



Achieving Financial Equilibrium at Yale:  
A Report on the Budget

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December, 1977

LIST OF TABLES

	<u>Page</u>
A. Number of Full-Time Equivalent Students Enrolled by School, 1967-68 and 1976-77	20
B. Changes in Size and Composition of Faculty, 1967-68 to 1976-77	22
C. Changes in Size of Non-Faculty Staff 1970-71 to 1976-77	23
D. Operating Income and Expense, 1967-68 to 1976-77	25
E. Rate of Growth of Income in Relation to the Rate of Increase in Consumer Prices and Per Capita Personal Income, 1967-68 to 1976-77	27
F. Income Items as Percent of Total Income, 1967-68 and 1976-77	32
G. Rate of Growth of Expenses in Relation to Rate of Increase in Consumer Prices and Per Capita Personal Income, 1967-68 to 1976-77	33
H. Expense Items as Percent of Total Expenses, 1967-68 and 1976-77	39
I. Comparison of Approved 1977-78 Budget with Actual 1976-77 Results	45
J. Actual and Projected Compound Annual Growth Rates in Income and Expenses	61
K. Sensitivities of the Financial Projection to Changes in the Assumptions	67
L. Five-Year Plan for Achieving Financial Equilibrium	75
M. The Value of Yale's Endowment, 1967-68 to 1976-77	87
N. Investment Results Including Yield and Capital Gains as of October 31, 1977	88
O. Special Expenses, Contingencies and Reserves, 1977-78 to 1982-83	92

## STATEMENT OF THE CORPORATION

As the Yale community is aware, the University incurred a deficit of \$6.6 million in 1976-77. When it became apparent a year ago that a substantial deficit was in prospect, the Corporation directed the President and officers to make maximum economies in the 1977-78 budget, and to reassess the longer term trends affecting the financial situation of the University. This reassessment was undertaken by Provost Hanna Gray, and continued after she became Acting President in May. In September, Anthony Knerr came to Yale as Special Assistant to the Acting President for Budget and Planning, to head the staff effort in support of Mrs. Gray. The Treasurer and other officers have also participated fully.

A preliminary draft of the report was presented to the Corporation at its meeting in late September, and the report has been under continuous development and review since then. The Corporation realized that the analysis of Yale's future budgetary situation requires certain fundamental decisions affecting the basis on which future budgets should be prepared and defining with precision the scale of deficits that could be accepted in the next several years, on the revised budget basis. Such redefinition and setting of deficit limits would in any event have been required as a matter of principle. In addition, the analysis concludes that the incurring of additional large deficits, other than as a temporary transition measure, is not acceptable in view of the negative balance that now exists in operating reserves, the limits to internal borrowing from the University's cash flow, and the limited amount of endowment available to underwrite deficit financing. While the overall amount of Yale's endowment remains in excess of \$500 million, 94% of this has been donated to Yale under legal restric-

tions as to purpose or as to the expenditure of principal, or both, and cannot be used directly to fund operating deficits. And even the 6% of unrestricted funds -- in effect Yale's working capital -- is subject to other contingent obligations.

The Corporation, on the recommendation of the Acting President, has now reached the following decisions, which are spelled out in greater detail in the body of the report:

1. A New Budget Basis

- A. With respect to spending from endowment, the Corporation has reaffirmed its decision of January 1977, that spending from endowment shall remain frozen at the amount of such spending in 1976-77, or lower if market conditions should so require on the basis of the previous method of computing the amount of spending permitted. New gifts to endowment received after June 30, 1976 shall be subject to a spending rate of 4.5% per year. The objective, as stated in January, is to bring the rate of spending from endowment steadily down to 4.5% and hold it there. (See pages 52-55 for further detail.)
- B. The Corporation has adopted a policy of rebuilding the level of reserves drawn down in recent years, and has directed that the operating budget shall be subject to continuing charges for this purpose, as well as for certain possible special expenses. (See pages 55-56 for further detail.)
2. Budget Deficit Ceilings. The Corporation carefully weighed the question whether it should direct that the budget be brought into immediate balance on the new basis. However, the

analysis in the report indicates that careful planning will be needed to carry out the necessary corrective actions, and that the kind of basic changes that may be required in some areas would call for some delay in execution. Accordingly, the Corporation decided that to require an immediate balanced budget would involve such drastic and rapid actions as to threaten the core of Yale's educational structure. In the light of all these factors, the Corporation has directed that:

- A. The budget must be brought into balance on the new budget basis not later than the 1980-81 budget year, and kept in balance thereafter.
- B. The total amount of deficits incurred in 1978-79 and 1979-80 shall not exceed \$7 million. (See page 71-74 for further detail)

In essence, the Corporation has concluded that no lesser actions could meet the situation that has developed over a decade of adverse economic developments that have affected all private universities in substantial degree. These and other factors are reviewed in detail in section I of the report.

We hope that all members of the Yale community will read the report with care. We believe that it is the most careful and thorough review of Yale's budget and finances that we have had. The meeting of financial goals spelled out in the report will call for outstanding leadership by Yale's new President, the full participation of the administration, staff, and especially the faculty, the support, understanding, and experienced advice of alumni, and the advice of students,

especially those serving with advisory groups. Section IV of the report describes some of the measures by which this will be accomplished. We believe that the work that has gone into this report should put the Yale community on a more solid footing, and we intend to share promptly all relevant developments concerning the Yale budget, both publicly and through various advisory groups.

In reaching these conclusions, the Corporation fully shares the conviction stated by Acting President Hanna Gray in her introduction to the report, that "the budget is to serve, and not to shape -- or to distort -- the educational purposes by which we define the institution. But unless we can move forward to recognize and to deal with the financial issues that confront Yale and all similar institutions, we will not be free to exercise our best thinking about new directions and programs as well as the maintenance of Yale's major strengths."

In the quality, energy, spirit, and diversity of its faculty, programs, and students, Yale has at no time in its history been as strong as it is today. We are confident the University can emerge from the upcoming period of necessary financial adjustment stronger still. To make this possible, however, the fullest participation and cooperation of alumni, faculty, staff, and students are indispensable. The Fellows of the Corporation are confident that each and every member of the Yale community will help in this vital undertaking.

## INTRODUCTION

The report presented here attempts to place in perspective the financial and budgetary history of Yale during the last decade, to analyze the current situation and its components, and to discern the probable outlook, especially over the five-year period ahead. It is presented to the University community as a first step in the larger discussion of the context within which the University's future priorities and directions must be developed.

The general conclusions of the report may not appear new or startling. The existence of major financial difficulties for this and other institutions of higher education has been a reality for many years now. Yale has experienced the economic fluctuations and distresses of the past decade and has taken action to deal with them. The commitment to achieving a balanced budget and financial stability has been a central and essential goal of the Corporation and of the University. That commitment has been reflected both in the programs of reductions and austerity that have shaped budgetary planning since 1971 and in the objectives established for the raising of major new gifts and endowment through the Campaign for Yale.

But these measures, though significant and effective, have not been sufficient to cope with the root problems that underlie the economic malaise of universities today. That is, in part, so because the character of those fundamental factors has shifted, or been exacerbated, over time and because, in consequence, some previously controlling, and reasonable, assumptions have required alteration. The performance of the stock market, the escalation of fuel oil prices and its attendant results, the

extraordinary rates of inflation that have occurred in the past years: these represent three major developments in a brief period that have reshaped the actual outcome of financial and budgetary actions and that have aggravated the difficulties inherent in the economy of higher education.

In taking stock of the current financial situation and of the University's outlook for the future, we begin from the premise that it is imperative to review the trends of the past years, to identify the lessons these convey, to be willing to rethink earlier assumptions, and to adjust realistically to the circumstances and prognoses that such review and analysis suggest. If its general themes are not exactly new, the report nonetheless arrives at approaches and conclusions that reflect a new effort to stand back and outline the aims and implications of coming to financial equilibrium by taking a closer look at the past, by developing a multi-year horizon, by taking into account the trends and events that are likely to prove adverse, and by introducing some of the variables that will need to be considered in future planning. As a report that is intended to inform the University community, this document is a more comprehensive account of Yale's financial state than any published previously.

Needless to say, projections about the future are as uncertain as the economic environment they attempt to portray, and their assumptions require constant refinement. Projections are not predictions but rather a way of delineating the range and scope of developments that are interrelated and are always sensitive to external events beyond the institution's control as well as to internal policy decisions. Events not yet anticipated will occur; figures and likely outcomes are subject to change. The analyses and projections presented in this report have reference to



the University as a whole, on the basis of aggregated figures and the larger tendencies and problems that affect the institution as a whole. They are intended to provide an overview of those trends and their probable impact, and so to provide a basis for defining the questions and policy issues that must be attended to in order to bring those problems into manageable control, to enable the University to live within its resources, and to stabilize Yale's financial condition over the longer term.

A report of this kind may appear, in its concentration on financial and budgetary matters, to say little about the central activities and purposes of an institution devoted to teaching, research, and scholarship. But these are indeed the University's priorities, and the urgency of reviewing its financial status at this time arises precisely out of our conviction that the quality and sustenance of Yale's academic strength can be guaranteed only through effective financial planning. Hard times may also be times of incentive and opportunity. Conditions of stringency necessitate the making of choices that may be difficult, but that may in fact improve Yale's character and quality. Those conditions require also that Yale clarify its priorities, which is of course essential at all times to the vitality of the University. It cannot be reiterated too often that the budget is to serve, and not to shape -- or to distort -- the educational purposes by which we define the institution. But unless we can move forward to recognize and to deal with the financial issues that confront Yale and all similar institutions, we will not be free to exercise our best thinking about new directions and programs as well as the maintenance of Yale's major strengths. Financial health and the independence to shape our own educational priorities as fully and as imaginatively as possible go hand in hand.

The report which follows is an introduction to the financial issues that must frame the kind of planning which will speak to the particular form which the University will take in the next period of time. Its major assumption can be stated as the commitment to ensuring that Yale's resources be effectively managed and allocated to the service of its educational and scholarly aims and quality.

Hanna H. Gray  
Provost (Acting President)

## I. A HISTORICAL REVIEW OF THE YALE BUDGET

A first step in understanding Yale's current financial condition is to review its recent history. The past ten years were a decade in which Yale grew in both size and quality. It strengthened its faculty and facilities, enlarged its student body, and established important new academic programs. During the same decade, Yale, like all major private universities, was subjected to economic forces that significantly and adversely affected its financial health. This section discusses the economic environment of the past ten years and reviews Yale's recent budgetary performance.

### THE ENVIRONMENT OF THE SIXTIES AND SEVENTIES

The university is a labor intensive institution, characterized by an inherent tendency for costs to rise more rapidly than income. Expenses tend to go up with the national rise in wages and salaries, which have historically risen faster than general prices. During the past decade, however, universities have generally been unable to achieve a rate of growth in income even equal to inflation. This imbalance between expenses and income has been a particularly vexing problem for universities to overcome.

During much of the 1960s favorable external factors, including moderate rates of inflation and a favorable stock market, obscured this tendency and provided an opportunity for improvement and growth for all universities, including Yale. The booming stock market was favorable to a rise in the value of and income from endowment and to an unprecedented growth in individual giving. At the same time there was a substantial increase in support from foundations and the federal government.

From these external factors Yale benefited immensely, experiencing a period of dramatic growth in enrollment and improvement in the quality of its educational programs and research activities. Old programs were strengthened; new programs begun. Salaries were improved to make Yale competitive in recruiting faculty and staff. Financial aid was increased, and in Yale College a policy of admission without respect to financial need was adopted.

By the late 1960s, however, economic conditions had changed. The rate of increase in foundation and government support began to slow down and eventually such support decreased in absolute terms except in the case of federal aid to medicine and medical-related sciences. The stock market peaked in 1968 and the rate of inflation began to increase. The tendency for costs to outrun revenues began to reassert itself. In the summer of 1970, when planning began for the budget of 1971-72, it was recognized that Yale faced serious financial problems. The University initiated a freeze on the filling of all clerical and technical positions as they became vacant. At the same time the administration, in cooperation with the departments and schools, began to investigate ways by which the educational budget could be cut. A plan for reducing faculty positions during the next three years was adopted which, along with other strenuous efforts at reducing non-faculty expenses, led to substantial cutbacks in staff and expenditures. Over those three years some 554 faculty and staff positions were dropped from the budget, resulting in a reduction of \$7.8 million. Various steps were taken to increase income, including improved cash management, initiation of a security loan program, and negotiation of more adequate indirect expense rates on government grants and contracts. These reductions in expenditures,

along with various steps taken to increase income, resulted in the reduction of deficits from \$2.6 million in 1970-71 to \$900,000 in 1972-73 and \$100,000 in 1973-74.

In November 1972 the Corporation established an ad hoc committee of its members to develop plans for a major capital campaign, which was publicly launched in the spring of 1974 as the Campaign for Yale.<sup>1</sup> As a prelude to determining Yale's needs for capital funds, the University undertook an elaborate projection of Yale's financial outlook for a twenty-year period based on various assumptions concerning the rates of return on endowment, the rate of inflation, annual gifts, and the like. The principal objective of the Campaign, whose total goal is \$370 million, is the raising of \$239 million in new endowment, of which \$161 million is to keep Yale operating at its current level of activities and the remainder to support new programs or to strengthen existing programs, such as the scholarship and fellowship programs in Yale College and the Graduate School.<sup>2</sup> The basic planning underlying the Campaign was outlined in the preliminary draft proposal, The Case for Yale, discussed

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1. The original plan called for the Campaign to be completed by December 31, 1977. Because it has taken longer than estimated to organize the 7,000-person volunteer force to solicit all 100,000 alumni and friends personally, the Corporation extended the Campaign through December 31, 1978.

2. The \$370 million goal provided that certain bequest intentions and other forms of deferred giving would be counted toward the goal. It was also assumed that many alumni would spread their payments over a five-year period. Therefore, while as of June 30, 1977 \$200 million had been raised, Yale currently has had the use of only \$120.7 million. That amount included \$8.4 million in funds for physical construction; \$46.6 million for current use, including \$27 million of Alumni Fund receipts over three fiscal years; and \$65.7 million in funds for new endowment.

with the Yale Development Board in October 1973, and the Prospectus for The Campaign for Yale published in 1974. The \$370 million was estimated to be the minimum necessary to maintain Yale at its then-current level together with modest improvements. These estimates of needs were made on the assumption of a total return on endowment in the neighborhood of 8.5 to 9% and a rate of inflation of 5.2% in the cost of goods and services that Yale buys.

However reasonable these assumptions may have been in 1972-73 when the plans for the Campaign were being made, by hindsight they proved unduly optimistic, at least for the intervening period. The stock market, after recovering in 1971 and 1972, turned down in 1973 and 1974 and is today well below its peaks of 1968 and early 1973. This affects adversely both the permissible level of expenditure from endowment and the level of giving to Yale. Moreover, by late 1973 and 1974 inflation had reached double-digit levels. Although the rate of inflation has since declined, it still continues at a rate above the 5.2% on which the estimates for the Campaign were predicated.

Critical to the increased rate of inflation was the effect of oil price increases upon fuel and energy costs. The cost of oil per barrel to Yale, which was \$1.92 in 1969-70, had risen to \$13.50 in 1976-77. Despite major energy conservation steps, ranging from the installation of various energy conservation devices and technologies to the closing of many buildings during the Christmas holidays, the cost of oil and energy increased from \$1.9 million in 1967-68 to \$10.1 million in 1976-77. While this resulted in part from the addition of new buildings, it was largely the result of the increase in the cost of fuel oil which is used for heating and which is a major component in the

determination of the cost of electrical energy. Without the energy conservation measures undertaken by the University, utilities costs in 1976-77 would have been \$14.6 million.

These many adverse factors notwithstanding, budget deficits were reduced to minimal levels of \$100,000 in 1973-74 and \$200,000 in 1974-75. By 1975-76, however, despite continuing efforts to increase income and hold down expenses, the tendency of costs to outstrip income reasserted itself. The inflationary spiral, given added impetus by the extraordinary increase in fuel costs, put great pressure on expenses. The income available from endowment as determined by the University Equation (discussed on pages 14-16 below) was adversely affected by the continuing poor stock market performance. As a result the deficit rose to \$1.7 million in 1975-76 and to an all-time high of \$6.6 million in 1976-77.

The general problem of costs exceeding income was aggravated by federal policies that imposed additional costs on universities. Federal legislation providing for increased social security taxes, establishing new safety, health and pollution standards, mandating new approaches to pensions, and requiring compliance with affirmative action programs -- together with new and more complex federal reporting regulations -- increased Yale's expenses over the past ten years.

#### INVESTMENT POLICIES AND THE UNIVERSITY EQUATION

In 1966-67 the Yale Corporation adopted investment and spending policies that had and continue to have significant bearing on Yale's finances. First was a decision to invest endowment, unless restricted by conditions of the gift, on a total return basis -- that is, to invest

so as to maximize total return by taking full advantage of both appreciation (realized and unrealized) and annual yield (interest and dividends). This approach relieved the portfolio managers from having to seek a minimum yield in any one year and permitted them to seek to obtain the best possible combination of appreciation and yield over the long run. As a result, the portfolio managers could, for instance, include in the portfolio, if this gave promise of greater total return, "growth" companies that reinvest their earnings, in the expectation that the market value of the securities would grow.

Secondly, the Corporation decided to vest the management of the endowment in outside professional managers.<sup>3</sup> Currently the responsibility for managing Yale's endowment is vested in four outside managers. While comparisons of the performance of the various managers will differ depending on the period covered by the comparison, Yale's portfolio managers have on the whole done as well as the market averages, and often better. The Endowment Management and Research Corporation (EM&R), a corporation in which Yale is a minority stockholder, is responsible for investment of the largest share of the portfolio -- about 50%. Since EM&R began as a manager in 1967, Yale's common stock account under their management has had a total return of 58.8%, which compares well with 53.1% for the Standard and Poor Index of 500 stocks, a frequently used yardstick for comparing performance. Detailed comparative data for Yale's total portfolio is contained in Appendix B.

The third important step was the adoption of the University Equation to determine annually the maximum that could be prudently spent from the endowment under the total return policy for investment. The

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3. See Appendix B for summary of Yale's investment management.



decision to invest endowment on a total return basis meant that yield on endowment could no longer serve as a guide to spending, and thus a formula to determine the spending rate was required. Although complex in its application, and consequently not well understood in some quarters, the Equation is based on a simple concept: the amount available for spending annually is determined by a weighted average of total returns of past years, with considerable weight given to the experience of the more recent years. The provision for averaging investment results over several years was designed to smooth out the annual fluctuations in total returns that are inevitable because of fluctuations in the appreciation component of total return. The averaging tended to restrain spending in a rising market but delayed a reduction of spending in a declining market.

The Equation was adopted at the end of the bull market of the early 1960s when it had been expected that spending, expressed as a percentage of the value of endowment as of the first of the fiscal year, would be about 5%. But with the poorer market conditions after 1968, which served to decrease the market value of the endowment, the rate of spending rose to a high of 7.2% in 1970-71 and in 1976-77 was 5.5%. The ten-year average has been 5.92%.

While it is clear in retrospect that the spending rate was significantly in excess of the real rate of return on investment over the decade, and has been one of the factors that has served to erode the value of the endowment, persistent inflation over the same period has been the principal factor in the erosion of the real value of the endowment (that is, the market value adjusted for inflation). With inflation rising from around 3% per year a decade ago to about 6% currently,

reaching higher levels in the years intervening, the real purchasing power of Yale's endowment (including gifts) declined to about 60% of what it was ten years ago. Had Yale operated under a formula that permitted spending at 5% of beginning market value (averaged over a five-year period to smooth out market fluctuations), the real value of the endowment (including gifts) would be about 11% greater than it now is. Thus it may be said that inflation has accounted for about 80% of the erosion of the real value of the endowment, while the Equation (in comparison to a 5% spending rule) has accounted for about 20% of the erosion.

In recognition of the effect of the spending rate in reducing the real value of the endowment, the Yale Corporation decided in early 1977 to freeze the spending level from endowment at the 1976-77 level (or at the level dictated by the Equation, if it is lower than the frozen level), plus 4.5% of new gifts, until such time as the spending level is 4.5% of the market value of the endowment at the beginning of the fiscal year.

#### EDUCATIONAL DEVELOPMENTS

In spite of the financial difficulties of the last decade Yale maintained, and even increased, its momentum as a major university. Significant new academic initiatives were developed, major innovations were made in the curriculum, and educational and research programs were reshaped.

Of particular importance was the strengthening of the Faculty of Arts and Sciences during the 1960s and the first half of the 1970s. In the humanities, traditionally strong departments increased the size of their faculties and continued to attract excellent faculty and students

from around the nation. The creation of the Institution for Social and Policy Studies brought a vitality and new interest in interdisciplinary programs to departments in the social sciences and related professional schools by providing opportunities for research and teaching about contemporary social problems. Particular attention was given to building up the natural sciences. The faculty was strengthened, new laboratory facilities were built, the Department of Computer Science was established, and other departments reorganized. Yale science became increasingly visible nationally. Within Yale College, the admission of women in 1969 was perhaps the most dramatic change, but along with this went such other developments as the establishment of the residential college seminar system, the Literature major, the Afro-American Studies program, and expanded opportunities for undergraduates in many departments.

There were equally significant developments in the professional schools. The schools of the performing and visual arts played an increasingly important role in educating the most talented young artists and architects in the nation and were central to the expansion of cultural and artistic life within the Yale community. Among those developments which enriched the cultural life on campus was the establishment of the Yale Repertory Theater in 1966 as part of the educational program of the School of Drama. The Schools of Medicine, Law, Divinity, and Forestry, under strong leadership, maintained and strengthened their historic positions of excellence in their respective professions. The arrival of the Institute of Sacred Music from New York to Yale in 1973 enriched the programs of both the Schools of Music and Divinity. The Berkeley Divinity School became affiliated with the Yale Divinity School in 1971, thereby providing an avenue for clinical experience for those preparing for the

urban ministry. The School of Forestry was renamed the School of Forestry and Environmental Studies in 1972, reflecting the broadening of its mission. The Yale School of Medicine was selected by the National Institutes of Health to be one of twelve major comprehensive centers for cancer research. During this decade the School of Nursing grew and gave leadership to its profession by expanding the role of nurses in areas more traditionally the province of medicine.

The School of Organization and Management opened in the fall of 1976 with an entering class of 50. Designed to prepare people for operational careers in government, business, and the non-profit sectors, the school plans for an enrollment of 400 within three years. In the summer of 1977, buildings on Hillhouse Avenue were renovated for use by the school, and construction of a new facility has begun.

Major new facilities and academic support services in the last decade have included the Yale Health Center, which began operation in 1971, providing a modern health facility and a comprehensive prepaid health plan for students, faculty, and staff. The new undergraduate Cross Campus Library was completed in the early 1970s, and in April 1977 the Yale Center for British Art opened with its magnificent collections to serve as a center for teaching and research in British studies. The renovation of dormitories on the Old Campus during the summers of 1976 and 1977 significantly upgraded the living quarters for freshmen.

Several academic programs were discontinued in this same period, among them the Department of Geography, the Department of the History of Science and Medicine, the program in Southeast Asian Studies, the Department of City Planning, and the Master of Arts in Teaching program.

There was concurrently a reshaping of educational and research pro-

grams in most of Yale's departments and schools, reflecting changes in the body of knowledge and the interests of faculty and students. Some of this was accomplished by reallocation of existing resources; some was made possible by gifts earmarked for designated purposes. At the end of the decade the educational and research programs of the University were stronger, and Yale was a more vital and interesting community than it had been in the early 1960s.

#### CHANGES IN ENROLLMENT

The educational developments of the past decade were reflected in changes in the size of the student body. As shown in Table A, the last decade saw an increase in the total enrollment of 1,599 students, a 20% increase. Excluding the Medical and Nursing Schools, the increase was 1,308 students, or 17%. The largest increase was in Yale College, where enrollment, including that of the summer term, increased by 1,335, or 33%. This was the result of the admission of women and the institution of the summer term. Among the graduate and professional schools the Schools of Divinity, Forestry and Environmental Studies, Medicine, Music, and Nursing had increases totaling 473 students, and the School of Organization and Management enrolled its first class of 50 students in 1976-77. In all the other schools (the Graduate School and the Schools of Art, Architecture, Drama, and Law) there were decreases ranging from 3% in Law to 30% in Drama. The shifts in various schools represented various factors, including changing student interests, changing programs, and decreases in the availability of financial aid.

#### CHANGES IN SIZE AND COMPOSITION OF FACULTY AND STAFF

Although the student body grew during the decade, the size of the

TABLE A  
Yale University

Number of Full-Time Equivalent Students Enrolled by School, 1967-68 and 1976-77

	1967-68		1976-77		Increase/(Decrease) 1967-68 to 1976-77
	Number	Percent of Total	Number	Percent of Total	
Yale College	4,010	49%	5,088	52%	1,078
Yale College (Summer)*	--	--	257	3	257
<u>Total Yale College</u>	4,010	49%	5,345	55%	1,335
Graduate School	2,145	26%	2,000	20%	(145)
Architecture	168	2	137	1	(31)
Art	102	1	91	1	(11)
Divinity	315	4	388	4	73
Drama	188	2	131	1	(57)
Forestry & Environmental Studies	57	1	102	1	45
Law	585	7	570	6	(15)
Music	115	2	179	2	64
Organization & Management	---	--	50	1	50
<u>Sub-Total</u>	7,685	94%	8,993	92%	1,308
Medicine & Nursing	476	6%	767	8%	291
<u>Total</u>	8,161	100%	9,760	100%	1,599
					20%

\*Summer Term enrollment was 514 full-time equivalent students, for an academic year enrollment of 257 (since the academic year has two semesters).

faculty (excluding Medicine and Nursing) remained approximately the same: 791 in 1967-68 and 806 in 1976-77. (See Table B.) It reached a high of 824 in 1970-71, but as a result of the retrenchment a low of 756 two years later in 1972-73. The faculty decreased by 2.2% between 1970-71 and 1976-77, a period in which student enrollment (excluding Medicine and Nursing) increased a total of 9.8%. This meant an increase of approximately 10% in the student/faculty ratio.

While the size of the faculty remained fairly constant over the period, fluctuations in its composition resulted in an increase in numbers in the two highest ranks (professors and associate professors) and a decrease in the lower ranks (assistant professor, instructors, and lecturers). This shift in the composition of the faculty is what would be expected after the period of rapid growth of the 1960s, since new younger appointments became fewer and some earlier appointees had been promoted into the higher ranks.

While the faculty was decreased by 2.2% between 1970-71 and 1976-77, the number of non-faculty staff (excluding Medicine and Nursing) decreased by 4.1% in the same period. As indicated in Table C, the non-faculty staff employment decreased by 150 positions over the six-year period, despite the addition of about 300 new staff positions to meet the needs of new programs, to carry out new and more complex federal regulations, to generate additional sources of income, and to perform internal work previously contracted outside. It is estimated that productivity improvements and cuts in services (for example, the initiation of self-bussing in the dining halls) resulted in a reduction of about 450 positions during the six-year period. This decrease, offset by the establishment of the 300

TABLE B

## Yale University

Changes in Size and Composition of Faculty, 1967-68 to 1976-77\*  
 (Excluding Medicine & Nursing)

	<u>Professors</u>	<u>Associate Professors</u>	<u>Assistant Professors</u>	<u>Instructors/ Lecturers</u>	<u>Total</u>
1967-68	311	149	237	94	791
1968-69	330	144	260	57	791
1969-70	339	141	265	61	806
1970-71	348	151	271	54	824
1971-72	351	138	242	53	784
1972-73	337	150	218	61	766
1973-74	337	161	214	73	785
1974-75	335	153	205	83	776
1975-76	347	149	216	74	786
1976-77	356	142	243	63	806

\*As reported to the American Association of University Professors (AAUP).



TABLE C

## Yale University

Changes in Size of Non-Faculty Staff,  
1970-71 to 1976-77\*  
 (Excluding Medicine and Nursing)

	<u>1970-71</u>	<u>1976-77</u>	<u>Net Change</u>	
			<u>No.</u>	<u>%</u>
Administration**	351	336	(15)	(4.27)
Academic Support and Other Staff***	2,068	2,069	1	.05
Operations****	<u>1,258</u>	<u>1,122</u>	<u>(136)</u>	<u>(10.81)</u>
<u>Total</u>	3,677	3,527	(150)	(4.10)

\*1970-71 is the earliest year for which data are available. These figures do not include students employed in support staff positions. Support staff employment in the Schools of Medicine and Nursing increased from 1107 employees in 1970-71 to 1270 employees in 1976-77, an increase of 163 employees, or 14.7%. This staff is supported largely by grants and contracts from outside agencies.

\*\*Includes offices of the President, Secretary, Treasurer, Director of Institutional Relations and Alumni Programs, Corporation Officer for Institutional Development, and Development Office.

\*\*\*Includes office of the Provost, libraries, galleries, health services, athletics, academic services, and secretarial and other support staff in academic departments.

\*\*\*\*Includes physical plant, engineering, purchasing, heating and lighting, grounds maintenance, custodial services, housing, parking, and communications.

new positions, resulted in the net decline of about 150 staff positions. Fortunately, the University was able to effect most of the staff reductions through retirements and normal attrition, rather than through layoffs and terminations.

#### BUDGET PERFORMANCE, 1967-68 to 1976-77

The following pages highlight the ways in which the impact of economic factors, the Corporation's policy decision concerning spending from endowment, developments in educational programs, changes in enrollment, and changes in size and composition of the faculty and staff are reflected in the income and expenses of the University during the past ten years.<sup>4</sup>

The basic trends in the University budget for the last ten years are presented in Table D, which gives the major components of operating income and expenses for each of the years; Tables E and G, which compare the compound rates of growth<sup>5</sup> of various components of income and expense with the compound rates of growth of per capita personal income and the consumer price index;<sup>6</sup> and Tables F and H, which indicate changes in relative importance of various components of income and expense at the beginning

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4. Appendix A describes Yale's budgets.

5. Rates of growth refer to compound rates of growth, not simple averages of rates of growth.

6. There is no one standard index that effectively captures the impact of inflation on universities in general, or on Yale in particular. Most of the analyses in this report are based on the consumer price index (CPI), even though that measure is not entirely appropriate because it reflects changes in the costs of purchases made by families and individuals rather than changes in the prices of goods and services purchased by a university. Per capita personal income (PI) is also sometimes used in this report as a helpful index for analyzing tuition increases and salary and wage expense increases. There are now efforts underway to develop a "higher education market basket index" that will more accurately assess the inflation rate of university expenses, but to date no precise figures are available for Yale.

TABLE B  
Yale University  
Operating Income and Expense, 1967-68 to 1976-77  
(\$ in Millions)

	1967-68	1968-69	1969-70	1970-71	1971-72	1972-73	1973-74	1974-75	1975-76	1976-77
<b>A. <u>Income</u></b>										
Term Bill Income	\$ 20.1	\$ 22.1	\$ 26.0	\$ 27.4	\$ 31.0	\$ 34.2	\$ 36.5	\$ 40.5	\$ 46.1	\$ 49.9
Grants and Contracts	35.3	39.6	42.7	45.9	49.2	52.8	54.0	60.2	64.9	70.2
Investments*	24.6	28.0	30.4	30.4	30.2	30.5	34.9	33.8	35.7	34.5
Current Gifts	8.0	7.5	7.0	7.5	7.4	7.0	8.2	9.4	10.2	9.4
Medical Services**	12.3	13.8	17.9	17.0	19.2	8.0	9.3	12.2	15.2	18.4
Other Income**						11.4	16.4	15.1	16.3	20.1
<b>Total Income</b>	<b>\$ 99.3</b>	<b>\$111.0</b>	<b>\$124.0</b>	<b>\$128.2</b>	<b>\$137.0</b>	<b>\$143.9</b>	<b>\$157.4</b>	<b>\$171.2</b>	<b>\$185.3</b>	<b>\$202.8</b>
<b>B. <u>Expenses</u></b>										
Faculty Salary Expense	\$ 24.0	\$ 26.0	\$ 31.3	\$ 31.5	\$ 32.1	\$ 33.2	\$ 34.6	\$ 37.1	\$ 42.7	\$ 46.1
Staff Salary & Wage Expense	25.4	29.0	31.8	34.5	36.5	40.2	43.4	47.8	51.8	58.0
Employee Benefit Expense	4.9	5.8	6.7	7.7	8.1	8.9	11.2	11.2	12.4	13.5
Student Aid***	12.2	14.6	16.2	16.5	16.4	17.3	16.9	17.6	21.3	23.5
Goods and Services	23.7	26.0	27.8	27.6	29.6	32.7	34.7	38.7	42.8	46.5
Utilities	1.9	3.1	2.2	2.9	3.5	3.9	6.2	8.8	8.9	10.1
Books	2.6	2.5	3.3	2.8	2.3	2.6	2.9	2.8	3.1	3.1
Other Expenses	5.2	5.7	6.5	7.3	9.7	6.0	7.6	7.4	7.0	8.6
<b>Total Expenses</b>	<b>\$ 99.9</b>	<b>\$111.9</b>	<b>\$125.8</b>	<b>\$130.8</b>	<b>\$138.2</b>	<b>\$144.8</b>	<b>\$157.5</b>	<b>\$171.4</b>	<b>\$190.0</b>	<b>\$209.4</b>
<b>C. <u>Surplus/(Deficit)</u></b>	<b>\$ ( .6)</b>	<b>\$ ( .9)</b>	<b>\$ ( 1.8)</b>	<b>\$ ( 2.6)</b>	<b>\$ ( 1.2)</b>	<b>\$ ( .9)</b>	<b>\$ ( .1)</b>	<b>\$ ( .2)</b>	<b>\$ ( 1.7)</b>	<b>\$ ( 6.6)</b>

\*Includes Endowment and Other Investment Income (Cash Management & Stock Loan).  
\*\*Accounting changes make it impossible to separate Medical Services income from Other Income prior to 1972-73.  
\*\*\*Student Wage Expense has been separated from Staff Salary & Wage Expense and included in Student Aid.

and the end of the decade.

Highlights in overall budget trends for the past ten years:

- Both income and expenses more than doubled during the decade.
- There were deficits in each of the ten years. They increased from \$600,000 in 1967-68 to \$2.6 million in 1970-71; decreased to nominal amounts, \$100,000 in 1973-74 and \$200,000 in 1974-75; and increased to \$6.6 million in 1976-77.

#### GROWTH RATES OF INCOME ITEMS

Highlights in growth rates of income components, shown in Table E,

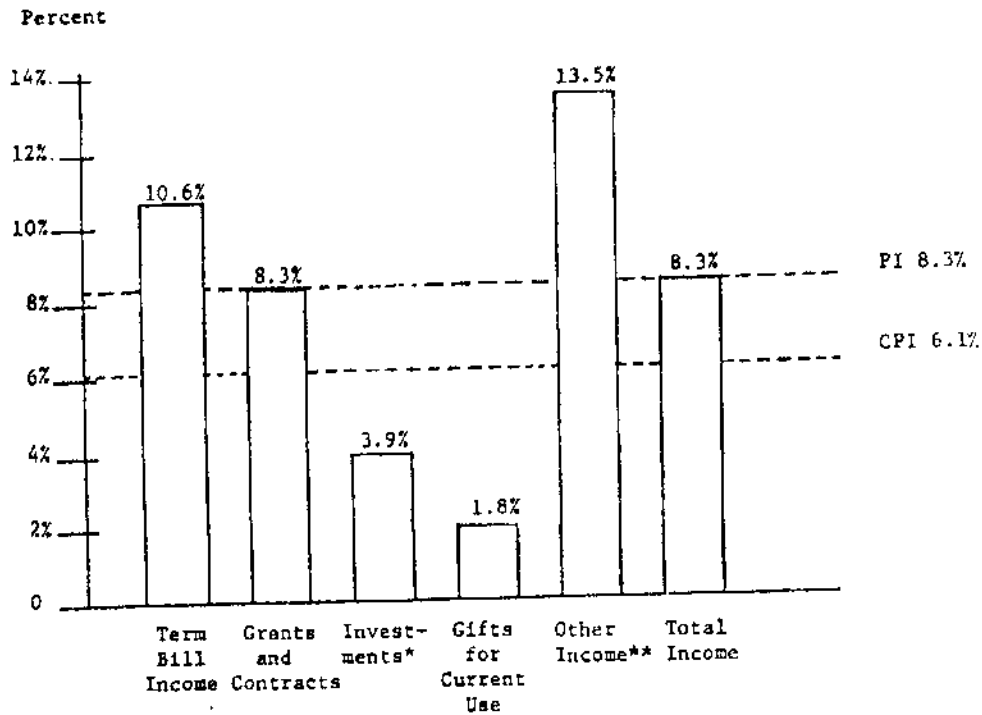
are:

- The annual rate of increase in total income rose in proportion to the increase in per capita personal income (8.3%) and more than the consumer price index (6.1%).
- The annual rate of increase in term bill income (10.6%) was the result of increased enrollment as well as higher tuition and fees. The annual rate of increase in the Yale College term bill rate of 8.8% was greater than the 8.3% rate of increase in per capita personal income.
- The annual rate of increase in investment income, which includes spending from endowment as established by the University Equation, income from the cash management program, and the securities lending program, was 3.9% compared to a 8.3% increase in total income and a 6.1% annual rate of increase in the consumer price index.
- The annual rate of increase in gifts for current use (1.8%), including the annual Alumni Fund, fell far short of the rate of increase in the consumer price index and in per capita personal income.

TABLE E

## Yale University

Rate of Growth of Income in Relation to the Rate of Increase in  
Consumer Prices and Per Capita Personal Income, 1967-68 to 1976-77  
(Compound Growth Rate)



CPI - Consumer Price Index  
PI - Per Capita Personal Income

\*Includes endowment and other investment income.  
\*\*Includes medical services income.

Other income, which includes sales of auxiliary services, charges for the Yale Health Plan, and income from the clinical practice program, increased 13.5% per year, the highest of any income item.

#### Term Bill Income

Term bill income includes income from tuition and fees and from room and board payments. Over the ten-year period this income item for the whole university increased from \$20.1 million to \$49.9 million, an annual increase of 10.6%. This results from an increase in the term bill and tuition rate in the various schools as well as changes in the number of students.

During the decade tuition and fees increased dramatically. Yale College term bills increased from \$3,000 in 1967-68 to \$6,425 in 1976-77, or an annual increase of 8.8%, which was somewhat higher than the 8.3% annual growth of per capita income. Tuition in the graduate and professional schools increased also: for example, Graduate School, from \$1,900 to \$4,400; Law School, from \$1,900 to \$4,150; Music School, from \$1,200 to \$3,150; Medical School, from \$1,900 to \$4,500.<sup>7</sup> Overall, graduate and professional school tuition increased at an annual rate of 8.5%.

#### Grants and Contracts

Grant and contract income is largely the result of faculty initiative in seeking support for their research facilities and expenses and for graduate students. It is a major component of the budget of the Medical

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7. For 1977-78, the Yale College term bill increased by \$525 to \$6,950, or 8.2%, while tuition for the Graduate School went up by \$350 to \$4,750, or an increase of 8.0%. The average tuition increase for the professional schools was \$327, or 8.7%.

School and medically related sciences; the other natural sciences receive considerable income from this source and the social sciences receive modest amounts.

Income from grants and contracts increased from \$34.3 million in 1967-68 to \$70.2 million in 1976-77, an annual increase of 8.3%. Two significant changes developed over this period of steady overall growth. First, grant and contract funding shifted to medicine and medical-related sciences from the natural and social sciences. In 1967-68 the School of Medicine accounted for 44% of the total Yale grant and contract income, whereas in 1976-77 it accounted for 61%. Second, indirect expense recovery now represents a larger share of the total grant and contract income than it did in 1967-68. Indirect expense recovery is the amount beyond the direct expenses of research that sponsors pay to reimburse the University for a share of its overhead expenses. These expenses include such costs as depreciation and the maintenance of buildings, energy, library, and administration. In 1976-77 the indirect recovery rate on federal grants represented 76.5% of salary and wages. During the past ten years indirect expense recovery income has grown at an annual rate of 15.6%, or just over twice the annual increase in direct grant and contract income of 7.1%. Combined, the 15.6% growth in indirect expense recovery and the 7.1% growth in direct grant and contract income resulted in an 8.3% annual growth in this income item during the ten-year period.

#### Investment Income

Investment income availed of increased over the decade from \$24.6 million to \$34.8 million at an annual rate of 3.9%, which is far less than the 8.3% growth of total income. The principal component of investment

income is spending from endowment, which has been determined by the University Equation; its growth has been limited by the generally depressed condition of the stock market since 1968. The spending for 1976-77 was \$31.6 million. The remainder was comprised of income from cash management and the security loan programs of \$1.9 million and income from other sources of \$1.3 million in 1976-77.

#### Gifts for Current Use

Gifts for current use include both the gifts for current use through the Yale Alumni Fund and other expendable gifts by foundations, corporations, and individuals.

Gifts for current use of which the University has availed itself have totalled \$83.2 million over the past ten years,<sup>8</sup> including \$39.4 million through the Alumni Fund. The amount of gifts for current use has remained essentially constant during the ten-year period, growing from \$8.0 million in 1967-68 to \$9.4 million in 1976-77, an annual increase of 1.8%. This component of the budget, on which Yale relies heavily, has not kept pace with the growth in per capita personal income or the consumer price index.

#### Other Income

Other sources of income (sale of services, auxiliary enterprises, and the like) increased from \$12.3 million in 1967-68 to \$38.5 million

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8. Besides gifts for current use, Yale receives other types of gifts, including gifts to endowment, gifts for buildings, gifts for student loans, and gifts in kind to the library and galleries. Over the past ten years Yale has received \$63.5 million in gifts for buildings, almost a quarter of which was received in 1967-68 and 1968-69. Gifts for buildings and for student loans are, of course, not available for the operating budget. Yale has received a total of \$329.3 million in gifts other than gifts in kind during the past ten years.



in 1976-77, an annual increase of 13.5%. The most significant factor in this increase was the growth in medical services income. This includes the clinical practice program in the School of Medicine, which rose from \$7.0 million in 1972-73 to \$16.2 million in 1976-77, and the Yale Health Plan, a preventative health care maintenance program initiated in 1970-71 for faculty, staff, and students, which increased its revenue from \$0.1 million in 1970-71 to \$2.2 million in 1976-77. This plan is supported by University payments on behalf of student costs, premiums paid in part by the University and in part by faculty and staff who join the plan, and pharmacy sales. Since University policy requires that total premiums cover the costs incurred in providing services, this source of income has increased at approximately the rate at which medical service expenses have increased at Yale during the past six years.

As indicated in Table F, by the end of the decade term bills and other income accounted for an increasing share of income; gifts for current use and income from investment a markedly decreasing share; and income from grants and contracts accounted for the same proportion of total income as a decade earlier.

#### GROWTH RATES OF EXPENSE ITEMS

Highlights of growth in expense items (see Table G) are:

- Total expenses have grown more rapidly than income, considerably more rapidly than the consumer price index, and somewhat faster than per capita personal income.
- The costs of utilities and oil have increased dramatically, growing at a rate of 20.4% per year.

TABLE F

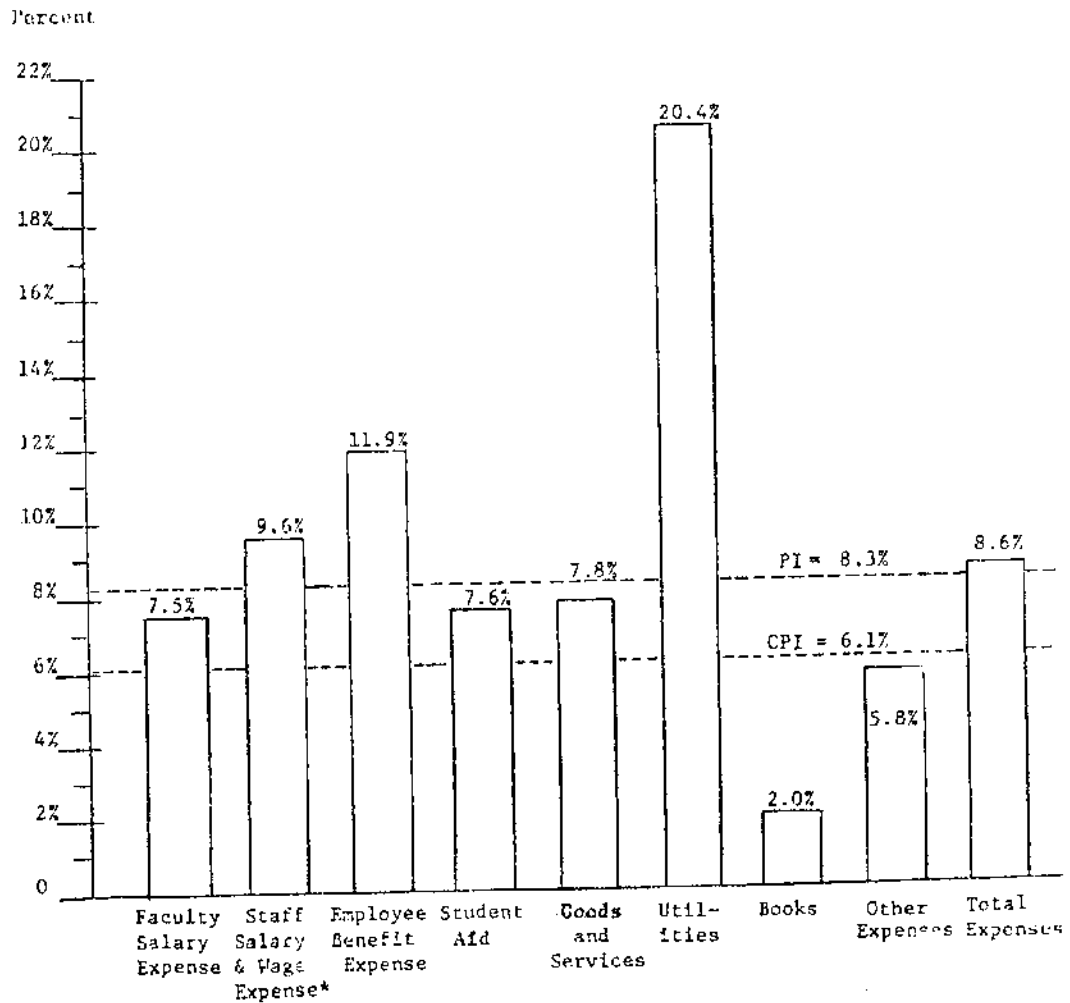
Yale University

Income Items as Percent of Total Income,  
1967-68 and 1976-77

100.0%		100.0%	
Gifts	8.1%	Gifts	4.6%
Investments	24.8%	Investments	17.2%
Other Income	12.4%	Other Income	19.0%
Term Bill Income	20.2%	Term Bill Income	24.6%
Grants and Contracts	34.5%	Grants and Contracts	34.6%
1967-68		1976-77	

TABLE G  
Yale University

Rate of Growth of Expenses in Relation to Rate of Increase in  
Consumer Prices and Per Capita Personal Income, 1967-68 to 1976-77  
(Compound Growth Rate)



PI = Per Capita Personal Income

CPI = Consumer Price Index

\*Excludes wages paid to students in support staff positions.

- Employee fringe benefits have shown the second highest rate of growth, 11.9% per year.
- Total faculty salary expense, exclusive of fringe benefits, increased at an annual rate of 7.5%, less than the rate for total expenses. The annual growth of faculty salary rates, by rank, was in the range of 4.9% to 5.6%, below the rate of increase in the consumer price index, especially in recent years.
- Staff salary and wage expense, exclusive of student jobs and fringe benefits, increased at an annual rate of 9.6%, which is a greater rate of growth than total expenses, 8.6%, and substantially above the rate of increase in the consumer price index.
- Student aid, inclusive of jobs, increased at 7.6% per year, less than the increase in total expense and less than the rate of increase of the comprehensive term bill in Yale College and tuitions in the graduate and professional schools.
- Expenditures for the purchase of books, despite the rapid rise in prices, increased at a compound rate of only 2.0% per year.

#### Faculty Expense

Faculty salary expense increased from \$24.0 million in 1967-68 to \$46.1 million in 1976-77, an annual increase of 7.5%. Although the size of the ladder faculty (excluding Medicine and Nursing) is essentially the same now as it was in 1967-68, there is a higher proportion of senior faculty than there was ten years ago.

Average salaries paid by faculty rank as reported to the American Association of University Professors increased over the decade at the

following annual rates: professors, 5.3%; associate professors, 4.9%; assistant professors, 4.9%; instructors, 5.6%. These represent average rates of increase for the faculty actually employed in the given rank. However, especially in the lower ranks, many faculty leave each year and some are promoted to a higher rank. Meanwhile, others are appointed to take their place, usually at the lower end of the salary range. This process means that the averages understate the increases for those who remain in the rank. The effect is less for professors where the turnover is less. It is clear, however, that increases in faculty compensation have lagged behind the increase in the consumer price index and in per capita personal income. This has been particularly true in recent years.

#### Staff Salary and Wage Expense

Staff salary and wage expense grew from \$25.4 million in 1967-68 to \$58.0 million in 1976-77, an annual increase of 9.6%. It consequently rose faster than either the consumer price index or per capita personal income.

#### Employee Benefit Expense

Indirect compensation to employees through benefits grew over the decade from \$4.9 million to \$13.5 million, an annual rate of increase of 11.9%. This was in large part the result of changes in the employee benefit package that included a higher percentage contribution by Yale to employee health coverage, improved pension plan for staff employees, and a higher social security base as mandated by federal legislation.

#### Student Aid

Financial aid to students consists of gift aid (scholarships and

fellowships), jobs and loans. The figures provided in the tables refer only to gift aid and student jobs. Such aid increased in all schools from \$12.2 million in 1967-68 to \$23.5 million in 1976-77, an annual rate of 7.6%. This was the result of an annual 7.1% increase in gift aid and a 12% annual increase in wages for student jobs. This increase in aid, including jobs, is, of course, less than the increase in total term bill income of 10.6% per year.

Since outside gift aid increased at a very modest rate, from \$6.3 million to \$9.7 million, a 5% annual growth over the decade, Yale has had to increase its gift aid from \$5 million to \$11 million, an annual increase of 9.4%. To support this growth, the University has had to channel increasing amounts of general appropriation funds into scholarships to compensate for the slow growth of the income restricted to financial aid available from endowment and currently expendable gifts.

In order to offset the rapid increase in term bills compared to gift aid and student jobs, Yale increased student loans over the decade from \$2.1 million to \$7.3 million, an annual increase of 14.9%. Thus, while Yale has substantially increased its support of students through gift aid and jobs, there has been a somewhat smaller increase in outside aid and students have had as a result to turn increasingly to loans to meet the costs of tuition and fees.

The impact of these factors has varied from school to school. In Yale College, the increased student aid from University general appropriation funds, complemented by increased loans and job opportunities, has enabled the University to maintain the policy of admission without reward

to need. In the Graduate School, increased University support could not fully offset the significant reduction in federal programs; consequently student enrollment had to be reduced and financial aid has met a lesser portion of a student's expenses. In the professional schools, the University has been able substantially to maintain the level of support through gift aid and loans.

#### Goods and Services

Total University expenses for goods and services (materials and supplies, food, professional fees, and the like) increased from \$23.7 million in 1967-68 to \$46.5 million in 1976-77, an annual increase of 7.8%. This growth rate would have been significantly higher were it not for major productivity increases and economies in the use of goods and services. A substantial amount of building maintenance work previously undertaken by outside contractors is now handled by the University's Physical Plant Department, and reductions have been made in the frequency of painting and other general upkeep procedures.

#### Utilities

Utility costs soared from \$1.9 million in 1967-68 to \$10.1 million in 1976-77. This represents an annual increase of 20.4%, the largest increase of any of the major expense items. Yale initiated energy conservation measures in 1969-70 and embarked on a major conservation program in 1973-74 when oil prices escalated from \$4.62 to \$9.27 per barrel within twelve months. The program included the acquisition of computer-based monitoring equipment, the upgrading of temperature control equipment, an infrared aerial study of the University to identify buildings with high levels of energy consumption, and improved insulation of build-

ings. These measures enabled the University to reduce its energy costs from what they otherwise would have been by \$0.3 million in 1970-71, \$1.7 million in 1973-74, and \$4.5 million in 1976-77. It is estimated that conservation efforts since 1969-70 have saved Yale a total of \$15.5 million.

#### Books

Expenditures for books rose from \$2.6 million in 1967-68 to \$3.1 million in 1976-77, an annual increase of 2.0%. Since there have been major increases in book prices, especially those acquired from abroad, the total number of books purchased has decreased by 25% over the decade. The establishment of the Kline Science Library and of the Social Science Library allowed a consolidation of departmental libraries and thus created opportunities for reductions in the purchase of duplicate books and periodicals. While the decline in purchases has been offset to some extent by an increase in materials acquired through gifts and exchanges, this remains an area of grave concern.

#### Other Expenses

Other expenses include interest, taxes, insurance, amortization of major equipment, renovations, and miscellaneous expenses. These expenses increased from \$5.2 million in 1967-68 to \$8.6 million in 1976-77, an annual growth of 5.8%, the lowest of any of the major expense items except books.

As indicated in Table H, there has been some shift in the relative importance of the various components of expense over the decade. Most noticeable are the increase of utilities from 1.9% to 4.8% of total



TABLE H

## Yale University

Expense Items as Percent of Total Expense,  
1967-68 and 1976-77

100.0%		100.0%	
Books 2.6%	→	Other 4.1%	← Books 1.5%
Other 5.2%		Expenses	
Utilities 1.9%	→	Utilities 4.8%	←
Benefits 4.9%		Benefits 6.5%	
Student Aid 12.2%	→	Student Aid 11.2%	←
Faculty Salary Expense 24.0%		Faculty Salary Expense 22.0%	
Goods and Services 23.7%	→	Goods and Services 22.2%	←
Staff Salary & Wage Expense 25.5%		Staff Salary & Wage Expense 27.7%	
1967-68		1976-77	

expense, the increase in benefits from 4.9% to 6.5%, and the decline in books from 2.6% to 1.5%. Faculty salaries declined from 24% to 22% of total expenses, while staff salaries and wages (excluding student jobs) increased from 25.5% to 27.7% and student aid (including jobs) declined from 12.2% to 11.2%.

#### CONTINGENCIES AND RESERVES

Any budget as large as that of Yale is inevitably subject to unforeseeable events that can involve substantial sums. It is essential, therefore, to provide annually a reserve for contingencies to be used for unforeseen expenses that develop during the year and cannot be avoided if the University's activities are to go forward as planned. Allowances for contingencies under the control of the Provost, Treasurer, and Comptroller were established in 1969-70 in the total amount of \$250,000. Although the amount was increased to \$275,000 in the 1977-78 budget, the increase does not allow adequately for inflation and must be substantially augmented.

In 1970-71 the University budgeted an additional allowance, for "uncontrollable variances," which was continued through 1972-73, when it was eliminated. Experience has shown that a substantial sum must be provided to cover uncontrollable departures of actual income from budget, such as the shortfall in income from the securities lending program in 1976-77 caused by conditions in the securities markets, and adverse events on the expense side, such as the increases in oil costs and insurance rates also experienced in 1976-77.

Although such budgetary allowances will help to avoid operating

## II. ANALYSIS OF YEAR'S 1977-78 BUDGET

Table I provides a summary comparison of the approved 1977-78 budget and the actual 1976-77 results. As indicated in the table, total budgeted income for 1977-78 is \$215.9 million, an increase of \$13.1 million, or 6.5% over the actual 1976-77 income. Total expenditures are budgeted at \$216.4 million, an increase of \$7.0 million, or 3.3%, over the 1976-77 level. The 1977-78 approved budget projects a deficit of \$500,000. As discussed below, review of the experience of the first four months indicates that the actual deficit may exceed the approved deficit by as much as \$1.5 million.

The 1977-78 budget was constructed on the basis of several major policy decisions and assumptions:

- . The unanticipated problems in the 1976-77 budget would be carefully analysed to ensure that they would not reoccur.
- . The required budgetary reductions would be spread throughout the University, with only limited programmatic reductions in specific academic and administrative areas.
- . Income from existing endowment was frozen by action of the Corporation (in January 1977) at the level of dollars budgeted in 1976-77, or the amount indicated by the University Equation, whichever is lower, with income from new gifts (after June 30, 1976) being added at the rate of 4.5%.

The approved 1977-78 budget reduced the rate of growth of expenditures to approximately half that of the rate of growth of income. For example, if inflation is 6% from July 1977 to June 1978, the 1977 budget assumes that income will grow at essentially the inflationary rate.

TABLE I  
 Yale University  
Comparison of Approved 1977-78 Budget with Actual 1976-77 Results  
 (\$ in Millions)

	<u>1976-77 Results</u>	<u>1977-78 Budget</u>	<u>Difference</u>	
			<u>Amount</u>	<u>Percent</u>
<b>A. <u>Income</u></b>				
Term Bill Income	\$ 49.9	\$ 54.7	\$ 4.8	9.6%
Grants and Contracts	70.2	74.4	4.2	6.0
Spending from Endowment	30.8	31.2	0.4	1.3
Other Investment Income	4.0	5.0	1.0	25.0
Current Gifts	9.4	11.1	1.7	18.1
Medical Services	18.4	19.7	1.3	7.1
Other Income	<u>20.1</u>	<u>19.8</u>	<u>(0.3)</u>	<u>(1.5)</u>
<u>Total Income</u>	\$ 202.8	\$ 215.9	\$ 13.1	6.5%
<b>B. <u>Expenses</u></b>				
Salary and Wage Expense	\$ 106.6	\$ 111.1	\$ 4.5	4.2%
Employee Benefit Expense	13.5	14.3	.8	5.9
Student Aid	21.0	22.6	1.6	7.6
Goods and Services	46.5	44.1	(2.4)	(5.2)
Utilities	10.1	10.8	.7	6.9
Books	3.1	3.5	.4	12.9
Other Expenses	<u>8.6</u>	<u>10.0</u>	<u>1.4</u>	<u>16.3</u>
<u>Total Expenses</u>	\$ 209.4	\$ 216.4	\$ 7.0	3.3%
<b>C. <u>Surplus/Deficit</u></b>	\$ (6.6)	\$ (.5)	\$ 6.1	

whereas expenses will grow at slightly more than half that rate.

The reduction in the growth of expenses was achieved by means of decreases totalling \$7.4 million from what the University would have otherwise expended. \$5.8 million of this reduction were permanent cuts, of which the effects will continue into future budgets, and \$1.6 million were one-time only savings that must be replaced by continuing reductions in future years.

The \$5.8 million of continuing reductions included the following seven actions:

- . A no-increase guideline in expenses with the expectation that most departments would achieve efficiency increases to offset fully the inflationary impact of the estimated 6% rise in the cost of goods and services purchased. This saving was estimated at \$1.8 million.
- . A planned reduction, mostly through retirements and normal attrition, in support staff and bargaining unit personnel. This savings was budgeted at \$1.65 million.
- . Average salary increases reduced by 1% from the level originally planned, for a savings of \$1.1 million.
- . Savings of approximately \$600,000 through the University's energy conservation program. Of this amount, \$400,000 is to be realized as a result of prior investments in new equipment and improved controls and procedures. About \$200,000 is expected to be realized in 1977-78 through the use of a new computer-based monitoring system; the energy conservation program is expected to generate increased savings by reduced consumption during the next several years.

- . New procedural approaches to printing, publications, postage, and telephone for an estimated savings of \$300,000.
- . Revised procedures for the transfer of cash from new gifts to endowment to the investment managers on a quarterly rather than a monthly basis. The new approach followed University practice of valuing market units quarterly and was estimated to increase income by about \$200,000.
- . A strict review of all requests for one-year faculty replacements, with the objective of substantially reducing such replacements for an estimated savings of \$100,000.

The one-time only savings of \$1.6 million included the following five actions:

- . The transfer of \$660,000 to Accounts Receivable, with a corresponding one-time credit in expenses for property taxes, in recognition of the agreement that is expected to be reached with the City of New Haven regarding certain properties added by the City to its Grand Tax List from 1970 to 1975. The total included \$435,000 of taxes charged over that period to operating expenditures and \$225,000 of accrued interest on all payments.
- . \$300,000 of Medical School income to be placed in a Medical School reserve account; this action will provide a corresponding improvement in total University budgeted income.
- . A reduction in the alterations budget from \$700,000 to \$400,000, for a savings of \$300,000. This reduction required the University to delay necessary modifications in the physical plant.
- . A reduction of \$250,000 in the purchase of equipment and maintenance work in operations.

- . One-time extraordinary savings of \$100,000 from a strict review of all one-year faculty replacements. This savings is in addition to the \$100,000 continuing savings from faculty replacements discussed on the preceding page.

Certain areas of the University received special attention in the 1977-78 budget despite the emphasis on stringency:

- . To strengthen junior faculty salaries, which have been less competitive with other institutions than desirable, salaries for this rank were increased by approximately 7%. The increase for senior faculty averaged between 3% and 4%.
- . While most budgets of the University were expected to be held at their 1976-77 levels, the Athletics Department was granted an increase of \$50,000, approximately 2% of its 1976-77 budget, to help provide for equal opportunity for women in sports at Yale. The department was required to find the additional financial support needed for women's sports within its own budget through internal reallocations.
- . The abnormal price increases in the past few years in materials purchased from abroad have resulted in an approximately 25% decrease in the number of books purchased annually by the Library, even though the amount of dollars allocated to the Library for acquisitions increased by 35% over the last five years. In order to reverse this trend, the Library acquisitions budget was increased by 12%. This increase is expected barely to offset the estimated increase in the prices of books and publications for 1977-78.

Projections of this year's final results have been recently completed on the basis of an analysis of the actual income and expenses for the

first four months and a more intensive review of expenditures by selected schools and departments. It is difficult to project year-end results with a high degree of accuracy this early in the year. It is, for instance, too early to predict with confidence variances of certain income items from the budgeted amounts. While projections of term bill income are certain because enrollment levels are known, the same is not true of current expendable gifts and other income because there is no consistent historical pattern for these items. Likewise, there is no solid historical experience at Yale on which to project the impact of the payment of accrued vacation for staff who resigned over the summer or to project actual fringe benefit requirements.

Nonetheless, the data currently available suggest that the current year budget base could be understated for the longer term by approximately \$1.5 million. This could result in an increase in the current year's budgeted deficit from \$0.5 million up to \$2.0 million. The higher possible deficit would result both from failing to meet anticipated income and expenses exceeding budgeted amounts. With contingency funds of only \$275,000, there is little protection in the operating budget against such variances. A total estimated deficit for 1977-78 of \$2.0 million has been used in the financial projections discussed in the next section. The estimate has been made for planning purposes and will need to be refined and revised as the year progresses and more definitive information becomes available.

The University has taken the following two steps to contain expenditures as far as possible within the amounts budgeted for the year:

Suspension of hiring. The administration announced on October 24, 1977, a policy suspending the filling of any faculty, administrative, or



support positions that are now or will become vacant and that are paid from general appropriation or endowment funds. A stringent procedure for the approval of exceptions has been established.

Review of possible department overexpenditures. Budgeted income and expenditures are now being reviewed on a department-by-department basis. While unforeseen events may dictate approval of some modifications to the original budget plan, the purpose of the review is to ensure that spending through the balance of the year occurs at a level that will permit accomplishment of approved budgeted levels.

Further reports on the estimated final budget results will be made during the course of the year.

### III. THE FUTURE BUDGETARY PICTURE FOR YALE

This section discusses financial equilibrium and develops a set of financial projections for Yale on the basis of that concept.

#### THE CONCEPT OF FINANCIAL EQUILIBRIUM

The idea of financial equilibrium is critical to an understanding of Yale's present and future financial health. Briefly stated, the concept is that current operations and capital expenditures must draw down only such an amount from endowment and physical assets as will preserve in perpetuity the purchasing power of endowment and the useful life of physical assets. To take one example, the preservation of the real purchasing power of the endowment requires that spending from endowment for current and capital purposes must be at a level that is no more than the long-term, real rate of return from the investment of endowment. Higher spending than the real rate of return means that current generations of beneficiaries are being favored over future generations. Likewise, the under-maintenance of physical assets favors the present over the future and contributes to financial disequilibrium.

Financial equilibrium should be distinguished from the conventional accounting concept of balanced budgets. An institution will have consistently balanced budgets if it is in financial equilibrium, but a balanced budget in any given year does not mean that a university is in financial equilibrium. For example, an institution may have both a balanced current budget and sufficient assets to fund new capital facilities, but if it does not have sufficient endowment or incremental revenues to operate and maintain the new facilities in the future, it is not maintaining financial balance. Indeed, it is moving away from that condition.

deficits, there may yet be years in which the impact of unforeseeable adverse events produces an operating deficit. For such an occasion it is necessary to have a University operating reserve to which the operating deficit can be charged. In other years, operating surpluses may be credited to this reserve so that over time the University will operate within budget even though its actual results may not be precisely in balance each year. In 1967-68 the Income Stabilization Fund (later called the University Operating Reserve), which had been built up out of income surpluses prior to 1965, amounted to \$8.6 million. The University's deficits beginning in 1965-66 were charged to this fund and the Reserve was exhausted in 1975-76. Subsequent deficits have created a negative balance of \$8.9 million. This operating reserve must now be built back up at least to an even level.

Next there is the question of capital reserves. Yale frequently encounters situations where a small capital amount, available for use at the discretion of the President, may permit an important new project to go forward, or allow improvements in the physical plant to meet important current needs. Such a capital reserve is a practical necessity.

In recognition of this necessity, the endowment fund called the Development Fund was established in 1960 as part of Yale's capital fund drive called the Program for the Arts and Sciences. It was planned to provide about \$1.1 million of annual income. Under the original plan, \$1 million of Alumni Fund annual giving was to be added to this endowment income, thereby providing a total of about \$2 million a year. This income amount is now actually overcommitted.

Since 1974-75 the \$1 million of the Alumni Fund income previously

added to the Development Fund has been used annually to reduce the operating deficit. As of 1973-74 \$400,000 of the Development Fund has been allocated to the operating budget each year in support of alteration expenses of a capital character, and in 1977-78 an additional \$300,000 was allocated from the Development Fund to help defer expenses for unfunded pension liabilities. Thus the amount available annually from the Development Fund for the improvement of educational effort and plant is now too low. Both for this reason and because the 1960 understanding continues to underlie Alumni Fund gifts, it must be built back up.

These decreases and inadequacies in contingency funds and reserves have been offset by increases in the balance of the unexpended endowment income (excluding the Medical School) and in Medical School reserves. Unexpended endowment income (income earned from endowment restricted as to purpose but not spent) increased from \$3.3 million in 1967-68 to \$4.1 million in 1976-77. The Medical School, which operates on a self-sufficiency basis, increased its reserves from \$260,000 in 1967-68 to \$1.3 million in 1976-77 as a result of budgeted surpluses. These reserves function for the Medical School much like the University Operating Reserve for the balance of the University.

Overall, the University's reserves and contingency funds have declined from \$12 million in 1967-68 to negative \$3.3 million in 1976-77. As discussed above, the major reason for the precipitous decline in total operating reserves and contingencies has been the reduction of the University Operating Reserve from \$8.6 million in 1966-67 to a negative \$8.9 million in 1976-77.

## DEBT

Like many universities, Yale has added substantially to its debt during the last ten years. Total debt increased from \$1.9 million in 1967-68 to \$35.5 million in 1976-77. A major portion of the debt is for new building and equipment financed through the Connecticut Higher Education Facilities Authority (CHEFA) by tax exempt bonds for which Yale is liable for amortization and debt service charges. Four series of CHEFA bonds issued in the past six years have financed the construction of such facilities as the Cross Campus Library and the Yale Health Center. The first CHEFA issue will be retired in 1978, and all of the issues will have been retired by 2006.

The other major portion of debt is to finance student loans. Student loan debt, undertaken in 1973-74 with an initial borrowing of \$4.9 million, rose to \$13.1 million in 1976-77. To finance these loans Yale borrows from the Student Loan Marketing Association (SLMA) and commercial banks. While Yale has experienced fewer loan defaults by students than the national average of 12.2%, the fact that 7.2% of former students' loans in repayment in 1976 were in some stage of default is cause for concern.

Prompt annual attention to whether Yale is moving towards or away from financial balance is especially critical today because the volatility and magnitude of changes in economic and political events can cause the University's financial condition to deteriorate very rapidly. The past ten years have shown that rates of inflation above 5%, coupled with real investment returns below the rate of spending from endowment, or serious under-maintenance of physical assets, can cause a serious deterioration in the real purchasing power of endowment, or a similar decline in the useful life of physical assets. In addition, determination of an institution's movement towards or away from financial balance requires making annual estimates of the real future rate of endowment return, the flow of gifts to endowment, and the appropriate maintenance of physical assets for preservation of their useful life.

#### FINANCIAL PROJECTIONS

Five-year financial projections for Yale have been developed on the basis of two policy decisions by the Corporation and on a set of specific assumptions about the likely growth (or decline) for each category of income and expense in the operating budget.

The first of the policy decisions concerns spending from endowment. As already noted, the Corporation in January 1977 made a decision that the amount of spending from endowment to be permitted in 1977-78 and thereafter should be frozen at the amount of spending from endowment in 1976-77 or, in the event the University Equation produced a lower amount,

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 that lower amount. The corollary was that new gifts to endowment received after June 30, 1976 would be subject to a rate of spending of 4.5%. The purpose was to move the amount of spending from endowment, as a percentage of the market value of the endowment, steadily downward to 4.5%, and to hold it there.

The Corporation has now reaffirmed that decision. On the basis of an estimated total return on all endowment of 9.5% per year, and of estimated gifts to endowment averaging \$25.3 million per year, the level of spending from endowment, as a percentage of the market value of endowment at the start of the fiscal year, would move from 5.6% in 1977-78 to 5.3% of the market value in 1978-79, to 5.1% in 1979-80, to 4.9% in 1980-81, to 4.7% in 1981-82, and to 4.5% in 1982-83. If the market value of endowment were to rise more than has been assumed, then, of course, the 4.5% target would be reached sooner. But the reverse would be true if the market value did not rise even as much as these conservative projections.

Moreover, even the 4.5% spending rate may not achieve the first of the basic elements of a condition of financial equilibrium, namely, that the real value of existing endowment be maintained. Indeed, on the basis of wide consultation, the Corporation believes it would be unwise to assume real rate of return on the Yale endowment greater than the estimated 3.5% a year, over the next five years -- this figure resulting from an

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1. In fact, for the forthcoming fiscal year 1978-79, since the University Equation operates a year behind, using the stock market level of June 30, 1977, as its last input, and since that level showed a drop from June 1976 (with a substantial and unexpected drop after the "freeze" decision), the level of spending from existing endowment under the University Equation turns out to be lower than the "freeze" amount by some \$350,000. It is this lower amount that is reflected in the projection.

assumed inflation rate of 6% over this period and an assumed rate of total return of 9.5%. In other words, a gap between the spending rate on endowment and the real rate of return would persist on the stated assumptions, and the real value of existing endowment (as of June 30, 1977) could decline over a six-year period by about 11%. However, with the anticipated level of new gifts to endowment, the real value of total endowment (new gifts included) would be 11% greater at the end of the six-year period.

In short, the policy adopted by the Corporation is a gradual one, which for this five-year period narrows the gap that has developed in the past decade between the spending rate and the real rate of return.<sup>2</sup> During this time Yale will be relying on new gifts to endowment to maintain and increase the real value of the total endowment. Beyond that time, it is the Corporation's hope that economic conditions will permit a steady 4.5% spending rate to preserve the real value of then-existing endowment and thus allow new gifts to endowment to expand Yale's capitalization.

There are, of course, alternatives to such a gradual policy. The spending rate could be reduced at once to 4.5% or even to 3.5%. The Corporation concluded, however, that the additional cuts in expense that would then be required, over and above those required in any event, would be too sharp and rapid, striking at the core of Yale's educational programs. However, under no circumstances can Yale accept further serious

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<sup>2</sup> With the real rate of return actually at or near zero in these past ten years, only a flat prohibition on any spending from endowment could have preserved the real value of existing endowment. This would be true for all educational institutions, not just for Yale.



decline in the real value of its total endowment. Such more stringent alternatives may have to be considered, therefore, if the economy and the stock market perform worse than these assumptions.

It is, of course, conceivable that the reverse will be true and that total nominal return on Yale's endowment will be higher than the 9.5% cited above. Given the low market values of June 30, 1977, a somewhat greater rise is not out of the question. If it were to occur, the effect would be to eliminate the gap between the spending rate and the real rate of return at an earlier date.

But the Corporation believes that in no event should the target of a 4.5% spending rate be increased. If it is attained sooner than now foreseen, it will be maintained, and the result will be slightly, but only slightly, higher amounts of permitted spending from endowment four to five years from now. In all probability the University Equation will be replaced at such a time by some more simplified formula that takes full account of inflation rates but seeks to avoid sharp fluctuations upward or downward by using five-year market averages or a similar device; such formulae are now under study by the officers of the University.

To put it differently, the Corporation's decision to freeze spending from endowment could prove not sufficiently tough to prevent any further serious decline in the real value of endowment. In that event the decision may have to be revised in a more stringent direction. But the 4.5% spending rate target will in no event be made less stringent.

The second Corporation decision reflected in these projections has to do with contingency funds, capital and operating reserves, the funding of building alterations, and one particular special expense that may be required in 1978-79. As noted in Section I above, contingency

funds in the operating budget have been inadequate, capital and operating reserves (including the Development Fund) have been drawn down and must now be built back up, and building alterations have been deferred to a degree no longer acceptable. Moreover, only a portion of the budget of the Campaign for Yale is included in the operating budget; additional funds will be required beginning in 1979-80 to maintain a Development Office when the Campaign ends. Finally, adjustments in the rate of indirect expense recovery on certain government grants and contracts, in effect disallowing certain expenses allowed at the time of disbursement in past years, now threaten to impose a one-time charge of possibly up to \$1.5 million in 1978-79.

It is the Corporation's decision that these various needs should be met by increasing substantially the schedule of charges to the Operating Budget for these purposes. In the 1977-78 budget such charges have been at roughly the level of \$1.2 million. For 1978-79, the new or "build back up" schedule will require an increase of \$2.7 million in this item, with the amount of charges increasing gradually thereafter to a total level of \$7.6 million in 1982-83.<sup>3</sup>

In these two respects the projections that follow reflect firm Corporation decisions. For all other items the assumptions have been derived from a review of actual experience at Yale over the past ten years, a review of pertinent literature concerning anticipated changes in the economy, and discussions with knowledgeable faculty and administrators at Yale and other institutions. The projection does not reflect policy decisions about increases in term bill income, faculty salaries, or other

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3. A detailed discussion of these items is included in Appendix C to this report.

elements; it only reflects assumptions about possible increases for purposes of identifying the impact of such changes on Yale's operating budget. Also, the projection does not assume any changes in the current level of programs and activities. This approach allows one to understand both the consequences of simply "growing" the current Yale into the future and the impact of reducing the current scope of Yale's programs or providing these programs at a lower cost. The concept of "budget base" used in the projection is the level of spending currently required to maintain Yale's programs and activities; the amount of this base, of course, moves upward from year to year (so long as inflation persists),<sup>4</sup> and must therefore be projected.

The projection of the existing budget base is generated through the application of specific assumptions about growth rates to the prior year's operating budget. Thus, the 1978-79 projected budget is derived by increasing income and expense categories in the 1977-78 budget base by the projected growth rates; the projected 1979-80 budget by applying the assumed growth rates to the 1978-79 budget, and so forth. The 1977-78 budget has been adjusted to reflect the \$1.6 million of one-time reductions that were made to lessen the current year's deficit but that cannot be sustained in the future. It has also been adjusted to reflect the possibility (discussed in Section II) of a total \$2.0

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4. Quite possibly the single most important factor in projecting Yale's finances is inflation. The projections assume that inflation, as measured by the consumer price index (CPI), will average 6% for each of the next five years. Although there are those who believe that the long-term rate will be higher or lower, the 6% assumption is in line with the overall judgments of Yale economists and government forecasters. Individual years may, of course, have higher or lower inflation rates.

million 1977-78 budget deficit.

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Highlights of the projected growth rates are as follows:

- . On the income side, term bill income is projected at a 2% real growth rate, i.e., after the assumed inflation rate of 6% per year. Term bill rates are projected to grow at 7.5% per year, 1.5% more than the assumed inflation rate, with total enrollment rates increasing by 0.5% annually (chiefly in the School of Organization and Management) to produce the 2% annual real increase in total term bill income. For the past decade, the comparable figures were an 8.8% annual growth in term bill rates, and a 1.8% annual increase in enrollment, for a total annual growth rate of 10.6%, and a real annual growth rate of 4.5% per year.
- . Grant and contract income is projected to increase at a real annual rate of 1.2%, slightly lower than Yale's 2.2% real annual rate of the past decade. This assumption reflects the recent national experience of grant and contract income growing at a rate only slightly higher than inflation.
- . The result of the Corporation's decision on spending from endowment is to produce nominal increases in spending from endowment

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5. The budget base has also been adjusted to include research and other restricted activities not separately allocated to specific expense categories in the adopted budget, and several changes to reflect accounting reclassifications.

6. A detailed discussion of the assumptions used in the projection is available in a supplement to this report.

of 2.3% per year, which in the face of an assumed inflation rate of 6% annually means a decline in real terms for this item, of 3.7% per year over the next five years. Thereafter, however, assuming that the 4.5% spending rate has been reached and the freeze lifted, endowment income is projected to increase at a real rate of 0.7% per year.

- . Current gifts for operating purposes are projected to increase at the same rate as inflation, 6% per year, producing a real growth rate of zero in contrast to the decline in real value of such gifts of 4.3% per year experienced in the past decade.
- . Salary and wage expense, and employee benefit expense, are projected to increase at real annual rates of 1.0% and 3.9% respectively. This contrasts with the 2.5% and 5.8% real annual growth of the past decade. (It should be noted again that the increases of the past decade were very unevenly distributed, with faculty salaries not keeping pace with inflation, while staff wages grew at a substantially higher rate.) An estimate of the impact of the Social Security Amendments now pending in Congress is included in the projection for employee benefit expense.
- . Student aid expense is projected to increase at a real rate of 2.0% per year, as compared with an experienced 1.5% real annual rate of increase in the past decade. This assumption reflects the fact that tuition charges are assumed to rise at a rate greater than the inflation rate, approximating the probable annual growth rate of personal disposable income.
- . The cost of utilities is projected to increase at an annual real rate of 6% over the next five years. This increase

reflects a projected 7.3% annual increase in energy fuel costs offset by a 1.3% annual reduction in energy consumption through continued concerted conservation efforts. This assumption is perhaps the most problematic of any because of uncertainty about future levels of fuel prices. The projection is in line with general informed judgments about likely fuel cost increases over the next five years. Continued projection of fuel cost increases will be required over the next several years to keep especially close track of this rapidly increasing item.

- Book expense is expected to rise by a real 4% per year instead of dropping as in the past decade by a real 4.1% per year. As Table H shows, book expense has dropped sharply in this period as a percentage of total University expenses. The effect of the decline in book purchases through University funds has been somewhat offset during the past ten years by materials acquired through gifts and exchanges. The projected real annual increase in book expense of 4% will enable Yale to maintain its current level of book purchases over the next five years. Continued gifts and exchanges will be required to maintain and improve Yale's collection.

Finally, in addition to projecting these and other key items for a five-year period, a "long-term" projection has been made for the period beyond this time. Rough as it is, this projection is necessary to determine whether there is a prospect of Yale's achieving the second condition of financial equilibrium: that the growth rate of expenses be no greater than the growth rate of income.

Table J shows the results of these projections. Total operating income is projected to grow at a real annual rate of 0.8% for the five-

TABLE J

## Yale University

Actual and Projected Compound Annual Growth Rates  
in Income and Expenses

	Actual	Projected	
	1967-68 to 1976-77	1978-79 to 1982-83	Longterm
I. <u>INFLATION (CPI)</u>	6.1%	6.0%	5.0%
II. <u>REAL GROWTH (Total Growth Less CPI)</u>			
A. <u>Income</u>			
Term Bill Income	4.5%	2.0%	2.0%
Grants and Contracts	2.2	1.2	1.0
Spending from Endowment	(2.2)	(3.7)	0.7
Other Investment Income		(4.5)	(0.6)
Current Gifts	(4.3)	0	0
Medical Services	7.4	3.5	2.5
Other Income		1.1	1.2
<u>Total Income</u>	2.2% *	0.8% *	1.3% *
B. <u>Expenses</u>			
Salary and Wage Expense	2.5%	1.0%	1.7%
Employee Benefit Expense	5.8	3.9	1.7
Student Aid	1.5	2.0	2.0
Goods and Services	1.7	1.4	0.3
Utilities	14.3	6.0	1.8
Books	(4.1)	4.0	3.0
Other Expenses	(0.3)	(0.4)	(2.0)
<u>Total Expenses</u>	2.5% *	1.6% *	1.3% *
C. <u>Income Growth Less Expense Growth</u>	(0.3)%	(0.8)%	--

\*Growth rates for totals are not additive or subject to averaging because they are derived from different individual income and expense items having different values.

year period, and at a real annual rate of 1.3% for the long term thereafter. Total operating expenses are projected to grow at a real annual rate of 1.6% for the five-year period, and at a real annual rate of 1.3% for the long term thereafter. The differences between the five-year period and the long term lie principally in the projections of endowment income (already explained), of utility costs and employee benefit expenses (both of which are assumed to rise less rapidly). In summary, for the next five years the gap between the real growth rates of income and expenses is projected at 0.8% per year, almost three times as great as the 0.3% annual gap experienced in the past ten years. This means that Yale's budget problems will be extremely acute during this period. At the same time, however, the best estimate we can now make suggests that beyond this time the growth rates of income and expense should tend to come much closer together, conceivably balancing each other.

Finally, a discussion is needed concerning the projection of gifts, a projection that reflects both historical experience and the effect of the Campaign for Yale.

It is, of course, difficult to predict the effect of future fundraising on the income available between now and 1982-83. There are two principal variables: how much of the total \$370 million goal will be achieved and whether the payment schedule for the next five years is comparable to that of the \$200 million pledged at the end of 1976-77. The projections assume that the Campaign will make the goal of \$370 million and that the historical payment schedule will prevail for the next five years. Under these assumptions, the projection posits receipt of \$180 million between 1977-78 and 1982-83, with another \$70 million in deferred-giving arrangements expected to mature after



1982-83. The projection also assumes that 75% of new gifts to endowment would be for current program activities and the remaining 25% (which is not taken into account in the projections) would be available to support new program initiatives. Failure to meet the total goal and/or a stretch-out in the receipt of pledged funds would have a dual effect: annual operating budget income through current gifts and the capitalized portion of new gifts to endowment would be reduced, thereby increasing the operating budget deficit, and the value of endowment would grow less rapidly than projected, thereby moving back the time when the freeze on endowment income could be lifted.

#### SIZE AND IMPLICATIONS OF PROJECTED BUDGET DEFICITS

The policy decisions and assumptions discussed above have been used to develop a financial projection for Yale for the next five years. The projection yields, under the stated assumptions and with no program changes, estimated total deficits of \$9.5 million in 1978-79, \$12.8 million in 1979-80, \$17.4 million in 1980-81, \$20.8 million in 1981-82, and \$23.7 million in 1982-83.

The projection does not attempt to reflect year-to-year fluctuations in individual income and expense items that can be expected to balance out over the longer term. A projection with this many complex variables will probably achieve no better than a plus or minus 10% range of accuracy. Thus, the projection indicates only the general size of the budgetary problem confronting Yale, with, relatively speaking, a higher degree of accuracy in the earlier years. The projection assumes no corrective action to achieve a balanced budget; it is not a prediction of

actual deficits, but simply indicates the magnitude of corrective action required for Yale to achieve financial equilibrium within the next several years.

These projections of future operating deficits, without corrective action, of \$9.5 million in 1978-79 rising to \$23.7 million four years later, raise the question of how Yale would finance such deficits if they were permitted to occur. The answer, put simply, is that Yale could not finance them.

The only source of such financing would be the principal of the endowment. Only the part of the endowment that is unrestricted as to purpose and unrestricted also as to expenditure of principal is directly available for this purpose. This part is called University Unrestricted Funds Functioning as Endowment (UUFFE), and its market value on June 30, 1977 was \$35.2 million. This source must be available also for other purposes: to repay, if necessary, short-term loans made by the University to raise funds for relending to students; to cover the portion of endowment spending that would otherwise come from capital gain if, in very adverse investment conditions, the endowment did not show a capital gain; and to be applied to various general contingency purposes, such as the guarantee of faculty mortgages, the covering of insurance deductibles, and the covering of deferred charges. In addition, certain loan agreements with external creditors pledge a relatively small amount of the securities in which UUFFE is invested and, more importantly, the repayment of loans or other corrective action if UUFFE were to fall below a minimum amount of \$20 million.<sup>7</sup>

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7. Details on the status of unrestricted funds will be found in Appendix E.

Further, expenditure of any endowment principal to pay operating expenses would increase the University's financial problem by reducing endowment income and the ability to protect the University against contingencies and would unfairly favor the present over the future. It is thus imperative that the operating budget be brought into balance rapidly.

#### POSSIBLE CONTINGENCIES, FAVORABLE AND UNFAVORABLE

Several unfavorable events could disturb the projected operating budget and efforts to restore equilibrium. These might include a substantial increase in the estimated inflation rate, an oil embargo or other developments that would still further increase the cost of utilities, a major change in the tax laws governing charitable deductions, or a major change in the federal government's regulations governing the reimbursement of the indirect costs of research. Future financial planning for Yale must keep such events in mind as possibilities. In addition, the projected growth rates for such variables as term bill income, indirect cost recovery, faculty salary expense, and student aid could be affected by the actions of other institutions. It is important to recognize that should any of these events occur, they might require corrective action, beyond that discussed in section IV, to reach equilibrium.

Several preliminary analyses have been made of the sensitivity of the projection to changes in the underlying assumptions. These include three cases, in which changes in variables outside Yale's control would increase the projected deficits: a 7% (rather than 6%) annual rate of inflation, utility costs with a real growth of 10% rather than 6% (after

conservation efforts) per year, and a real rate of return on endowment of 1.5% annually rather than 3.5%. In addition, the possible favorable impact has been examined of two choices that could be exercised within competitive limits to close the projected gap and of one favorable contingency: larger student growth, no real annual growth in salary and wage expense rather than a 1% annual real rate of increase, and real investment return of 4.5% annually rather than 3.5%. Table K shows the impact of these six contingencies for each of the next five years.

Among the next steps in the budget process is the development of additional and more sophisticated sensitivity analyses. These analyses will be helpful in identifying the dynamic relationships among variables and in examining equilibrium-producing alternatives.

This chapter is a preview of the kind of future financial planning necessary to assist Yale in identifying the implications of its current financial decisions and in understanding the long-range consequences of its current academic and financial policies. This kind of financial planning provides an analytic framework within which long-range planning issues must be addressed.

TABLE K

Yale University

Sensitivities of the Financial Projection  
To Changes in the Assumptions\*

	<u>1978-79</u>	<u>1979-80</u>	<u>1980-81</u>	<u>1981-82</u>	<u>1982-83</u>
<u>I. Deficit-Increasing Cases</u>					
A. Inflation of 7.0% rather than 6.0%	\$ (0.2)	\$ (0.6)	\$ (1.3)	\$ (1.5)	\$ (1.0)
B. Utility costs grow at 10% real rather than 6%	(0.4)	(0.9)	(1.7)	(2.6)	(3.6)
C. Total real return on endowment of 1.5% rather than 3.5%**	0	(0.2)	(0.5)	(0.5)	0
<u>II. Deficit-Decreasing Cases</u>					
A. Student population increases at 1.5% instead of 0.5%	\$ 0.3	\$ 0.7	\$ 1.1	\$ 1.5	\$ 2.0
B. Salaries and wages grow at 0% real rather than 1.0%	1.3	2.6	4.3	6.0	8.0
C. Total real return on endowment of 4.5% rather than 3.5%	0	0	0	0	1.5

\*Positive number indicates a reduction and negative number indicates an increase in the projected deficit. The numbers are cumulative amounts which include the effect of prior years' actions.

\*\*While this line shows that under the University Equation (or any simplified five-year average formula) a low total real return does not markedly reduce the amount of allowed spending from endowment on the income side of the operating budget, the impact on the real market value of Yale's endowment would be serious, upsetting the estimates discussed on pages 53-54.

#### IV. ACHIEVING FINANCIAL EQUILIBRIUM AT YALE

Yale clearly cannot permit large annual budget deficits over the next five years. The financing of these deficits would require using some of its assets to meet current obligations and would thereby reduce the value of those assets to meet future needs. Such a policy would create increasingly severe disequilibrium which, if taken to the extreme, would mean that over time Yale's total endowment would have been spent to finance current needs.

Budget deficits of the magnitude indicated in the projections create severe and continuing problems. The past six years have witnessed strict measures of reduction in the budget and the introduction of some new streams of income. But these efforts must be accompanied by ongoing vigorous action to ensure the financial stability necessary for the continued excellence of Yale's programs and activities.

Several major objectives are crucial in developing a plan to restore financial stability to the University.

(1) The University should seek to reach financial equilibrium as promptly as possible. In view of the magnitude of the projected budget deficits, it is important for the University to move quickly to restore financial stability. Since expenses are projected to grow faster than income, the longer it takes to bring expenses in line with income the greater the actions required to close the gap. A long period characterized by uncertainty about the kinds and sizes of actions would be extremely harmful to morale.

For these reasons, the Corporation has reached two conclusions: first, there must be a fully balanced budget not later than 1980-81, on

the new basis defined in Section III of this report -- that is, with spending from endowment being moved downward to the 4.5% target and with new charges to the operating budget in the areas of special expenses, contingency funds, and reserves. Second, any deficits in 1978-79 and 1979-80 cannot exceed \$7 million, in total, for the two years.

Why these targets and not others? On the one hand, the reasons for which the Corporation is not seeking to balance the budget in a shorter time have to do with both the quantity and nature of the adjustments necessary. To move more drastically would involve the kind of cuts that would deeply affect the whole educational structure of Yale. If one analyzes Yale's budget base, one finds at once that if the income and accompanying expense from grants and contracts and other restricted funds are put to one side, the budget base over which Yale has direct control amounts to roughly \$127 million in 1977-78, rising in accord with the assumptions made in Section III to a level of roughly \$180 million (before cuts) by 1982-83. Over the past six years this base has been reduced substantially, most recently by \$5.8 million in the 1977-78 budget alone (pages 46-47 above). Term bill increases have been at the maximum rate competitively sustainable (and raise questions about their possible effect on the family income mix of Yale students), and faculty salaries have been increased in recent years at rates below the rate of inflation. Concurrently, major economies have been effected, as noted elsewhere, in utilities, non-academic support, administrative costs -- indeed, throughout all sectors of the University.

Undoubtedly still further "economies of efficiency" are possible. A University committee is currently at work to recommend changes in Yale's overall non-academic management structure; this matter will be

high on the agenda of the new President of Yale. But restructuring for the long term may actually involve some short-term costs, and in any event the Corporation does not see any economies through such restructuring that can remotely meet the deficits on the order of \$20-23 million over the next five years projected in Section III.

Rather, all those concerned with Yale's future must now focus increasingly on the possibilities for more basic changes in policies, modes of operation, and educational program than have yet been attempted, even in these last six years of some retrenchment. And the making of such basic changes entails thorough consideration of all possible effects, including especially the impact on existing commitments to faculty and students. Basic changes, in a word, require a longer time to prepare and carry out than the shorter-term economies of recent years.

On the other hand, not only would continued major deficits be unsound from every standpoint of principle, but they would also be beyond Yale's capacity to finance. As noted above (pages 64-65), the ultimate recourse for the financing of deficits is the relatively small portion of Yale's endowment that is unrestricted as to purpose and as to the expenditure of principal, a fund that stood at approximately \$35 million at the end of 1976-77, but that is also heavily obligated as security for loans. Even projected deficits of an additional \$7 million in 1978-79 and 1979-80 will present problems, although Appendix D spells out ways in which these can be handled. But Yale's capacity to finance deficits



will have been stretched near its limit.

(2) An accelerated five-year plan of corrective action is required.

In accordance with the above decisions, agreement on the required specific corrective actions must be achieved in the next three years, although some of the results can be deferred until the fourth and fifth years (when the budget base must continue to be reduced to meet the problem of expenses still increasing faster than income). This approach would permit a thorough study and careful consideration of the policy alternatives and the financial and academic implications of such options. As just noted, it is one thing to make decisions that would produce the required reductions and another to realize their full budgetary effect in an institution like Yale, whose academic programs depend on multi-year contracts and degree program commitments. Thus it appears to be prudent for the full results of a three-year plan to be realized within five years.

An example may clarify the difference between the three-year planning process and the five-year implementation process. Planning proceeds during Year I as to whether an administrative activity costing \$180,000 can be continued. A decision is reached in Year II to eliminate the program,

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1. Since the incurring of any additional deficits will require further reduction in some of the very reserves that the Corporation has decided (as stated in Section III) should and must now be built back up, the discerning reader may ask whether Yale is not simply building back reserves (to a small extent initially) with one hand, while at the same time reducing them further (to a considerably larger extent initially) with the other. The answer is that this will indeed be the case for the next two years. On the other hand, Section III lays out a new and enduring system for computing the budget balance which has great importance both in principle and as a practical method for moving to equilibrium. To defer the introduction of such a system would tend to reduce stated budget deficits below what the Corporation believes to be their true significance. The new system for computing the budget balance must reflect the realities of Yale's situation, beginning at once.

beginning in Year III. Commitments and other obligations, however, will permit only half of the total saving to be realized in Year III, with the remaining 50% to be realized in the next two years, 25% per year. Thus, \$90,000 of savings would be realized in Year III and \$45,000 in Year IV and Year V respectively.<sup>2</sup>

Accordingly, the Corporation has concluded that the plan to be followed should be one that permits some elements of planning to proceed over three years, but accelerates certain phases of both planning and implementation so that the cuts, while continuing over a full five-year period, are in fact grouped in the earlier rather than later years.

Specifically, the Corporation has examined the scale of corrective actions that are believed feasible for the 1978-79 budget, in light of the time-lag problem for basic changes, and has concluded that the maximum of such corrective action is in the range of \$4 million. This means that the deficit for 1978-79, subject to further refinement,<sup>3</sup> would be \$5.5 million.

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2. It may be appropriate for a program targeted for reduction or elimination to be removed from the operating budget and any costs required to ensure orderly curtailment to be budgeted in a new "transition budget." Thus, in the example above, the full \$180,000 planned for savings would be removed from the budget in Year III. Since only half of the total savings could be realized in that year, \$90,000 would be placed in the transition budget to meet commitments in Year III. The net savings would thus be the difference between the \$180,000 removed from the operating budget and the \$90,000 placed in the transition budget, or \$90,000. Since \$45,000 more would be saved in Year IV, the transition budget for the program that year would be reduced to \$45,000. The transition budget might provide a helpful mechanism to ensure that planning decisions are not changed once they have been made and to provide for improved control of costs during the phase-out period.

3. This deficit is not strictly comparable to the \$6.6 million deficit experienced in 1976-77 or to the potential \$2 million deficit for 1977-78 carried in the projection. The 1977-78 deficit, as explained in section II of this report, reflected one-time savings of \$1.6 million. The

Such a deficit, however, will put a heavy strain on the \$7 million ceiling for all deficits in 1978-79 and 1979-80 and the requirement for budget balance thereafter. Accordingly, the impact of the corrective actions must fall very heavily on the budget years 1979-80 and 1980-81. Specifically, it is now estimated that the budget base must be permanently changed in these two years by \$7.0 million and \$5.2 million respectively. These actions would result in a deficit, subject to adjustment on the basis of necessary changes in the assumptions in the projection and greater corrective actions in 1978-79 than currently planned, of \$1.5 million in 1979-80. There would be no deficit in 1980-81.

Thereafter, the scale of corrective action in the budget base can fall to \$2.1 million in the fourth year and to \$1.3 million in the fifth year, when budget balance will be achieved and maintained on a basis approaching financial equilibrium.<sup>4</sup>

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projection for 1978-79 includes an increased charge of \$2.7 million for special expenses, contingencies, and reserves. If all three budgets had been done on the "old" basis of the 1976-77 budget, the deficits would work out at \$6.6 million for 1976-77, \$3.6 million for 1977-78, and \$2.8 million for 1978-79. In addition, if the freeze on endowment spending had been in force in 1976-77, the amount of that year's deficit would have been higher than \$6.6 million. In short, true budget deficits have in fact been reduced substantially and progressively over this period.

4. Full equilibrium would not have been realized since the accumulated deficits in the operating budget reserve would not have been fully restored at the end of five years. Further, it is yet unclear if Yale has made sufficient provisions to ensure adequate maintenance of its physical assets over time. To the extent that the projected increases in alterations and maintenance are not adequate and/or are not realized, there would be continued disequilibrium with respect to the maintenance of the capital plant. Finally, since no budgetary provision has been made for the replacement of the plant, there is not true long-term financial equilibrium.

Table L displays the resulting five-year plan, which seeks to recognize the difference between the three-year planning process and a five-year implementation period, together with the need to provide for prompt closing of the projected deficit. As the table indicates, the plan would result in a total budgeted deficit of \$5.5 million in 1978-79 and \$1.5 million in 1979-80, or a total of \$7.0 million. The plan would thus ensure budget balance (though not financial equilibrium) at the end of two years.

(3) There must be a timetable for decision-making. The October 1977 suspension of hiring (pages 49-50 above) represents a first step already taken as a prelude to more searching analysis of personnel structures. Materials for decision on the proposed reductions in the 1978-79 budget should be fully developed by late January 1978. This schedule would permit appropriate identification of alternatives, analysis of the implications of such alternatives, and consideration of coordinated proposals by the University community well in advance of the beginning of the next fiscal year.

Plans for those measures that will be needed in 1979-80, and beyond, should be fully outlined by the early fall of 1978. By the spring of 1979 the University's further consideration of those measures should be completed, together with appropriate staff analysis of the proposed actions.

Such a timetable will require the articulation of appropriate planning mechanisms to ensure widespread understanding and consideration of the appropriate actions.

TABLE L  
 Yale University  
Five-Year Plan for Achieving Financial Equilibrium  
 (\$ in Millions)

	<u>1978-79</u>	<u>1979-80</u>	<u>1980-81</u>	<u>1981-82</u>	<u>1982-83</u>
Total Projected Deficit Without Corrective Action	\$ (9.5)	\$ (12.8)	\$ (17.4)	\$ (20.8)	\$ (23.7)
Projected Deficit Adjusted for Corrective Action Taken in Prior Years		\$ (8.5)*	\$ (5.2)	\$ (2.1)	\$ (1.3)
Corrective Action	<u>\$ 4.0</u>	<u>\$ 7.0</u>	<u>\$ 5.2</u>	<u>\$ 2.1</u>	<u>\$ 1.3</u>
Deficit After Corrective Action	\$ (5.5)	\$ (1.5)	\$ 0	\$ 0	\$ 0

\*The \$4 million eliminated from the budget base by corrective action in 1978-79 would have increased to \$4.3 million, through inflation, in the 1979-80 budget. Similar adjustments have been made across this row in the table.

(4) The planning process should provide opportunity for serious discussion of major policy issues by members of the University community. Much of the success of Yale's efforts to resolve its economic problems will depend upon the goodwill and intelligent responses by faculty, students, staff, alumni, and friends. Imaginative solutions and broad support for difficult decisions can be gained only through widespread involvement of the University community.

The central University committee charged with identifying and coordinating options and alternatives in the planning process will be the Special Faculty Administration Committee. This committee has been working for the past eight months and has identified a series of proposals for consideration by the University community.

The University's Council on Priorities and Planning will review the overall resource and planning allocation processes of the University and make recommendations to the President about priorities, alternatives, and related issues generated by the financial situation. It will also examine critically the premises and reasonableness of the financial projection and will review those major actions that are recommended for the achievement of financial equilibrium.

Other groups will play an important role in ensuring widespread participation. These include the Committee of Organization and Management of Administrative Services, which is charged with studying the non-academic management of Yale, and the Provost's Student Advisory Committee. There will be consultation with the Executive Committee of the Faculty of Arts and Sciences, the departments and schools of the University, and

other constituted groups within the larger framework of the University policy.

(5) The budget-making process should be as rational and as informed as possible. The budget-making process most congruent with the University's values and ends is the one that depends upon well-reasoned arguments and on the understanding, commitment, and initiative of the appropriate groups within the University. Projections of Yale's finances must be based on clearly stated assumptions that can be discussed and debated. Widespread information must be available about the ways in which Yale uses its resources. Sophisticated and clear analyses of Yale's finances and budgetary alternatives must be undertaken and shared with appropriate groups throughout the University. Only such an approach will permit the kind of close scrutiny and reasonable discussion that will lead to sound and satisfactory decisions. This report is intended as a major step in providing such information and in describing the framework within which discussion and planning will proceed.

The University is also instituting a new resource planning process. The budgets of individual departments and operating units will be restructured on a "program basis" to permit improved understanding of how resources are now being utilized. Additional analysis of overall budget and financial strategies will be undertaken to identify appropriate equilibrium-producing alternatives.

The results of this planning program will become visible only over time. Concentrated effort and sustained attention will be required to identify the actions by which Yale can best achieve the

economic stability on which its quality depends. The achievement of financial equilibrium is possible, and while such stability will not restore Yale to the affluent days of the 1960s, it will ensure continued excellence in a period of economic uncertainty.



APPENDIX A

DESCRIPTION OF YALE'S BUDGETS

Yale maintains two different budgets: the operating budget and the capital budget. This appendix describes each of these budgets.

The operating budget supports the ongoing programs and services of the University through a variety of sources of income as follows:

Operating income is income from term bills (tuition, room and board); investment income (income from endowment, cash management, and stock loans); income from unrestricted current gifts (Alumni Fund and expendable gifts unrestricted to purpose); recovery of indirect expenses incurred by the University (such as occupancy costs and departmental and general administrative expenses) on behalf of projects supported by restricted grants and contracts; medical services income; and other income (such as food service, income from ticket sales for athletics, music, drama activities, and the like).

Operating expense is faculty and staff salary expense and related employee benefits costs, student aid, utilities, and general expenses of the University. It also includes recurring capital costs and building alterations supported by operating income that do not exceed \$100,000 for any one project. Building alterations in excess of \$100,000 are included in the capital budget.

The operating budget also includes as income items restricted gifts and grants and contracts. The direct expenses supported by these funds are administered so as not to exceed income and are included in the operat-

ing budget as total lump sums. University policy requires approval for shifting programs or expenses from these sources of funds to either endowment or general funds of the University. Termination of a restricted gift, grant, or contract normally results in the termination of the project supported by these funds.

The operating budget is divided into the following program centers: The Faculty of Arts and Sciences (which includes Yale College and the Graduate School); each of the ten professional schools (Architecture, Art, Divinity, Drama, Forestry and Environmental Studies, Law, Medicine, Music, Nursing, Organization and Management); Administration (the President's Office, Treasurer's Office, Secretary's Office, Development Office, and certain University-wide funds); academic support (Provost's Office, libraries, health services, academic services, and athletics); operations (buildings and grounds and other operational activities); and several specialized program activities (including, for instance, the Institution for Social and Policy Studies and the British Art Center). The Medical School, Nursing School, the Yale Center for British Art, and the Beinecke Library are budgeted on total program center basis, in which budget control is exercised only on a bottom-line basis; and thus these four units are responsible for deficits and may retain accumulated surpluses. The other programs included in the operating budget are controlled through specified blocks of expense (faculty salaries, support salaries, wages, employee benefits, student aid, and the like); under University policy savings in any one block may not be expended in another block without prior budgetary approval.

The operating budget includes the normal cost of a development office but does not include the extraordinary expenses of the Campaign

for Yale.

A preliminary operating budget is usually developed in November, refined during the succeeding six months, and adopted by the Corporation in June.

The capital budget includes non-recurring capital project costs for building alterations that exceed \$100,000 for any one project and all new construction. This budget is allocated forward on a fiscal year-by-fiscal year basis for all projects, beginning for each item at the time planning for a capital project is first authorized. Expenditures of funds are voted by the Corporation on a project-by-project basis. The funds for capital projects include building fund gifts, certain restricted gifts, debt, or a combination of these; the fund sources are identified at the time at which the project is first authorized by the Corporation. At the current time, the University does not develop a formal annual capital budget.

APPENDIX B

YALE'S INVESTMENT MANAGEMENT

Portfolio Management

Responsibility for the investment for Yale funds rests with the Yale Corporation, which exercises its responsibility through its Investments Committee.<sup>1</sup>

With the approval of the Corporation, the Committee has vested management of the Yale Endowment in four outside professional managers. Endowment Management & Research Corporation, Boston, manages about \$285 million; T. Rowe Price Associates, Inc., Baltimore, manages about \$60 million; Miller, Anderson & Sherrerd, Philadelphia, manages about \$100 million; and Fischer, Francis, Trees & Watts, Inc., New York, manages about \$70 million. The remainder, about \$40 million, consists of miscellaneous investments, mostly donated, for which there is no ready market, and some real estate investments. These are managed by the Treasurer's Office in New Haven. The Treasurer's Office also manages the investment of the University's cash and administers the Securities Loan Program.

Endowment Management & Research Corporation (EM&R) was organized in October 1967, with the assistance of the University. At the outset the University owned half of the capital stock and Yale's entire

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1. Presently John B. Madden, 1941, Managing Partner of Brown Brothers Harriman & Company, New York, is Chairman of the Committee. The other members are J. Richardson Dilworth, 1938 and Law 1941, senior financial advisor to the Rockefeller family, New York, and William H. Donaldson, 1953, Dean of the School of Organization and Management. Mr. Donaldson, formerly a Trustee, sits with the Committee by invitation. The Treasurer is Secretary of the Committee.

endowment was managed by the new corporation. This arrangement reflected a decision to engage outside professional management in order to reduce the pressure upon the Finance Committee (which at that time managed the endowment with the help of a small in-house staff), without losing the benefit of a management strongly dedicated to Yale. Although launched only a short time before the difficult securities markets of 1969 and 1970, the firm was successful. It now has over \$1.5 billion under management and has decided not to expand further in managing equities. Since inception its Yale common stock account has had a total return (income plus appreciation) of 58.8%, which may be compared with 53.1% for the Standard & Poor Index of 500 stocks. EM&R also had under its care about \$30 million of Yale's assets, the marketability of which is restricted by action of the donor or for legal reasons, and about \$35 million of assets invested as a fixed income account.

T. Rowe Price Associates, Inc., and Miller, Anderson & Sherrerd manage common stock accounts, while Fischer, Francis, Trees & Watts, Inc., manages a fixed income account. The employment of these additional managers was recommended by EM&R, and approved by the Investments Committee and Corporation, as a further means of seeking the best results by diversifying management.

In addition, the University in 1974 established an account of \$1 million for management on an experimental basis of an options account upon which calls are written for sale on the options exchanges. The University also invested \$2 million in the Common Fund at its inception in 1972; the Fund is a non-profit investment fund sponsored by the Ford Foundation as a vehicle for the investment of small endowment funds. The University has also committed \$1 million to

a venture capital partnership.

The Investments Committee is responsible for determining the proportions to be invested in stocks, fixed income instruments, and other vehicles. The managers of the common stock accounts have discretion as to the extent to which those accounts at any time will be fully invested in stocks. The managers have discretionary power to effect transactions, subject to an obligation to report immediately. The Investments Committee receives daily and monthly reports and meets with all the managers quarterly.

As of September 30, 1977, the endowment was invested as follows:

	Amount (\$ in millions)	Per cent of <u>Total</u>
Common Stock	\$365	65.8%
Convertible issues	13	2.3
Long-term bonds and preferred stock	118	21.3
Short-term investments	25	4.5
Other investments	25	4.5
Cash and receivables	<u>9</u>	<u>1.6</u>
	\$555	100.0%

Thus, common stock and convertible issues comprised 68% of the total as of that date.

#### Investment Performance

Table M shows the end-of-year value of Yale's endowment from 1967-68 through 1976-77. This table, however, is not an accurate guide to investment performance, for two reasons: (1) it reflects the value of new gifts to endowment during this period, from the dates at which such gifts became effective and realizable; (2) conversely, the amount

of spending from endowment has reduced the market value of endowment on the date of such spending; as noted in sections I and III of the report, the percentage rate of spending from endowment has exceeded the real rate of return on endowment, so that the effect of spending from endowment has been to reduce both the nominal and real market value significantly. This is, of course, a matter within the responsibility of the Corporation and not of the investment managers.

Rather, it is necessary to examine the investment performance after taking account of both these factors. On this basis, Table N shows the most recent report, as of October 31, 1977, in the form presented monthly by the Treasurer to the Corporation. It shows the performance of the various parts of the endowment, and of the endowment as a whole, in terms of total return (yield and capital gain), with comparisons to several commonly used indices of various types. The Standard and Poor index of 500 stocks, the Dow Jones stock averages, and the Common Fund (referred to above) are most relevant for comparisons with the equities portion of Yale's portfolio, designated as Category 1 in the Table, while the Kuhn, Loeb Bond Index and 30-day Commercial Paper index are most relevant for comparisons with the bond portion of Yale's portfolio (Category 2 in the table). Category 3 and Other Investments represent largely items in the portfolio that are restricted as to the mode of investment and thus not subject to any relevant comparison.

The best available overall comparison, however, does not appear in Table N. This is the performance of the total Yale endowment relative to the A. G. Becker & Co. index of the total investment performance of some 800 nontaxable funds (including non-profit institutions and pension funds),

which is prepared on a quarterly basis. The performance of funds at the top-quarter break point and median of that index are compared below to the performance of the total Yale endowment for the one, two, and three-year periods ended June 30, 1977.

	7/1/76 to <u>6/30/77</u>	7/1/75 to <u>6/30/77</u>	7/1/74 to <u>6/30/77</u>
A. G. Becker Index			
Top-Quartile	6.8%	19.0%	34.6%
Median	2.3	11.7	24.9
Total Yale Endowment	3.0	15.9	37.7

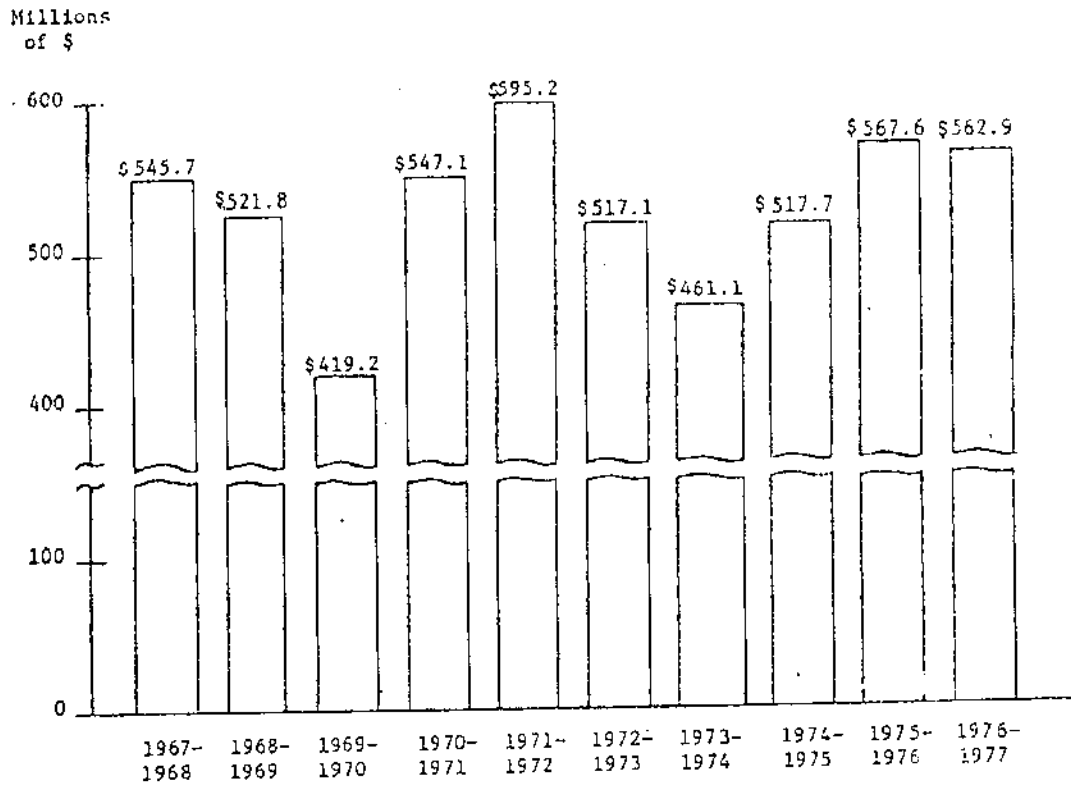
As will be seen, for the three-year period Yale's total endowment ranked in the top quarter of the Becker index. Over the last two years, Yale's total endowment has ranked in the second quarter. The figures provide the best available measure of the total performance of Yale's endowment, in a period of both rising and declining markets.



TABLE M

Yale University

The Value of Yale's Endowment  
1967-68 to 1976-77\*



\*Total market value of endowment, including gifts and excluding operating budget deficits as of the end of the fiscal year.

TABLE N

## Yale University

Investment Results Including Yield and Capital Gain As of October 31, 1977

	<u>10/1/77</u> to <u>date</u>	<u>7/1/77</u> to <u>date</u>	<u>7/1/76</u> to <u>date</u>	<u>7/1/75</u> to <u>date</u>	<u>7/1/74</u> to <u>date</u>	<u>7/1/73</u> to <u>date</u>	<u>7/1/72</u> to <u>date</u>
<u>YALE</u>							
EM&R-Category 1	(3.8)%	(7.6)%	(7.5)%	9.8%	36.6%	24.9%	4.9%
T. Rowe Price	(4.0)	(4.7)	(7.0)	(4.9)	17.1	5.9	(9.2)
Miller, Anderson	(3.8)	(5.6)	(3.2)	9.0	-	-	-
<u>Total Category 1</u>	<u>(3.9)%</u>	<u>(7.0)%</u>	<u>(6.9)%</u>	<u>5.6%</u>	<u>29.3%</u>	<u>12.2%</u>	<u>(2.7)%</u>
DLJ Option Portfolio	(1.7)	(1.8)	0.0	17.0	-	-	-
EM&R-Category 2	(0.3)	0.6	11.9	22.5	35.3	24.9	20.8
Fisher, Francis	(0.2)	0.8	11.4	-	-	-	-
EM&R-Category 3	(4.5)	(6.7)	1.1	26.1	35.3	29.8	18.5
Yale-Other Investments	<u>0.4</u>	<u>2.1</u>	<u>10.3</u>	<u>20.1</u>	<u>29.3</u>	<u>31.5</u>	<u>39.9</u>
<u>TOTAL YALE</u>	<u>(2.9)%</u>	<u>(4.9)%</u>	<u>(2.0)%</u>	<u>10.2%</u>	<u>30.9%</u>	<u>18.8%</u>	<u>7.2%</u>
<u>OTHER INDICATORS</u>							
Standard & Poor 500*	(3.9)%	(6.6)%	(6.2)%	7.0%	24.3%	6.1%	6.2%
Dow Jones*	(3.0)	(9.1)	(13.5)	3.1	18.9	11.6	11.1
Common Fund	(3.1)	(5.1)	(3.1)	2.3	26.0	4.7	(11.3)
Kuhn, Loeb Bond Index	(0.6)	1.3	16.5	31.6	50.8	39.3	44.4
30-Day Commercial Paper	0.5	1.9	6.9	13.2	23.4	35.9	43.7

() means negative performance.

\*October 31, 1977 index for Standard &amp; Poor 500 was 92.34 and for Dow Jones was 818.35.

APPENDIX C

SPECIAL EXPENSES, CONTINGENCIES, AND RESERVES

This appendix provides background information on the rebuilding of reserves and contingencies discussed in Section III of the report (see pages 55-56). Table C shows the total amounts to be provided for these items over the next five years. The changes from the budget base are as follows:

- Contingencies. The 1977-78 budget contains \$275,000 for contingencies to cover unforeseen but critical expenses that inevitably occur in any given year. The projection builds the contingency to a total of \$1.53 million (or 0.5% of the operating expense) by 1982-83.
- Amortization of certain deferred charges. \$100,000 of amortization charges, have been added, beginning in 1978-79, for the amortization of certain deferred accounts not now being amortized. With this action, all deferred accounts will be amortized.
- Amortization of University Operating Reserve negative balance. As discussed in the text of the report, operating budget deficits have been charged to the University Operating Reserve. This fund now is overdrawn by \$8.9 million. The projection assumes a payment schedule of \$200,000 in 1978-79, with increases of \$400,000 for each of the next four years, for a total annual payment in 1982-83 of \$1.8 million. Continuing annual payments of this amount after 1982-83 would amortize the total estimated negative

balance -- including the potential \$2 million 1977-78 deficit and the total authorized deficits of \$7.0 million in the next two years -- within fifteen years (including the income lost because of the deferred borrowing required to finance the deficits).

- Development Office. The Campaign for Yale is currently budgeted outside the Yale operating budget, with \$500,000 of general appropriation funds transferred annually into the Campaign's budget. Provision for a Development Office funded within the operating budget is required when the Campaign ends in 1978-79. The increase of \$1 million projected for 1979-80 would provide a total \$1.5 million for such a Development Office.
- Audit Reserve. No provision currently exists in the operating budget for audit disallowances. A current pending audit could result in a substantial disallowance, despite the fact that the amounts now questioned were reviewed and approved at the time. The University is currently challenging the audit, and this reserve would provide for payment if the University's position is not accepted.
- The Development Fund was established during the Campaign for the Arts and Sciences in 1960-61 to provide necessary funds for the support of capital projects. The projection provides for step increases of \$200,000 per year, starting at the present level of \$450,000 in 1977-78, in order to rebuild the income balance of the fund and, in effect, to amortize the amounts of Alumni Fund income originally intended to go to the Development Fund but

diverted in the last four years to reduce operating budget deficits.

Alterations. It is estimated that \$1.3 million of funds are required in 1978-79 and 1979-80 to meet a variety of large renovations, modernization, and maintenance of Yale's buildings and equipment. These include the renovation of the Computer Science laboratory and improvements in the chemistry laboratory. These funds are in addition to funds for regular and more minor alterations included in the base budget.

Beyond the two-year period, an allowance for continuing needs of the same character is provided at the rate of \$1.25 million per year. This amount takes account of the age and character of many of Yale's buildings, and is designed to preserve their usefulness.

TABLE O  
 Yale University  
Special Expenses, Reserves, and Contingencies, 1977-78 to 1982-83  
 (\$ In Thousands)

<u>For the Operating Budget</u>	<u>1977-78</u>	<u>1978-79</u>	<u>1979-80</u>	<u>1980-81</u>	<u>1981-82</u>	<u>1982-83</u>
Contingencies	\$ 275	\$ 525	\$ 775	\$1,025	\$1,275	\$1,525
Amortization of Certain Deferred Charges	-	100	100	100	100	100
Amortization of University Operat- ing Reserve Negative Balance	-	200	600	1,000	1,400	1,800
Development Office	500	500	1,500	1,500	1,500	1,500
Audit Reserve	-	1,500*	-	-	-	-
Sub-Total	\$ 775	\$2,825	\$2,975	\$3,625	\$4,275	\$4,925
<u>For Capital Projects</u>						
Development Fund	\$ 450	\$ 650	\$ 850	\$1,050	\$1,250	\$1,450
Alterations	\$ -	400	900	1,250	\$1,250	\$1,250
Sub-Total	\$ 450	\$1,050	\$1,750	\$2,300	\$2,500	\$2,700
<u>Total</u>	\$1,225	\$3,875	\$4,725	\$5,925	\$6,775	\$7,625
<u>Increase Over 1977-78 Budget</u>	\$ -	\$2,650	\$3,500	\$4,700	\$5,550	\$6,400

\*One-time expense which is not carried forward into subsequent fiscal years.

APPENDIX D

THE FINANCING OF BUDGET DEFICITS BY YALE

1. University Operating Reserve. Historically, it has been the practice at Yale to maintain a separate account, formerly designated the Investment Income Stabilization Fund and now carrying the above title, to take account of budget surpluses and deficits. As of 1966, past surpluses had created a positive balance of \$8.6 million in this account. However, as stated in the report itself (page 41), the deficits of recent years, and especially the large and unexpected deficit of 1976-77 of \$6.6 million, have now created a negative balance in University Operating Reserve of \$8.9 million. The rebuilding of this account is a major part of the "building back up" schedule of charges spelled out in Section III of the report.

2. Internal Borrowing from General Funds. When the University Operating Reserve ceased to be available, budget deficits were financed by internal borrowing from the substantial cash balances available to the University as a part of its normal operations. These arise from the excess at any given time of term bill receipts and other cash income, as against cash requirements, and from the fact that gifts and other receipts from other sources may not be needed at a given time for the purpose to which they are directed, although they remain earmarked for that purpose. These so-called general funds constitute, in effect, the equivalent of deposits in the University as though in a bank. Their use to finance other needs requires that the University forego the income it might otherwise receive through cash management.

A number of "deferred charges" subject to fixed amortization schedules reflect such internal borrowing from general funds. In addition, beginning in 1975-76 budget deficits were financed by such borrowing, to cover \$8.9 million of deficits from 1975-76 through 1976-77.

The amount of liquid investments in general funds during the year ending October 31, 1977, after the above deferred charges and budget deficits, computed at several dates chosen at random through the year, varied between about \$34 million and about \$70 million. The balance after allowing for current obligations mostly payable on demand, ranged between a positive balance of about \$13 million and, for one brief period, a negative balance of about \$3 million. However, since the University is a continuing institution, with new receipts coming in as old ones are paid out, and with a small likelihood that all the above current obligations will have to be paid at one time, general funds seem likely to be adequate, though not generously so, to finance the anticipated possible \$2 million budget deficit in 1977-78, and the additional projected deficits of \$5.5 million in 1978-79 and \$1.5 million in 1979-80. Accordingly, the University plans to fund such deficits, if they should come about despite efforts to decrease them, by continued use of the internal borrowing method.

However, even if such financing is covered by annual contributions from operating income under a firm amortization schedule, the unamortized portion must be considered a contingent charge on that portion of the University's endowment that is unrestricted both as to purpose and as to the expenditure of principal.

3. Unrestricted University Funds Functioning as Endowment (UUFFF).

The portion of the endowment bearing this title may be called for convenience the University's unrestricted funds. It forms a very small



part, about 6%, of the total Yale endowment, as a result of donors to Yale having in most cases imposed legal restrictions on the use of their gifts, either as to purpose or as to the use of principal, or both.

As of June 30, 1977, the balance of unrestricted funds available stood at \$35.2 million. On the basis of experience in the last four years during the Campaign for Yale, it should be augmented by \$2.5 million per year of new gifts, and this amount may increase slightly as a result of a higher-than-usual proportion of unrestricted funds in further gifts to the Campaign for Yale. On the other hand, plans for financing the expenses of the Campaign -- eventually to be repaid almost wholly from the proceeds of the Campaign, the targets for which included an allowance of \$11 million for this purpose -- have required direct charges to unrestricted funds of \$7.7 million to June 30, 1977, and are now estimated to require \$4.8 and \$2.8 million for further expenses in 1977-78 and 1978-79. (In effect, when the original estimate of \$11 million is repaid from the proceeds of the Campaign, the University will have had to charge the overrun -- arising mainly from the extension of the Campaign by one year -- to its unrestricted endowment.)

In addition, the unrestricted funds must provide contingent support to obligations of the University, now comprising \$9 million in short-term commercial borrowing for student loan purposes, \$8 million of short term borrowing from the federally chartered Student Loan Marketing Association (the University expects to repay most of this with the proceeds of sales of student notes), and \$7 million in intermediate-term borrowing for the same purpose. The latter obligation is subject to being called or collateralized if the amount of unrestricted funds should fall below \$20 million. Over the next three years, roughly \$4 million in additional

short-term borrowing may also be required, for student loan purposes. The \$8.9 million of past deficits financed through borrowing from general funds is also a contingent charge on unrestricted funds. The unrestricted funds stand also as a reserve for general emergencies.

To impose on the unrestricted funds additional contingent charges of \$2 million, \$5.5 million, and \$1.5 million for budget deficits in 1977-78 and the following two years may, depending on the accounting method required, reduce the amount of unrestricted funds to the order of \$24-33 million, based on all of the above. In any event, although the likelihood of contingent obligations actually falling onto the unrestricted funds is not substantial, prudent management requires that there be no greater deficits than these, and if possible less. What is, in effect, Yale's working capital will have been reduced -- at \$24-33 million -- to the lowest tolerable level in a total operating budget soon to be in excess of \$250 million.