment of $10,000 in high grade bonds for each test. The stock included issues from industrial companies, public utilities, and railroads. They were largely selected from those listed on the New York Stock Exchange and on the basis of those having the largest volume of transactions during the week selected—this process having been followed for the purpose of making the selection random in nature. The tests basically involved two periods—1901 to 1922 which was primarily a period of rising prices, and 1866-1897 which was one of falling prices. Taking into account both appreciation and dividends as a return on stock and assuming a 4 percent return on the bonds, he found that stock outperformed bonds in all tests except one. Furthermore, bonds had been badly beaten in that the stock performance exceeded that of the bonds by amounts ranging from $3,329.72 to $21,954.72 on the eleven tests which had favored stock while the 1 test favoring bonds showed stock at a disadvantage of −$1,012.00.[33]

Smith's theory has received much more testing over the years. Van Strum, Rose, Harold,[34] and Spurrier[35] each conducted various tests and found strong support for the theory; however, because of the limited number of securities involved, all of these tests were open to question.

Recently, using a computer, Lawrence Fisher and James Lorie[36] have undertaken the very formidable task of computing the rate of return on common stock sold on the New York Stock Exchange during the period January 1, 1926 to December 30, 1960. This study was much more detailed than the others in that it included some 1700 securities and carried them through 22 time periods within a 35-year period. The major conclusion of this study with reference to a retirement fund is that an investment into each list d security on the New York Stock Exchange in 1926, after accounting for all losses, would have gained in value through reinvested dividends and appreciation at the rate of 9 percent compounded annually (tax-exempt earnings). Computation of the average yield on "Aaa" bonds has been computed by Moody's Investment Service, Inc. since 1919.[37] An average of these yields on "Aaa" bonds for the 1926-1940 period—concurrent with the Fisher and Lorie study—shows that high grade bonds would have earned an average of 3.49 percent annually.

Some authors believe a diversified common stock fund which is carefully selected might do better than a 9 percent compound rate over the long run. Harry Sauvain points out that, for the industrial stocks of Standard and Poor's 425 industrial stocks during the 1950-1964 period, earnings were 12.6 percent on the cost of equity capital.[38] Soldofsky, working with growth yields for Moody's 125 Industrial Stock Average, has concluded that yields of 8 to 10 percent or more may be reasonably expected on common stock when it is well-selected, purchased regularly, and held for extended periods.[39]

Quality

Much of the previous discussion supports the idea that a diversified list of stock purchased from the listed securities selling on the New York Stock Exchange is a safe investment. The pension fund, however, should be selective in its purchases. In its recommendations to the California State Employees' Retirement System, the First National City Bank of New York suggests that purchases be confined to larger blue chip corporations.[40] Moody's *Investment Portfolio Review* of the State Teachers' Retirement System of Ohio specifically states that the two basic considerations to be kept uppermost in the investment adviser's mind in advising a public retirement system are quality and growth potential. Emphatically, they state the following:

> It is unnecessary to discuss quality. It is axiomatic that the bulk of common stock held by a public retirement system should be of good quality; lesser grade or speculative stock should be rigorously avoided . . .[41]

Moody's report proceeds further to point out that high-growth stock tends to carry very low current yields, and it is their opinion that selection

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of the greater portion should be from those with moderate growth prospects.[42]

Liquidity and marketability

High-grade stock will be highly marketable–usually selling on the New York Stock Exchange; however, it may possess very low liquidity for the current owner during periods of depressed stock prices. Here again, it is recalled that the strong inflow-outflow ratio of funds tends to insure the liquidity of the fund and make it unnecessary to convert the securities to cash on short notice. In other words, the retirement fund is well suited to the long-haul approach to stock investment–a factor which makes it unnecessary to be overly concerned with the day-to-day fluctuations in the stock market.

Stock portion in portfolio

The American economy is a growing economy which finds increasing government support of high-level employment. There appears to be no reason to expect a prolonged declining price level. Rather, there is good reason to believe that moderate inflation will continue, and it is significant that, in the event it does not so continue, Smith's studies showed stock a better buy than bonds even when the price level was falling.

In view of the large amount of evidence which has been set forth in support of the common stock theory, this report takes the position that teacher retirement funds can no longer afford to neglect investment in common stock. The proportion may vary somewhat as timing method and market conditions tend to dictate, but in the long run it would appear that the average fund should invest approximately 25 to 35 percent of its assets in a diversified high-quality holding of issues in this investment medium. This contention finds strong support with private non-insured systems which have an average of 48 percent of their funds so invested, and with TIAA-CREF taken as one fund, which has over 30 percent of its portfolio invested in this manner. Roger Murray, Paul Howell, Robert Soldofsky (Table 6-6), and other investment advisers have generally recommended that sizable portions of the respective portfolios reviewed be placed in these securities.

Other investment media

Other investment media generally held to be suitable for retirement funds would include sale-leasebacks, preferred stock, and commercial paper.[43]

Sale-leasebacks

During the period following World War II, some companies have developed a method of securing cash by selling their building and leasing it back over periods of 20 to 30 years. While the lease contract is in effect,

the leasor receives rent and when the contract expires the property remains with the lender although the rental contract will have been calculated to provide a reasonable rate of return plus the cost of the property. While it has been the life insurance companies which have pioneered in this field, sale and lease agreements are available to the pension funds in like manner. One author suggests that yields may be quite attractive on these leases.[44] As with mortgages, management of leases needs training in real estate finance in order to evaluate properly the investment quality of these arrangements.

Preferred stock

High-grade preferred stock is generally held satisfactory for retirement funds, but because of the tax concessions offered on their dividends, a tax-exempt pension fund finds itself in a similar position as with municipal bonds. During periods when common stock prices are somewhat depressed; however, convertible preferred stock may be purchased with the expectation that it will be held for income in the event that the stock market does not rise. Consequently, it can be seen that preferred stock should generally be considered a temporary investment.

Commercial paper

Commercial paper is a term which is applied to unsecured promisory notes issued by finance and industrial companies of very strong financial standing for the purpose of providing short-term funds. As maturities vary from 5 to 270 days, a retirement fund may well wish to consider this means of holding funds temporarily in the event that banks prove to be insufficiently competitive in yield. As yields on commercial paper will generally be lower than those for long-term securities, commercial paper does not qualify for long-term consideration.

A More Precise Portfolio Model

While it has been indicated that there probably is no one precise set of relative quantities for a portfolio model which would fit any and all cases at all times, it is of interest to demonstrate that which would be possible for the average fund of $300,000,000. In Table 6-11, a projected portfolio distribution for teacher retirement funds appears side-by-side with the present aggregate portfolio distribution for these systems. Accompanying these distribution schedules are the changes which are shown as projected positive and negative dollar amounts of resulting income.

Reviewing the proposals of Table 6-11, it is suggested that 15.0 percent of the present portfolio be gradually moved out of the U. S. Government bond segment. Since long-term government bonds have shown an average yield of 3.21 percent for the 1941-1968 period (Table 6-12), this means giving up $1,444,500 of average annual income in order to transfer these funds to other higher yielding media. Next, it is proposed that the 2.9

TABLE 6-11–STATE TEACHER RETIREMENT SYSTEMS
PRECISE MODEL
Yield Improvement

Investment Media	Portfolio Present (percent)	Portfolio Model (percent)	Changes (percent)	Income Changes
Cash and Deposits	.5	.5	--	--
U. S. Government	18.9	3.9	-15.0	-1,444,500
Municipals	2.9	0	- 2.9	- 236,640
Corporate Bonds	54.2	48.5	- 5.7	- 665,190
Mortgages	13.2	15.0	+ 1.8	+ 257,580
Common Stock	8.2	30.0	+21.8	+5,886,000
Other	2.1	2.1	0	--
Net Increase in Income				3,797,250
Yield Increase $\frac{3,797,250}{300,000,000}$		=		1.27%

percent of the portfolio or $8.7 million in municipals should be phased out. As the average yield on municipals is 2.72 percent for the 1941-1968 period (Table 6-12), this means giving up $236,640 of average annual income. It is further proposed that the corporate bond portion be reduced by 5.7 percent of the average portfolio or $17,100,000. If the composite average yield of 3.89 percent for corporate bonds during the 1941-1968 period is used (Table 6-12), this means giving up an average of $665,190 of annual income. Thus, total reduction in income from the preceding changes amounts to $2,346,330 on an average annual basis.

Turning to the other side of the problem, funds released could be shifted to more productive uses. To begin with, if 21.8 percent or $65,400,000 of the present portfolio were shifted to a well-selected diversified holding of common stock, according to past experience it should do as well as Fisher and Lorie's finding and earn at least 9 percent over the long-term. This shift to common stock alone would tend to produce an annual yield of $5,886,000.

The remaining portion of the portfolio amounts to 1.8 percent or $5,400,000. It is proposed that this be shifted to mortgages. As data on mortgage yields are not readily available except for more recent years, it is slightly more difficult to determine how much advantage could be gained in this transfer. This being the case, it is noted that the yields on con-

TABLE 6-12–MOODY'S BOND AVERAGES

Year	Corporate Aaa	Corporate Composite	Municipals Composite	U. S. Govt's. Long Term
1941	2.77	3.34	2.05	2.05
1942	2.83	3.34	2.17	2.46
1943	2.73	3.16	2.09	2.47
1944	2.72	3.05	1.73	2.48
1945	2.62	2.87	1.60	2.37
1946	2.53	2.74	1.39	2.19
1947	2.61	2.86	1.75	2.25
1948	2.82	3.08	2.28	2.44
1949	2.66	2.96	2.11	2.31
1950	2.62	2.86	2.03	2.32
1951	2.86	3.08	1.64	2.57
1952	2.96	3.19	2.14	2.68
1953	3.20	3.45	2.52	2.94
1954	2.90	3.16	2.62	2.55
1955	3.06	3.25	2.48	2.84
1956	3.36	3.57	2.69	3.08
1957	3.89	4.21	3.51	3.47
1958	3.79	4.16	3.17	3.43
1959	4.38	4.65	3.60	4.07
1960	4.41	4.73	3.92	4.01
1961	4.35	4.66	3.56	3.90
1962	4.33	4.62	3.55	3.95
1963	4.26	4.50	3.22	4.00
1964	4.40	4.57	3.29	4.15
1965	4.49	4.64	3.18	4.21
1966	5.13	5.34	3.56	4.65
1967	5.51	6.82	3.74	4.85
1968	6.18	7.02	4.48	5.25
Average	3.55	3.89	2.72	3.21

* *Moody's Industrials and Municipal and Government Manuals*, 1969.

ventional mortgages over the past five years averaged 6.86 percent (Table 6-8). For the same period, the composite average for corporate bonds is 5.48 percent (Table 6-12). Thus, it is seen that conventional mortgages, after the servicing charge, would tend to exceed corporate bond yields by an average of .88 percent. As the yields for mortgages probably have exceeded the bond yields by this much or more over previous years, it would seem that adding the .88 percent to the composite average for corporate bonds would give a reasonable estimation of the effective yield of 3.89 percent on conventional mortgages for the 1941-68 period. Thus, applying a yield of 4.77 percent (3.89 + .88) for mortgages, would mean that $257,580 could be added to average annual income.

Adding up the income increases gives a magnitude of $6,143,580 from which is deducted the income decreases of $2,346,330, leaving net increases of $3,797,250 in average annual income resulting from the pro-

posed changes. When this is compared to the $300,000,000 model fund portfolio, it is found that yield is increased by approximately 1.27 percent.

From these computations, it seems reasonable to believe the average fund could improve its performance by at least 1 percent annually. Referring to Tables 6-1 and 6-2, it will be recalled that a 1 percent increase in yield may mean an increase in benefits of 25 to 30 percent.

Management

In Chapter III of this dissertation, consideration was given to the managerial organization as it is presently found among the various retirement funds. It was brought out in that section that teacher retirement funds generally do not hire investment managers and some of them have not employed investment counsel. Those who devote their time to this field generally emphasize the need for good investment management. Roger Murray says:

> Generally speaking, the retirement systems of state and local governments have not been willing to spend money for investment management. Thy do not recognize the fact that inadequate management is the most expensive of all. No doubt this reflects a past tradition of confining investments to public securities which a government official would buy and hold to maturity without any need for expert advice or judgment. This passive kind of portfolio management simply did not give rise to the kind of problems associated with real estate finance, corporate bonds, and common stock.[45]

From this statement, from the advisement of others knowledgable in the field of finance, and from general observation, it is beyond question that improvements are needed with regard to the emphasis on investment management for teacher retirement funds.

Retirement boards

There is a need for more finance-oriented retirement board members. It will be recalled from a previous chapter on administration that it was unusual to find board members with varying experience in finance. Wisconsin, as noted earlier, has attacked this problem by setting up a State Investment Board which is composed of members who have had at least 10 years of professional experience in investments. As some types of investment, i.e., conventional mortgages, direct placements, and sale and leasebacks tend to flow to large funds, the state investment board system has merit for states having small funds. However, this arrangement may not be desirable to the members of some of the component organizations, including the retirement funds.

Roger Murray,[46] noting the shortage of financially trained board members, has suggested to the New York State Teachers Retirement System that it should add a school board member knowledgable in finance, a life insurance executive, and a savings bank executive, and that it continue present positions for the Comptroller and a commercial bank executive.

Soldofsky[47] recommended that the Iowa Public Employee's Retirement System include an executive of a domestic life insurance company, an executive from a commercial bank, an executive officer of a savings and loan association, and executive of a large domestic manufacturing corporation, and a professor of finance. As this fund only has 7 board members, this would mean that 5 of the 7 would be finance motivated, and those with interest in other areas of concern might object to the predominance of finance-oriented board members. While this author acknowledges that there are considerations other than finance for a retirement fund, he feels that the technical area of finance should get much more attention from professionally trained people than it presently receives. Surely, each board should have as many as three and perhaps a majority of its members with financial training.

Investment staff

The investments of a retirement system should be carried out by one or more individuals with professional training. Professional investment personnel are necessary because the executive secretary cannot be expected to supervise accounts for an average system of 60,000 members (Table 4-1), handle public relations, and do more than a very passive job of managing the investment portfolio. In consideration of the difficulty in managing a retirement system, the usual suggestion of financial advisers is to hire a professional staff. This was emphasized by Roger Murray,[48] it is strongly put forth by Soldofsky,[49] and most other writers on this subject emphasize the role of the investment manager. In his report to the Iowa fund, Soldofsky recommended a staff of 3 plus secretarial assistance for a fund of approximately $200,000,000. Looking to the experience of life insurance companies, James Walter,[50] in discussing the investment staff of medium-size life insurance companies--those ranging from $400 million to $1 billion of assets--indicates that the median investment per staff member was $41 million in 1958, while the maximum was $51 million. For the average retirement fund of $300,000,000, this would involve employing a staff of 6 members. As retirement funds presently do not tend to have investment managers as such, it would seem that a fund of the model-fund size should begin by hiring an investment manager and 2 or 3 assistants with varying experience in real estate, corporate bonds, and common stock.

For this kind of service, the next question is that of cost. Although information of this type is not widely circulated, the National Industrial Conference Board[51] has compiled a report on *Top Executive Compensation* which offers some assistance in the matter. According to this report, the three top managers in 208 commercial banks receive salaries ranging from approximately $30,000 to $50,000 for those having deposits of approximately $300,000,000. Soldofsky[52] indicated that an investment manager could have been hired at approximately $12,000 to $25,000 in 1963. Keeping in mind the fact that salaries will vary from one state to another, on the

basis of information assembled, it would appear that an average-size fund could hire a qualified investment manager for $25,000 to $50,000. The assistants could probably be hired with somewhat less training and given additional training on the job. In this manner it would appear that an adequate staff could be assembled at a cost of $100,000 to $150,000 per year. Even the larger figure would involve a cost of only .05 of 1 percent for the model portfolio. For smaller funds, less staff would be necessary but the relative cost would amount to slightly more.

Investment counsel

It is generally held to be a wise move to hire competent outside counsel to work with the retirement fund and review the portfolio periodically. As indicated in the previous chapter, among the funds with which direct contact was made for this research, it seemed that hiring investment counsel was quite widespread. This service can be obtained through major commercial banks, trust companies, investment bankers, and independent advisory services. Evidently, the price of the service varies by contract depending somewhat on the services provided and arrangements which can be made. One retirement fund executive who wished not to be quoted indicated that services were obtained from a well-known private investment service for the whole portfolio of $175,000,000 at an annual cost of $30,000, which amounts to .017 percent of assets. Soldofsky[53] found quite similar experience with regard to this in the quotations of service from a large commercial bank. Using these quotations for a fund of $300 million, the costs are as follows:

1/40 of 1% on the first $20,000,000		$ 5,000
1/60 of 1% on the next $30,000,000		$ 5,000
1/80 of 1% on the next $40,000,000		$ 5,000
1/100 of 1% above $90,000,000		$21,000
Total		$36,000

$36,000 ÷ $300,000,000 = .012%

On the basis of these observations, it is concluded that investment counsel for the average fund would amount to slightly over .01 of 1 percent. A retirement fund should be able to obtain both competent investment counsel for considerably less than .1 of 1 percent. Surely, competent management which has time and incentive to manage the investments of a fund can raise the performance more than .1 of 1 percent. The First National City Bank of New York, in reviewing the California State Employee's Retirement System, called attention to the value of investment management with reference to the bond portfolio as follows:

> In particular, we know from our own experience that active management of the bond portfolio can do much to improve yield at no sacrifice of quality. Many opportunities will be found to sell certain holdings prior to their maturity and reinvest the proceeds more advantageously in other bonds.[54]

Investment committee

The retirement board may find it best to select an investment committee of approximately three to five finance-oriented board members. As is done in the Kentucky Teacher Retirement system,[55] certain policy guidelines can be set by this committee in conformance with the overall approval of the board, and the committee can meet monthly with the investment management to review the details of transactions. Transactions which may not be clearly covered in policy guidelines would be made only upon the specific consent of the finance committee. In consequence, the retirement system can enjoy the benefits of its professionally trained board in making sure investments are handled in a prudent manner.[56]

Other Suggested Policy Changes

Other major needs with regard to the investments of retirement funds tend to center around the statutes under which they operate. One of the prime considerations here is the provision with reference to common stock. It has already been pointed out that retirement funds are bound by laws which were developed for savings banks and insurance companies. Due to difference in liquidity needs, the savings bank laws are not suitable for retirement funds.[57] Life Insurance company statutes, too, are not entirely suitable for these funds. This is particularly true with regard to stock. The valuation problem attached to securities of life insurance companies and savings banks tends to prohibit them from holding more than a nominal amount of common stock. Since retirement funds should look to long-run income and do not need to be greatly concerned about valuing securities at market value, there is no reason why they should not be able to enjoy the added income available from stock investment. A number of the states have already altered their laws so as to allow some equities, but many of the statutes continue to be quite restrictive as to the overall percentages allowable and with regard to suitable industries. It is the contention of this study that statutes should be altered to permit 25 to 35 percent of the respective portfolios to be composed of a diversified list of investment grade common stock or that the law simply state that the "prudent man" rule shall apply. Sidney Homer[58] supports the latter idea and indicates that he does not believe prudent investment can be legislated. Rather, he would select high-caliber portfolio managers and give them the freedom of action of the prudent investment rule.

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CHAPTER VII

SUMMARY AND CONCLUSIONS

In this study the major emphasis has been on the investment policies and practices of teacher retirement funds with the purpose of determining whether they can improve their performance in such manner as to raise benefits or lower contributions significantly. In order to develop a background for this study, the writer first considered the history of the retirement systems, various retirement provisions found in the systems. and their administrative organizations.

Pension Development and Growth

Teacher retirement systems are part of an overall system of pension plans developed in the United States and other countries of the western world. For the most part, their development and growth have taken place during the past century and are a result of various influences including the growth of population, improved technology, the movement from rural to urban living, and constantly creeping inflation.

Pensions were initiated in 1834 when England established a civil service pension plan. In the United States, the first pension plans started during the period following the Civil War, with New York policemen being among the first to be covered. Private pensions also began to develop in this country when the American Express Company established a plan in 1875.

Teachers had an early introduction to pension systems when they were covered in Switzerland as early as 1839. In this country, teacher retirement systems began in some of the large cities during the 1860's, when associations were first established for providing burial benefits.

Early retirement systems established in the United States were usually of the weak pay-as-you-go type, often not able to meet their obligations. During the 1920's, however, there was a considerable drive to improve plans by providing a more solid foundation through funded systems. As systems became funded, this meant that contributions were being accumulated to cover the future benefits of retirees on an actuarially computed basis.

Retirement systems in the United States have grown until 76 million members are covered and they have amassed funds in the amount of over $190 billion. Moreover, they are growing at a rate of over $18 billion per year. Teacher retirement funds alone have almost 3 million members and a fund of over $17 billion. Needless to say, the protection and investment of these funds are of great significance to the tax-paying public which

provides part of the contributions and to the members of the teaching profession who look to these funds for their retirement security.

Retirement Provisions

Teachers are covered in some cases by state systems including teachers and other state employees while some are covered by systems including teachers only. Most systems also have social security; however, 14 funds are independent of the federal retirement system.

As for normal teacher retirement benefits, they are generally not high; 15 funds presently pay less than $1500 annually to their average or median retiree (Table 4-8). Other provisions are also often less than desirable; e.g., many people lose benefits because the vesting provisions for most systems require 10 years or more of service. Absence of good portability provisions is also a weakness of many of the funds. The worker who finds it necessary to move often gets no more than the amount of his contribution returned to him as he leaves the system.

On the basis of present living costs, some teachers may draw a comfortable benefit, but the cost of living is constantly rising.

Teacher retirement systems will be under continued pressure to improve benefits in the future. As raising benefits will require additional funds, one is led to ask if some of these funds might be secured through improved investment performance.

Administrative Organization

Authority for administering teacher retirement funds is usually vested in a board of trustees made up of various *ex officio* officers of the state, appointed officials, and in some cases elected members. The board ordinarily hires legal and technical people to handle legal and actuarial problems. It also usually hires an executive secretary to be the chief administrative official in charge of day-to-day administration. Investments are sometimes administered by an investment board. For the most part, however, the executive secretary of the respective fund has this added to his other administrative duties. He may choose to be quite active, or he may choose to hire investment counsel and turn the task of investments almost entirely over to these advisers.

A few funds have hired at least one person with investment training and given him responsibility for making the investments under certain pre-arranged guidelines.

Proposed Investment Policies and Practices

In proposing investment policies and practices for retirement systems it was necessary to review objectives and constraints relative to these funds. The importance of return was shown by computing the effect of a 1 percent

increase in income upon benefits for a 30-year accumulation period plus a 20-year benefit period. This analysi demonstrated that benefits can be increased by 29 percent for the many employees who will work as much as 30 years. There are, however, certain safety constraints which fund management must consider in the process of seeking a high rate of return on investments.

Safety constraints versus high return

Management of teacher retirement funds obviously poses the dilemma of choices between defensive investments which hold prospect of *low risk with low return* on the one hand, and *high risk with high return* on the other. Each direction of choice imposes constraints upon the other. The constraints of financial, interest-rate and purchasing-power risk, and the necessities for liquidity, marketability, diversification, and flexibility to permit timing have been analyzed with the considerations management must necessarily weigh in making investment choices. It has been pointed out that since teacher retirement funds are tax-exempt there is little justification for their purchases of tax-free municipal bonds.

Constraints imposed by legislative prescriptions of the investment patterns, pressures to make within-the-state investments, and the fact that typically the administrative staff lack necessary training to make wise investment choices have been treated in the writer's attempt to develop guidelines for a model state teacher retirement system.

Recommendations

On the basis of the findings of this analysis of the various objectives and constraints upon the investment of teacher retirement funds, a pattern of specific recommendations was offered for improving the investment performance of these systems. These recommendations were made on the assumption that yield differentials for stocks and bonds will continue in the future as in the long-run past. These suggestions were made on the basis of an average fund of approximately $300 million and should be adjusted when applied to extremely large or very small funds. Specific policy proposals of this dissertation are as follows:

1) United States government securities should gradually be reduced to a much smaller proportion of 3-5 percent of the average teacher retirement fund portfolio. Government securities in this amount would release funds for more lucrative types of investments, and, if partially held in short-term instruments, should be adequate to meet any foreseeable needs for liquidity and marketability in the average fund. That this is a reasonable assumption is seen in that the Wisconsin fund already operates with only 1 percent of its assets in government securities and two other systems operate within the suggested 3-5 percent range (Table 5-20).

2) Municipal bonds should gradually be eliminated from the portfolio. As a retirement fund does not need tax-exempt municipal securities,

it can earn more by placing its money in other types of investments. Most teacher retirement systems have already reduced the size of this item to a negligible amount; however, a few funds are depriving their members of considerable investment income by holding large quantities of these securities.

3) Systems should begin purchasing mortgages whenever their yield is sufficient to make them attractive in competition with corporate bonds. In the past they have tended to offer good yields and provide a means of diversifying the portfolio into another investment media. Twenty-one state teacher retirement systems already hold mortgages in excess of 20 percent of the portfolio. The Teachers Insurance and Annuity Association has 54.8 percent of its portfolio invested in mortgages.[1]

4) Purchase of common stock from a diversified list of investment-grade companies should be carried out on a dollar-cost-average basis in such quantities as to gradually bring fund assets to a minimum level of 30 percent of the overall portfolio. Private trusteed retirement funds already invest over 50 percent of their assets in stock,[2] while only 9 state teacher retirement funds have invested in excess of 200 percent of their assets in this media.

5) Boards of trustees should be reorganized to include some members with investment training; probably one-third to one-half of the board should be so constituted. These members should be available from the ranks of the management of various businesses dealing in finance, e.g., life insurance, fire insurance, commercial banks, savings banks, savings and loan associations, and manufacturing companies.

6) An experienced investment officer should be employed to manage the investments of the fund, and 2 or 3 additional investment staff members, exclusive of secretaries, should be hired to assist the investment manager. This recommendation, which would cost the fund only about .05 of 1 percent, is based on the experience of medium-size insurance companies.[3] Roger Murray contends that inadequate investment management is the most expensive management a retirement fund can have.[4]

7) Investment counsel should be secured from a reputable investment service—preferably on an advisory basis—to assure the trustees that prudent non-speculative policies are being carried out.

8) State statutes should be altered in such manner as to allow investments of the fund to be made on a "prudent man" basis. This would permit the purchase of common stock, conventional mortgages, and any other securities which might come to be attractive as a prudent investment. Statutes, while passed with good intention, tend to restrain investment officers in that they cannot be kept up to date as the qualities of various investment media are altered over time. Consequently, too many good opportunities are missed while the legislature is getting around to changing the law.[5]

It is worthy of note that the Teachers Insurance and Annuity Association, although having very few stocks in its portfolio, achieved a yield

of 5.11 percent in 1967 while the average yield reported by 42 state teacher retirement funds in that year was 4.47 percent.[6] Over the 1952-1967 period, the College Retirement Equities Fund earned an average of 12.5 percent per year in dividends and appreciations on its stock investments.[7] Based on these calculations, if 30 percent of the TIAA fund had been invested in a diversified list of common stock, the overall TIAA portfolio would have earned more than 7 percent, or approximately 2.5 percent more than was reported by the average teacher retirement fund in 1967.

Summary

If competent management were employed and allowed to carry out the policies suggested in this study, it should be possible to raise the level of annual investment income gradually by a minimum of 1.25 percent in the long run. Although additions to administration would add to cost, this should not dampen the positive effect by more than .05 of 1 percent; therefore, the fund should easily increase its yield by a net amount exceeding 1 percent. As was indicated previously, a 1 percent increase in yield would enable the fund to increase its benefits by an average of 29 percent or decrease its contributions similarly.

Notes

1. *Investment Supplement to Annual Report of TIAA-CREF* (New York: Teachers Insurance and Annuity Association, 1967), p. 11.
2. Murray E. Polakoff, "Public Pension Funds—Past Performance and Future Opportunities," *Financial Analysts Journal,* Vol. XXII, No. 3 (May-June 1966), p. 76.
3. James E. Walter, *The Investment Process* (Boston: Harvard University, 1962), p. 45.
4. Roger F. Murray, "Investment Management Performance of the System," *New York State Teachers Retirement System Studies,* A report prepared by the Review Committee (New York: 1964), p. 97.
5. Sidney Homer, "Bond Investment Policy for Pension Funds," *C. F. A. Readings in Financial Analysis* (1st. ed.; Homewood, Illinois: Richard E. Irwin, Inc., 1966), p. 643.
6. *Investment Supplement to Annual Report of TIAA-CREF* (New York: 1967), p. 1.
7. *Teachers Insurance and Annuity Association College Retirement Equities Fund,* A Report to Participants CREF—Its First Fifteen Years (New York, 1967), p. 8.

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