

C A M B R I D G E   A S S O C I A T E S   L L C

REVERSAL OF FORTUNE:  
THE EFFECT OF THE MARKET  
DECLINE ON THE BUDGETS OF  
ENDOWED INSTITUTIONS

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**REVERSAL OF FORTUNE:  
THE EFFECT OF THE MARKET DECLINE ON THE BUDGETS  
OF ENDOWED INSTITUTIONS**

**Introduction**

The late 1990s saw extraordinary investment performance and a concomitant rapid rise in endowment market values, occurring within the context of a robust economy and low inflation. It was, with hindsight, the best of times. Few could have imagined how deeply a reversal in market performance could strike their budgets and operations. As the stock market ends its third calendar year of negative performance, most endowed institutions must reckon with the prospect of a downturn in endowment spending or "payout"—something that, with most endowment spending rules, has not occurred in over a generation.

As prime examples of endowed institutions, private colleges and universities differ dramatically in the extent to which they can rely upon endowment. During a period in which endowment market values rose steeply, the financial condition of these institutions was affected in notably different ways. The purpose of this paper is to examine how two groups of institutions fared during the cresting and initial waning of the bull market, the four years from fiscal year 1998 through fiscal year 2001. The first group is colleges that relied on endowment support for less than 15% of their operating budgets in 1998. The second group consists of those that drew over 18% (and up to over 40%) from endowment.<sup>1</sup>

*One of our key observations is that the sudden reversal in the equity markets has—perhaps ironically—posed a more difficult problem for the operations of the "well-endowed" institutions than for those that historically have had to manage with small endowments.* This is because the vastly increased spending from endowment, driven by sharply rising endowment market values, appears to have sparked expansion in programs, facilities, staffing, and financial aid, and these expansions were significantly greater at the "well-endowed" schools. But they cannot be easily rolled back to conform to diminished endowment support. Meanwhile, the less well-endowed institutions had less exposure to the market decline, having all along been able to draw only limited support from this source.

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<sup>1</sup> This analysis is based upon data reported by the 38 colleges and universities that participated in the Cambridge Financial Indicators (CFI) database for each of the four fiscal years from 1998 through 2001. Data for 2002 will be collected shortly.

This paper reviews the circumstances surrounding the rise in expenses at both well-endowed and less well-endowed institutions, focusing upon colleges and universities. *There follows a section—entitled "What to Do?"—in which we propose an initial list of measures that bear consideration by all endowed institutions facing budget difficulties during these times.*

### **The Steep Rise in Spending from Endowment**

The years 1998 to 2001 saw a very sharp increase in the amount of funding that flowed out of endowments. With most institutions applying a spending rule based on a moving average of the previous three years' market value of assets, 1998 spending would have been based upon the three years of dazzling returns that followed the (slight and relative) downdraft of 1994. From this elevated 1998 base, spending continued to climb steeply, driven by continued strong market performance. Even the negative returns of 2001 affected the spending of only a very few institutions; the others continued to power up their spending, as the "smoothing" effect of the moving average always means that endowment spending levels lag endowment performance.

Exhibits 1 and 2 illustrate the rise in the amount of endowment spending at both "endowment-based" and "tuition-based" institutions. Interestingly, colleges in the former group expanded their spending in a relatively comparable pattern, while those in the latter group were highly various in their spending pattern. For both groups, however, the rise was steep: an average increase of around 40% at the tuition-based schools, and of over 50% at the endowment-based schools. The disparity is even greater when measured in dollars. By 2001, the average endowment-based school had increased the amount of annual budget support from endowment by over \$9.7 million. Meanwhile the average tuition-based school increased its annual budget support from endowment by only \$2.5 million. Were endowment spending to roll back to the (already elevated) 1998 level, this would obviously be an enormous bite out of the budgets of both kinds of institutions, but a far larger bite for the endowment-based schools.

Exhibit 3 illustrates the growth in reliance upon endowment. On average, the tuition-based colleges increased their dependence upon endowment from 9% of their budgets in 1998 to 11% of their budgets in 2001. For the endowment-based schools, the dependence grew from 24% to 29%. Several of these latter colleges now draw on endowment to finance over one-third of their operating costs. Parenthetically, gifts to operations did not rise substantially for the 38 colleges and universities in this study. Calculated on a per alumnus/a basis, they rose at a compound annual growth rate of only 2.7% on average, which is less than the inflation rate. However, *capital* gifts rose rapidly at 6.5% compounded annually.

## The Growing Subsidy of Students

The 1998 to 2001 period saw two developments that were detrimental to the financial position of private colleges and universities. The first was the acceleration in financial aid offers to attract sought-after students. Certain well-endowed universities began to offer financial aid packages that were far more generous than in previous years—for example, lowering or eliminating loans in favor of grants. There is a delayed "domino" effect involved in these kinds of offers, as the competitive ripple spreads beyond the head-to-head competitive schools, to the less competitive schools. Within a very few years, however, virtually all schools are affected, with the result that tuition hikes are increasingly offset by financial aid awards. While net tuition (i.e., net of financial aid) continued to rise, its growth was dampened by the offsetting increases in financial aid.

The second development was the rise in expenses. In Exhibit 4 this can be seen at both types of colleges. At the tuition-based schools, the average annual expense per undergraduate rose by over \$5,000, from \$23,057 to \$28,134, over the four years. Meanwhile, net tuition rose by less than \$2,000. The difference between the net tuition and the expense is essentially a "subsidy" granted to each undergraduate, and this subsidy rose by around \$3,100 during this period. For the endowment-based schools, this subsidy rose by nearly \$5,000, so that by 2001 the average student was being subsidized by the amount of \$24,181. This extraordinary gap between net tuition per student and expenses per student as covered primarily by endowment support (endowment "payout").

It is interesting to note that mean net tuition levels differ by less than \$300 between the two groups of schools. This suggests a very competitive marketplace, in which financial aid drives down net tuition so that—on average—students attending the well-endowed schools pay little more than those attending the less well-endowed schools, once financial aid is factored in. The *range* in net tuition can be wide, of course. In 2001 the college with the lowest net tuition brought in only around \$8,100 per student, while the one with the highest net tuition received \$23,331 per student.

Exhibit 5 shows net tuition and expense growth. We see that expenses grew slightly faster at the tuition-based colleges, albeit from a lower 1998 base. The compound average growth rate in net tuition lagged expense growth by 2.5 percentage points (4.4% vs. 6.9%). For endowment-based colleges, the compound average growth rate lagged expense growth by 2.2 percentage points. The slower growth in net tuition was attributable to greater competition in financial aid among the well-endowed colleges. Financial aid grants grew at 5.7% a year, on average, for these schools, compared to 4.8% at the less well-endowed schools. The average "discount" in 2001 was 33% for the former and 28% for the latter.

## Why Expenses Grew So Rapidly

To determine why expenses grew so quickly from 1998 to 2001, we examined compensation, plant, and the growth in fixed costs. We first considered the staffing level at the colleges, calculating the number of full-time equivalent (FTE) faculty and staff in proportion to the number of students.<sup>2</sup> We found that the endowment-based colleges increased their staffing only slightly, compared to student enrollment, and the tuition-based colleges not at all. In proportion to student enrollment, the endowment-based colleges did not increase their faculty numbers, but they increased non-faculty appointments by around 8%. They appear also to have raised tenured faculty compensation fairly briskly, at a compound average annual growth rate of 8% at a time of 3% inflation. Of course, these were the years of outsized compensation increases in many industries. Tenured faculty compensation at the tuition-based schools rose a more modest 5% per year.<sup>3</sup>

Exhibit 6 illustrates the 2001 staffing levels at both groups of colleges. What is striking, at first glance, is the preponderance of non-faculty personnel at all the colleges, but particularly at the well-endowed colleges. Non-faculty outnumber faculty by over two to one. Many of these individuals are in student services or student-related areas: counseling of various kinds, athletics, dormitory supervision, food service, and the like. Others are in admissions, development, the financial offices, physical plant, and general administration. The 8% expansion in these positions among the well-endowed colleges has been variously attributed to competitive pressures (e.g., athletics and other student activities), the increased reporting burden on colleges (to federal, state, and local agencies), and the greater demand for student services in response to societal problems affecting students (e.g., drug use). The tuition-based colleges have not, however, expanded their non-faculty personnel except in proportion to increased student enrollments.

After compensation, the second largest expense component of college operations is physical plant. The 1998 to 2001 period saw a 5% expansion in the physical plant of the endowment-based colleges, while tuition-based colleges expanded less than 1%. Among the former group, student enrollment rose by around 3%, while among the latter, it rose by 7%. Hence, on average, the endowment-based schools expanded plant more rapidly than student enrollment, whereas at tuition-based schools a 7% enrollment increase was squeezed into plant scarcely larger than in 1998.

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<sup>2</sup> From 1998 to 2001, enrollment grew by 3% at the endowment-based schools, and by 7% at the tuition-based schools.

<sup>3</sup> The CFI has not collected compensation data for non-tenured faculty and staff.

More striking, however, is the difference in the average amount of plant even in 1998. In Exhibit 7, it is apparent that the endowment-based schools started out in 1998 with over 50% more plant than the tuition-based schools, relative to the number of students, faculty, and staff who use the plant. This gap increased to nearly 60% by 2001.

Hence, in terms of both staffing and plant, the endowment-based colleges have a far more expensive cost structure than the tuition-based colleges. Moreover, the former group of colleges added significantly to their costs during the late 1990s, while the latter group were far more restrained. With the abrupt reversal in heretofore rapid endowment growth and the associated diminution of funding from this source, the well-endowed colleges now face such difficult choices as overspending from their endowments or implementing program reductions.

### **The Rise in Fixed Costs**

Although fixed costs rose over the period, they did not grow to occupy a larger proportion of total costs. Currently they are slightly under 30% of total costs.<sup>4</sup> By their very nature, fixed costs are those that cannot be shed even in the face of a downturn in revenues such as a prospective decline in endowment support. Hence, in higher education as in other industries, the growth in fixed costs must be handled judiciously.<sup>5</sup>

Exhibit 8 shows the compound annual growth rate of various fixed costs from 1998 to 2001. For the tuition-based colleges, the fastest-growing fixed cost was plant, which increased at a rate of 10.6% annually. Debt rose at a compound annual rate of 7.7%, also a rapid increase.<sup>6</sup> Tenured faculty compensation increased at a more moderate 5.1%. The rise of both plant costs and debt service costs is significant and potentially troubling. Meanwhile, for the endowment-based group, the fastest-rising fixed cost was tenured faculty compensation, at 8.0% per year. Debt service rose at 5.7% and plant costs at 4.3%. (Recall that these growth *rates* apply to a larger *base* than for the tuition-based schools, which means a larger average dollar outflow.)

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<sup>4</sup> It is extraordinarily difficult to collect data on fixed costs. Hence we have limited our analysis to tenured faculty compensation, debt service, and plant operations. Of course, many individuals other than tenured faculty must be counted as "fixed" (though not necessarily by contract), and some plant operations are certainly variable. Nevertheless, our estimate of fixed costs is the best that can be obtained from a broad sampling of colleges.

<sup>5</sup> It is noteworthy that in proprietary higher education (e.g., the University of Phoenix), fixed costs are a much smaller component of the cost structure. While there is no direct competitive threat from this alternative "business model," elements of a low-fixed-cost approach have been adopted by many universities and colleges, including some of the most selective.

<sup>6</sup> In 2001, in response to the lowest interest rates in perhaps 40 years, colleges and universities issued an unprecedented amount of debt. While roughly one-quarter of these issues were refinancings, the vast majority were new issues directed at plant expansion and renovation.

Our view of the fixed cost situation is one of caution: whenever one's fixed costs are rising faster than one's revenues, then exposure to revenue variability is increased. The market downturn that began in (fiscal year) 2001 has introduced the prospect of revenue variability on a scale not previously imagined.

### **Deteriorating Margins**

Exhibit 9 summarizes the situation nicely, if discouragingly. Over the four-year period from 1998 to 2001, operating margins for both groups and "overall" margin for tuition-based colleges have weakened. The operating margin for a college compares operating revenues to operating expenses. Endowment support and gifts are not counted as part of operations, because they do not constitute monies received for services purchased (e.g., the purchase of education, research, etc.). The role of endowment support and gifts is to subsidize, partially, the cost of operations. When these two sources of support are added to the picture, the result is the "overall" margin. Clearly, for an institution that relies heavily on its endowment, there will be a deeply negative operating margin that becomes a slightly positive overall margin, once endowment support and gifts are added.

The purpose in viewing college finances in this way is to point out that there are two pieces to the financial puzzle: (1) how efficiently does the college run its operations; and (2) how much help can be expected from endowment and gifts. Exhibit 9 shows that in 1998, tuition-based colleges managed to eke out a modestly *positive* operating margin, on average. But by 2001 their operating economics had slid into a deficit position of over 10%. In sharp contrast, the endowment-based colleges had a mean operating loss of over 40% in 1998—which was amply offset by endowment support and gifts. By 2001, their operations had also slipped, by over 13 percentage points. The negative operating margin of 54.6% means that their mean operating loss constituted over half of their operating revenues. In other words, operating revenues amounted to less than half of operating expenses. Their operations are very heavily subsidized. Nevertheless, endowment support and gifts pulled their mean overall margin above even the 1998 level. Needless to say, it is the operating loss that must be evaluated when endowment support and gifts can no longer be counted upon to provide a growing subsidy.

### **What to Do?**

The magnitude of the adverse financial trends triggered by the current extended bear market makes it difficult to mitigate or reverse the momentum. Endowed institutions everywhere are scrambling to right their actual or projected budget imbalances. We suggest that careful distinctions be made between solutions that address the short-term budget shortfalls, and those that deal with long-term financial results. In both cases, it is important also to distinguish between actions that affect operations and those that change the capital structure of the institution.



Short-term, "one-time" measures are those that generally call upon limited sources of help. These include account balances that may well have accumulated during the "fat" years. Clearly, such balances are finite, and therefore cannot provide a fix beyond the immediate future:

- **Restricted funds.** Review all restricted fund balances to determine whether they can be applied to expenses heretofore covered by unrestricted revenues.
- **Operating reserves.** Draw down operating reserves. Nearly all institutions carry one or more such reserves.

While both of these measures can be very helpful in meeting near-term budgetary shortfalls, they might be characterized as mere band-aids upon the financial wound. In order to stabilize the financial underpinnings of their programs, endowed institutions must consider how to gain or regain "financial equilibrium." This equilibrium rests upon sustainable long-term revenue and expense trends, coupled with protection of their endowment's purchasing power and the adequate renewal of physical plant. In the current economic and investment environment, financial equilibrium probably requires an institution to do one or more of the following:

- **Reduce the expense base.** Most institutions will find it necessary to reduce compensation and/or plant expense, in order to accommodate a smaller revenue stream. This in turn requires the setting of program priorities, the identification of "core" activities, and similar approaches.
- **Reduce the *growth rate* of the expense base, relative to revenue growth.** We have observed that expense growth has outpaced net revenue growth, sometimes by a substantial margin. While it might be excessively draconian to trim expenses to fit immediately within net revenue parameters, efforts should be made at least to change the relative growth rates of revenues and expenses.
- **Beware of additional fixed costs.** Wherever possible, avoid adding to the fixed-cost portion of the expense base. Debt and physical plant are the usual culprits, but there can be other costs that are fixed for practical purposes (e.g., expansion of employee benefits packages). In certain situations, it may make sense to "outsource" some functions, as a way of favoring variable costs.<sup>7</sup>
- **Expand revenues.** For colleges and universities, expanding enrollment is usually the best prospect. If this begs the question of student quality, then the introduction or expansion of non-degree or master's programs might be considered.

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<sup>7</sup> Institutions that are less vulnerable to revenue volatility (i.e., have lower market risk) are better equipped to handle higher fixed costs. To put it another way, if market risk is low, then higher levels of operating risk and financial leverage can be tolerated.

- **Diversify revenues.** Easier said than done, but well worth a serious study. Revenue volatility has precipitated the current crisis, and volatility is best addressed through diversification.
- **Review pricing.** For colleges and universities, this means posted tuition and financial aid in all its varieties. (Note, however, that certain kinds of financial aid adjustments provide only a "one-time" or short-term improvement, after which the trend line resumes from the improved base.) For universities and certain other institutions, a review of indirect cost recovery rates might be warranted. For other endowed institutions, the pricing of admissions, publications, auxiliary sales, and other revenue streams should be reviewed in terms of the trade-off between volume and price.
- **Avoid suspending or relaxing the endowment spending rule.** There may be strong temptation to do this, in order to meet budget demands. But it is extremely unwise to increase endowment spending beyond a sustainable long-term rate—particularly in a bear market—because the long-term impact upon the capital structure of the institution can be severe.
- **However, in a limited way, consider deferring some capital replacement of plant.** This is a slippery slope, so it is necessary to monitor physical plant carefully under such circumstances. However, it is better to reduce plant replacement expenditures than to relax the endowment spending rule, because endowments demonstrably contribute to revenues, whereas the case for plant contributions to revenue is usually (though not always) much harder to make. Stated differently: better to eat into physical capital than into financial capital. This is all the more the case if one considers—as observed in this report—that some institutions may be unnecessarily plant-intensive in their operations.
- **Emphasize gifts for unrestricted purposes or for endowment.** Seek to have such gifts become a higher percentage of the total gift stream (i.e., reversing recent trends). For universities and colleges, gifts for financial aid are functionally unrestricted and therefore also advisable. In the case of deferred gifts, make sure that gift terms are set so as to improve the institution's financial equilibrium.
- **Establish reserves to offset unfulfilled pledges.** There are likely to be more such pledges; hence, it makes sense to hedge against them, lest unfulfilled pledges have a negative impact on the budget.
- **Address exposure to fast-rising costs.** Health care benefits are a case in point. Identifying and placing limitations on fast-rising costs is extremely important in the current economic and market environment. This particularly applies to cost "drivers" that are beyond the control of the institution, such as the cost of medical care.

- **Use a conservative investment return assumption.** Throughout the 1990s, in financial equilibrium studies that we conducted, we used a long-term endowment investment return assumption of around 5% (real return), assuming a reasonably diversified portfolio. We were usually criticized for being excessively conservative. Bear market notwithstanding, we continue to use 5% as the long-term real return assumption. However, for *short-term* planning at the present time (e.g., next year's budget) we suggest a more conservative return, perhaps 2.5% or 3%—about the real rate of return on high-grade corporate bonds. In other words, institutions might wish to be prepared for the possibility that for the next several years corporate equities might generate returns no better than those on corporate bonds. How this translates into endowment spending depends, of course, upon the institution's endowment spending rule.

### Summary

For many endowed institutions, including colleges and universities, the period of 1998 to 2001 was one of acute financial pressure on operations, bountifully offset by strong capital markets, a strong economy, and low inflation. Those institutions with limited endowment had fewer means of escaping operating pressures and were therefore obliged to keep a tighter lid on expense growth. Moreover, these schools already had operations based upon smaller plant and lower staffing levels and some had also augmented operating revenues with graduate and non-degree enrollments requiring little financial aid.

The schools with larger endowments, however, exerted far less restraint on their expense growth. From an already higher expense base (relative to student enrollment), they expanded plant and non-faculty personnel, and augmented tenured faculty compensation. The effect was an even larger expense base. The reality of a compensation-driven and plant-heavy expense base is that it grows each year regardless of whether there is revenue growth to support it. Meanwhile, operating revenue growth has been slowed by the expansion of financial aid. Hence, with expense growth far exceeding growth in operating revenues, the subsidy from endowment and gifts increased dramatically. The result is that the well-endowed schools are now significantly exposed to the downturn in the capital markets. Their choices are unattractive: violate their endowment spending rules at the expense of future generations of students; increase enrollments at the expense of service quality; reduce financial aid at the expense of student quality; reduce plant size and/or defer maintenance; or reduce operating expenses through cutbacks and layoffs. Recent months have seen several announcements by major institutions seeking to address their sudden cost exposure (e.g., Dartmouth, Duke, and Stanford), and others are likely to follow, with or without announcement.

Tuition-based schools are no less comfortable. The difference is that they have been in this situation for far longer, and may have practiced more "cost management" by necessity if not by choice. Even so, they have found themselves drawn into increasingly expensive financial aid competition, as well as debt financing. They may be better equipped, through experience, to deal with cost pressures, but their competitive position (financial aid) tends to be weaker and their fixed costs may be growing too fast.

Just as capital market outperformance helped drive the growth in many other industries (technology-related industries, in particular), it may also have driven the growth of industries that drew a significant amount of funding from the capital markets. Well-endowed colleges and universities, staying well within their spending rules, found themselves the beneficiaries of greatly increased financial inflows. The ebb in these funds has pushed many institutions to evaluate their operating economics more closely now that the bear market is confiscating the largesse showered upon them during the boom years.

**Exhibit 1**

**AVERAGE CUMULATIVE CHANGE IN DOLLAR AMOUNT  
OF PAYOUT FROM ENDOWMENT**

**Fiscal Years 1998-2001  
(1998 = 100)**

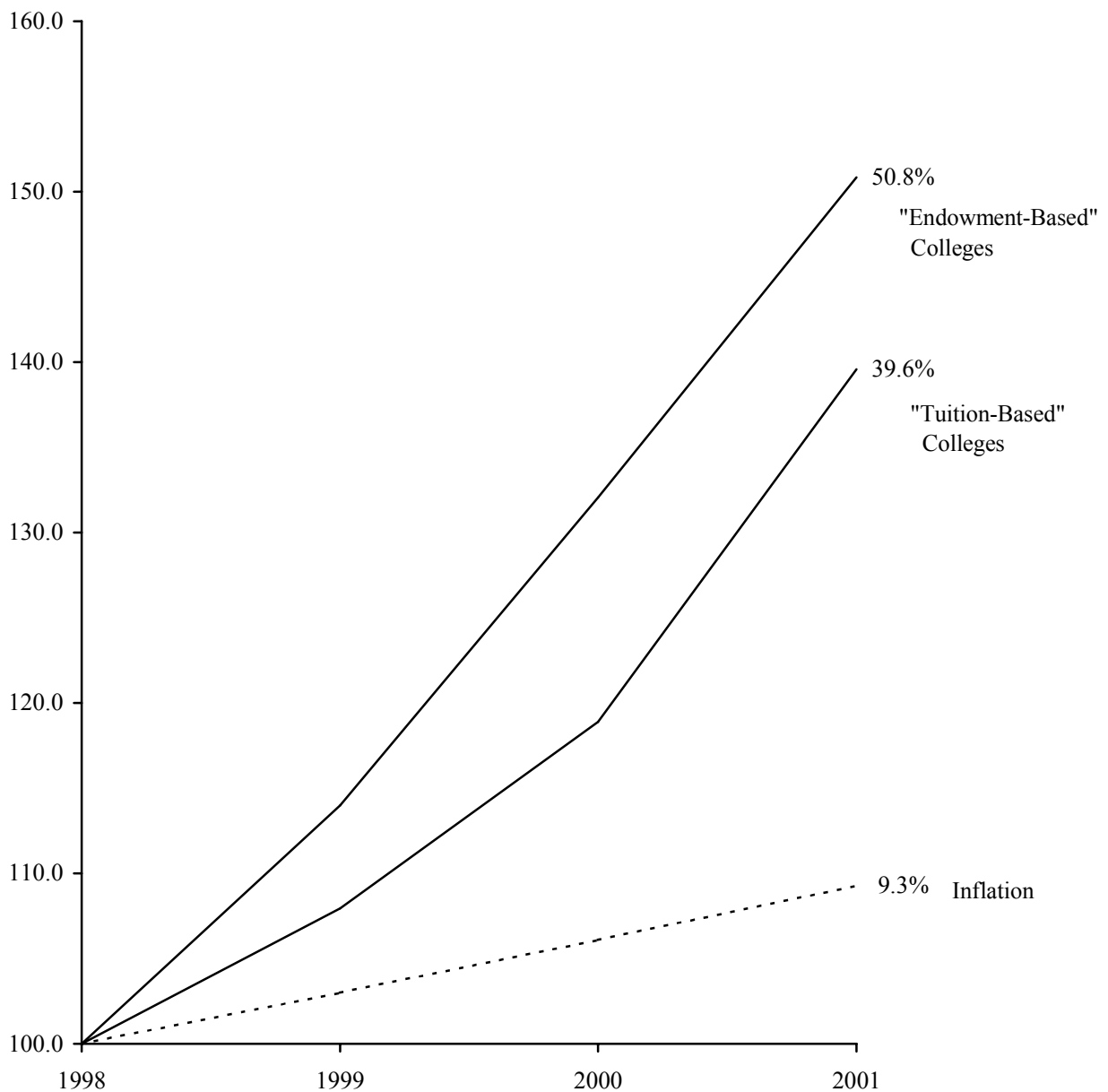
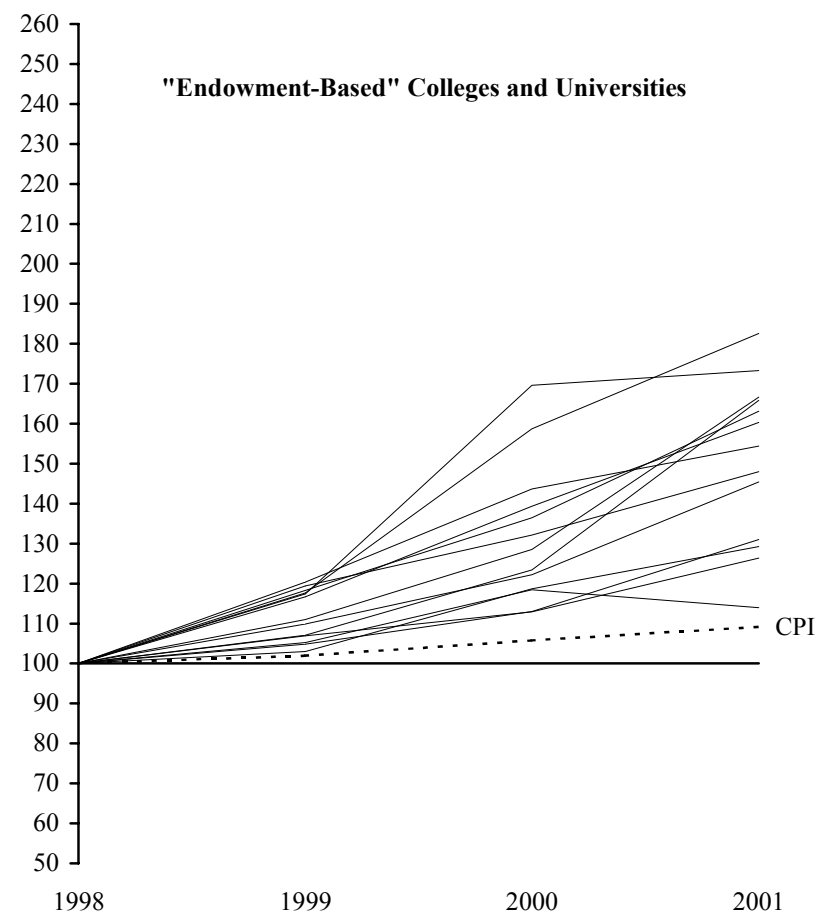
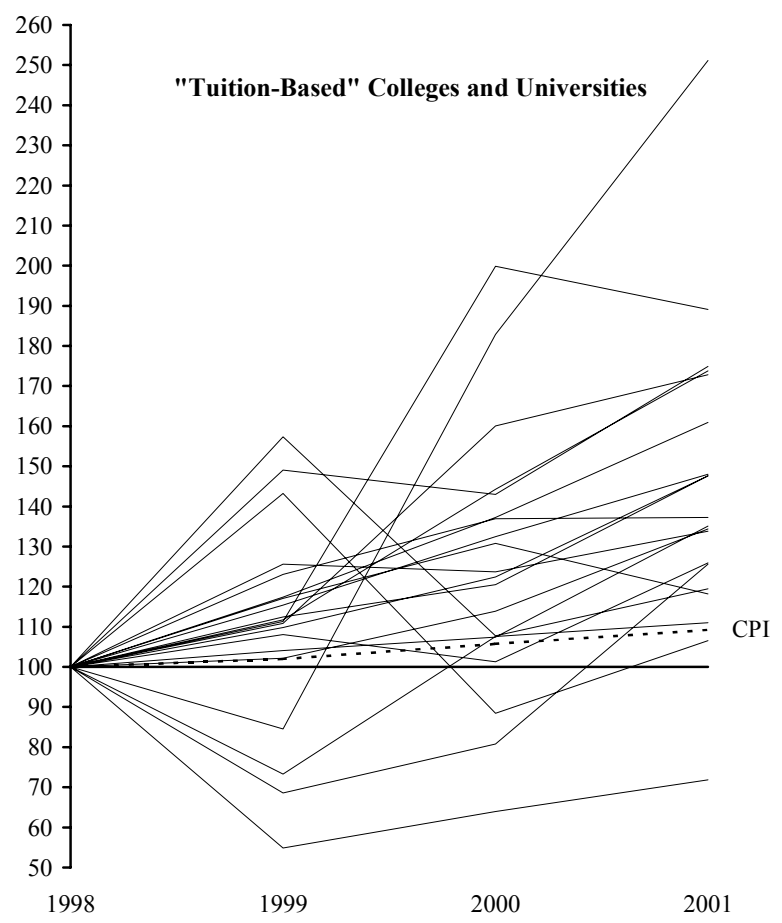


Exhibit 2

CUMULATIVE CHANGE IN DOLLAR AMOUNT OF PAYOUT FROM ENDOWMENT FOR EACH INSTITUTION

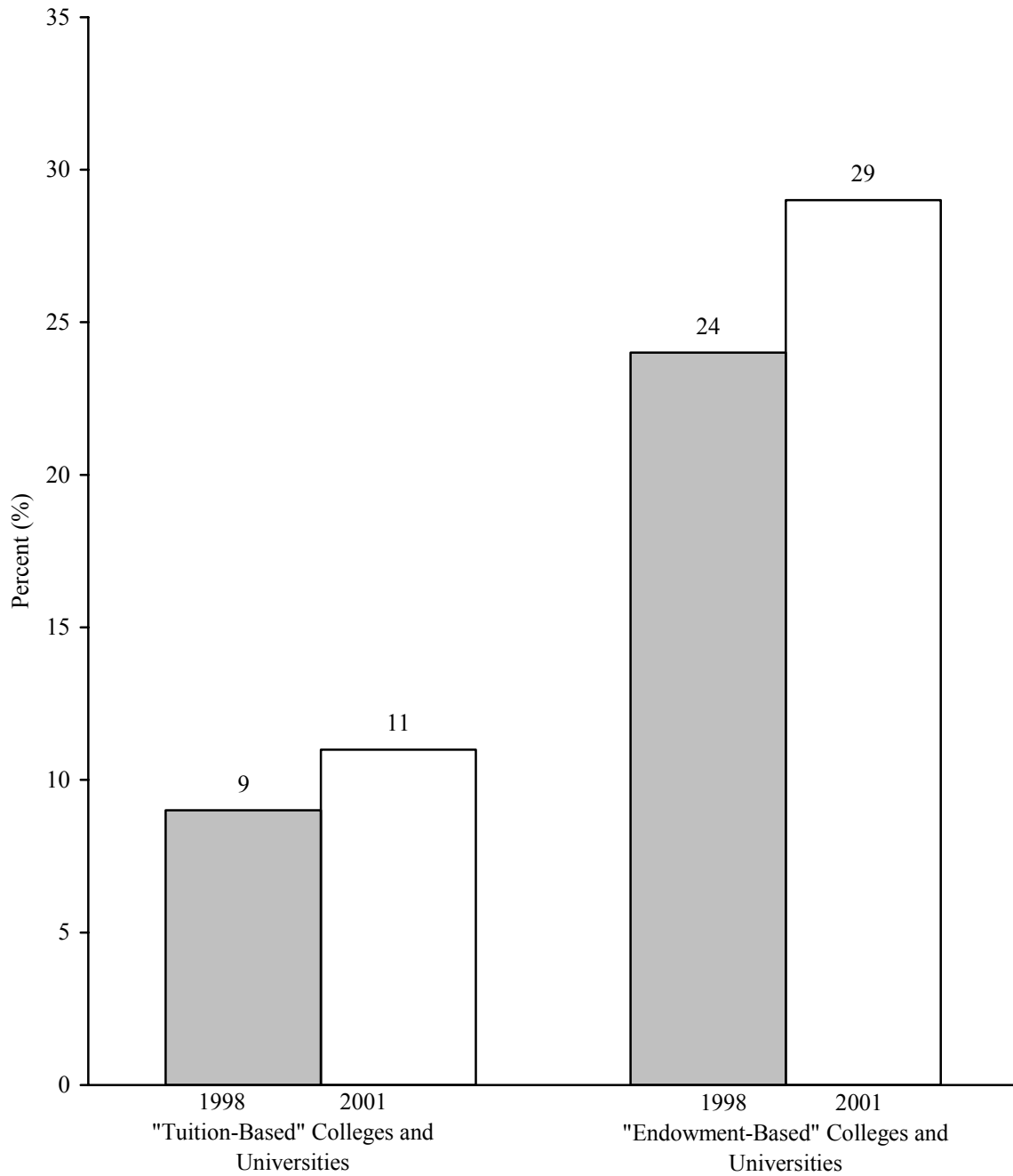
Fiscal Years 1998-2001  
(1998 = 100)



**Exhibit 3**

**RELIANCE UPON ENDOWMENT SUPPORT**

**Endowment Support as a Percent of Total Revenues  
1998 and 2001**

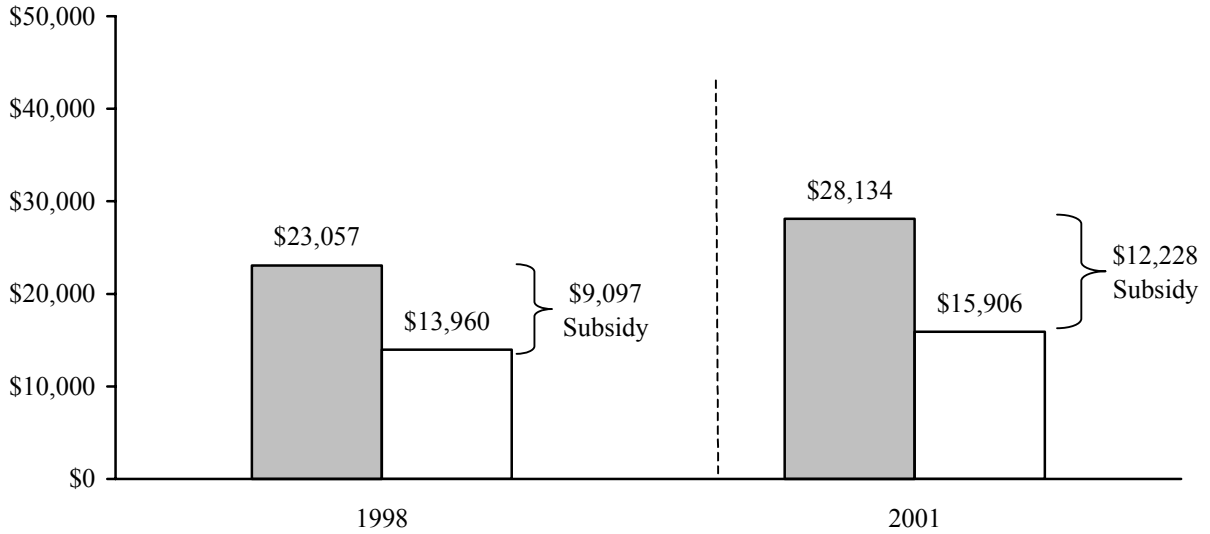


**Exhibit 4**

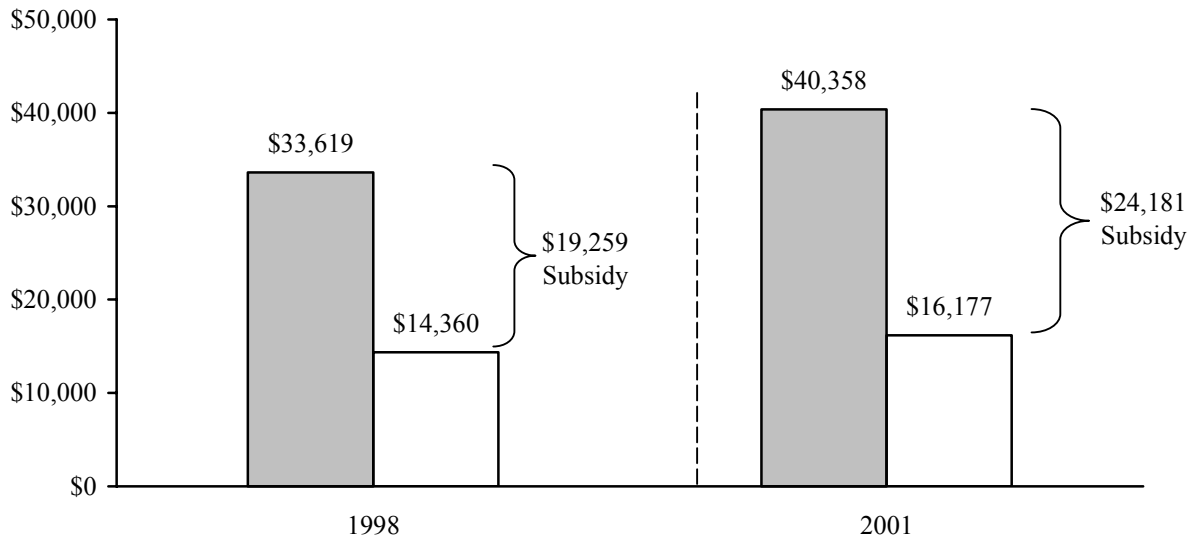
**NET LOSS (OR SUBSIDY) PER FTE UNDERGRADUATE**

**1998 and 2001**

**"Tuition-Based" Colleges and Universities**



**"Endowment-Based" Colleges and Universities**



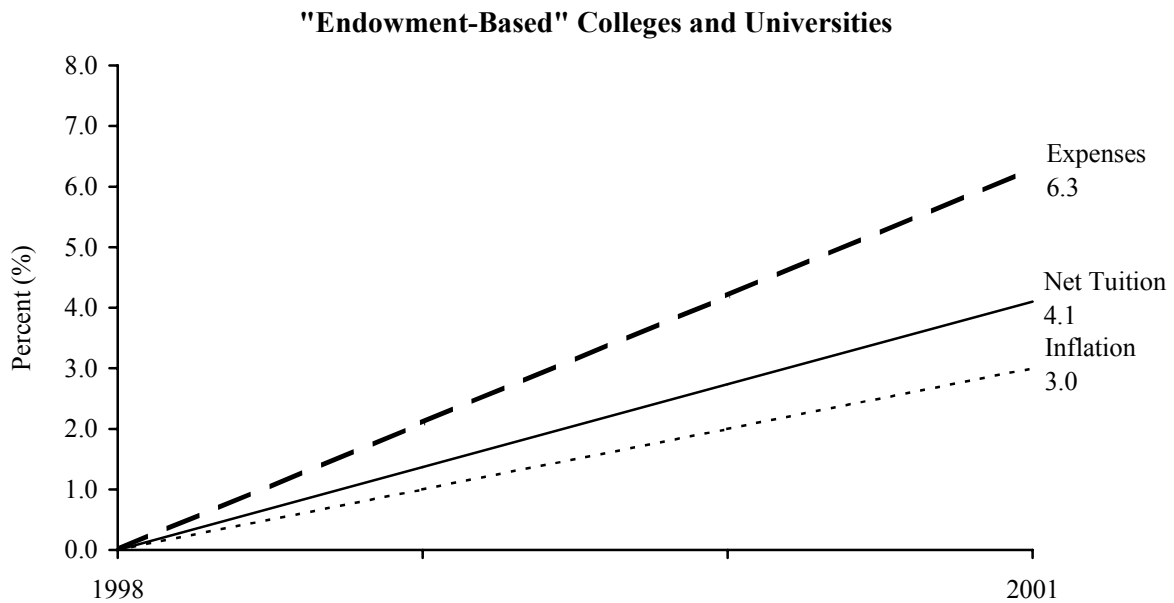
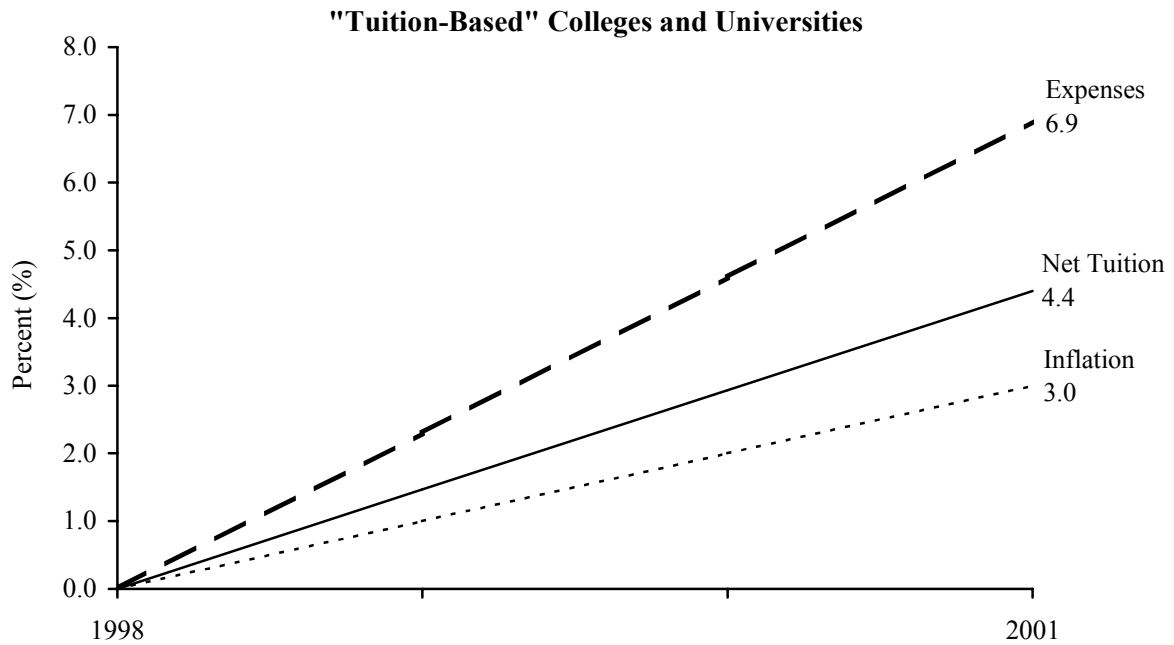
■ Expenses Per Student    □ Net Undergraduate Tuition Revenue Per Student



**Exhibit 5**

**GROWTH IN NET TUITION AND EXPENSES PER FTE STUDENT**

1998 to 2001



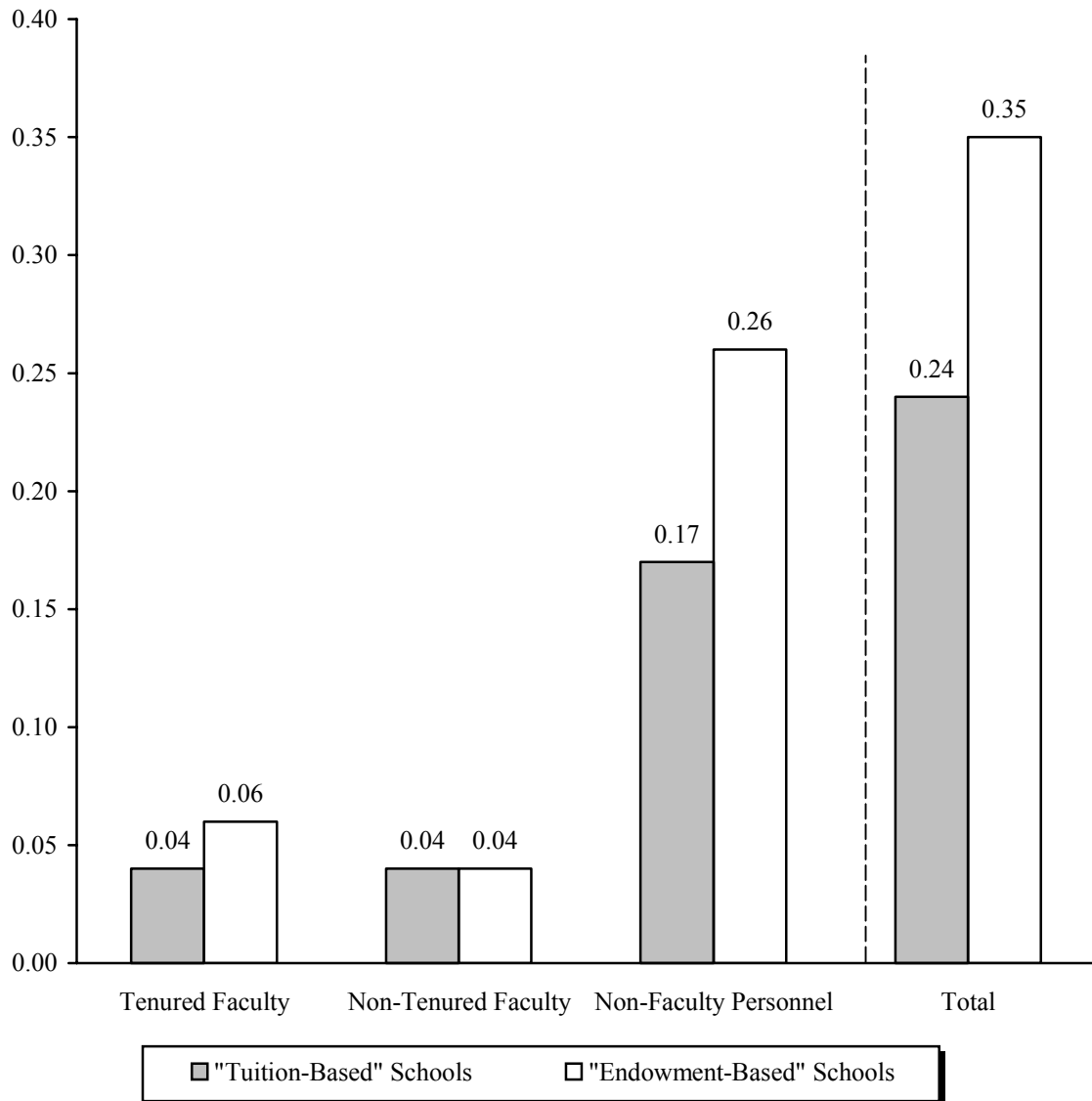
Note: Graphs show compound annual growth rate from 1998 to 2001.

**Exhibit 6**

**STAFFING LEVEL**

**Number of Faculty and Staff per FTE Student**

**2001**

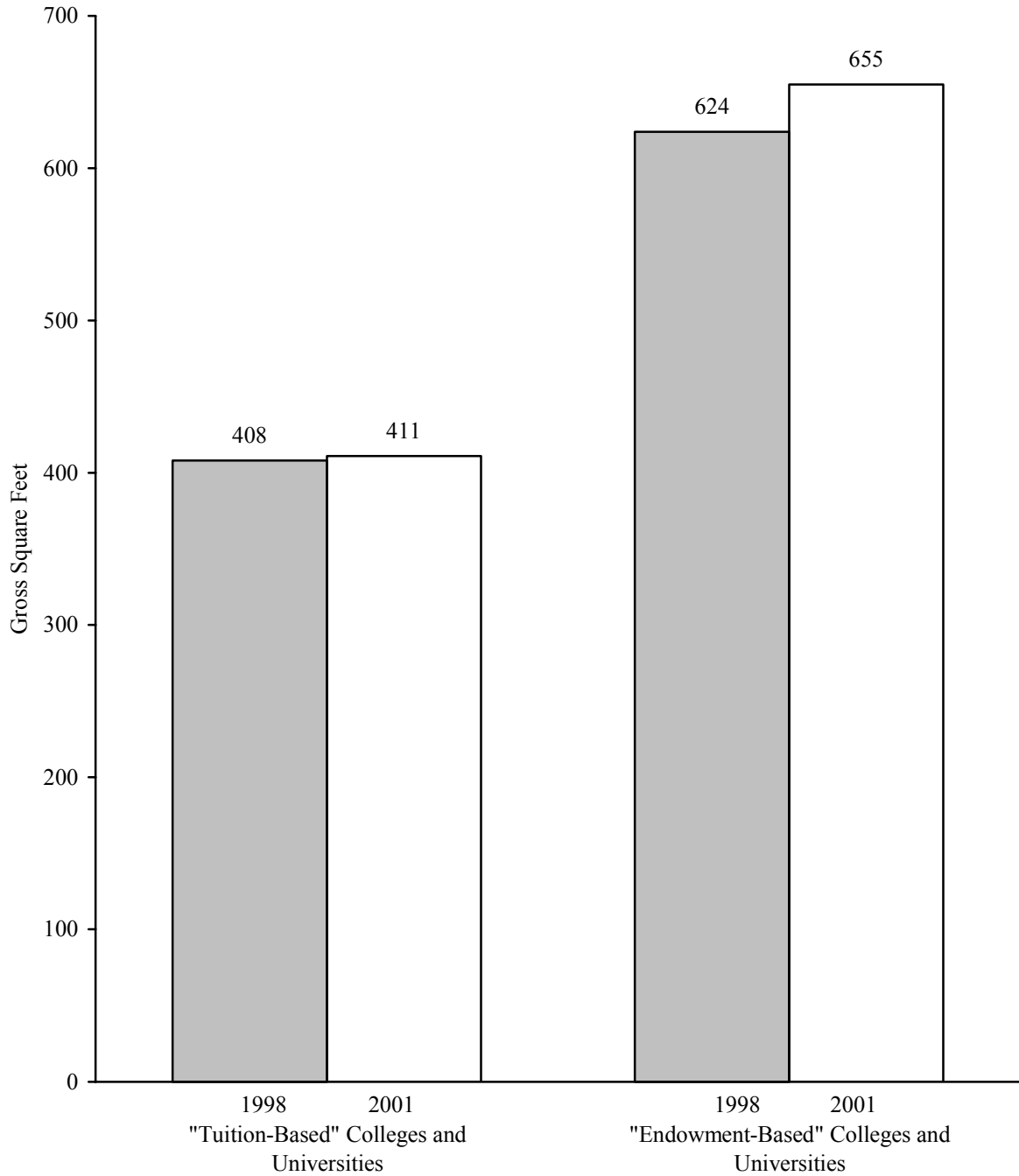


Notes: The vertical axis shows the ratio of faculty or staff to students. Thus, for example, a 0.25 ratio means four students per faculty or staff. A 0.33 ratio means three students per faculty or staff. A 0.04 ratio means 25 students per faculty or staff. For the "endowment-based" schools, the 0.06 ratio for tenured faculty added to the 0.04 ratio for non-tenured faculty equals a 0.10 faculty to student ratio, equivalent to a student/faculty ratio of 10.

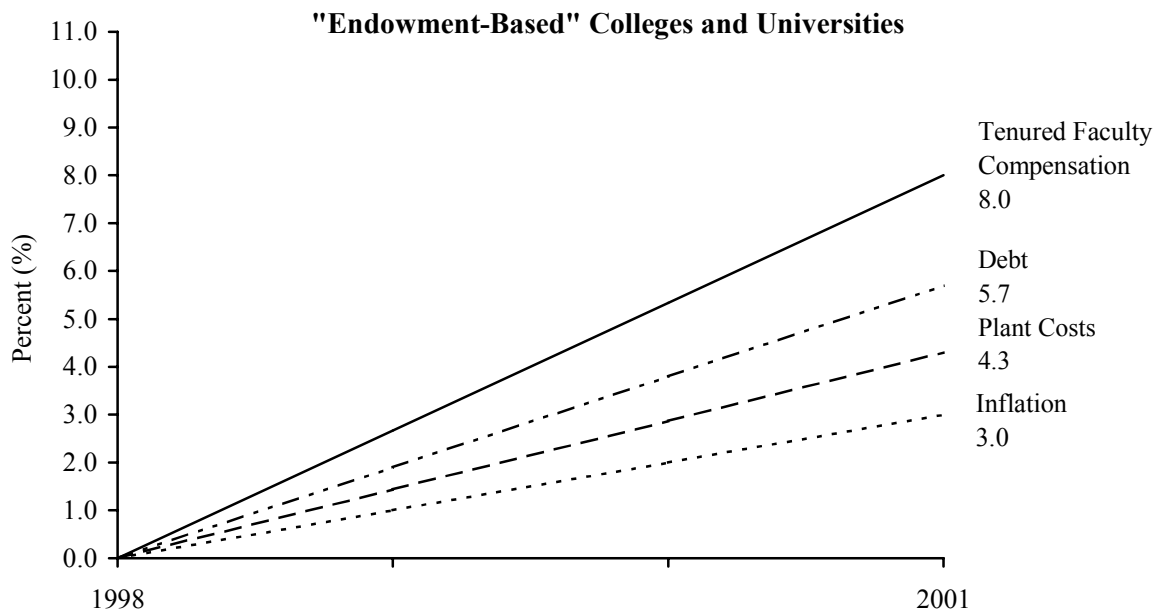
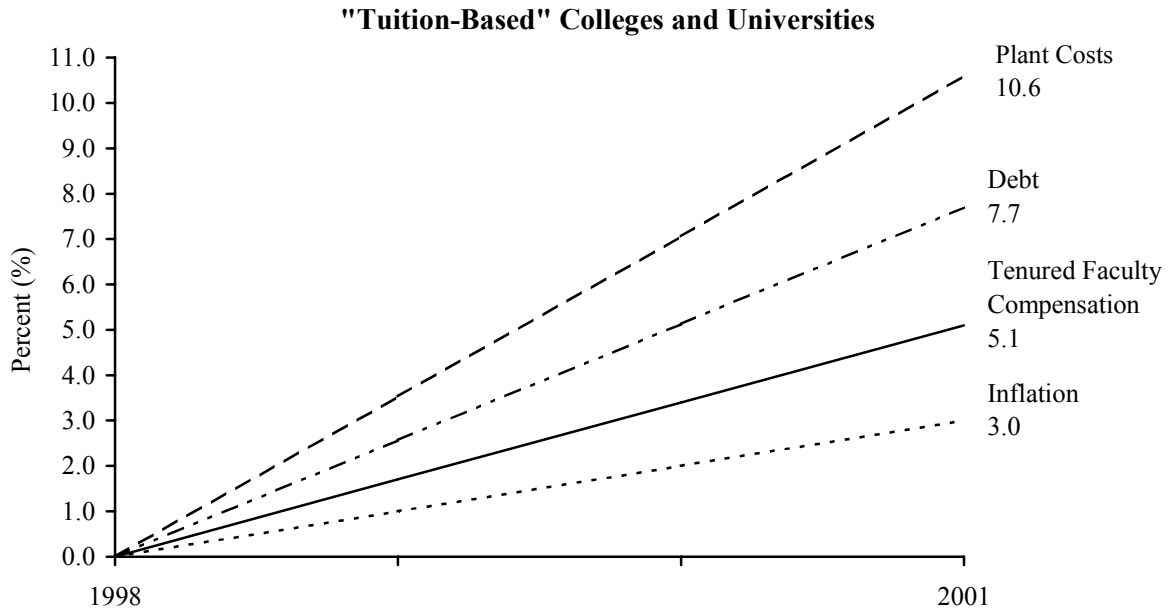
**Exhibit 7**

**GROWTH IN PLANT**

**Number of Gross Square Feet per FTE Students, Faculty, and Staff  
1998 and 2001**



**Exhibit 8**  
**GROWTH IN FIXED COSTS**  
**1998 to 2001**

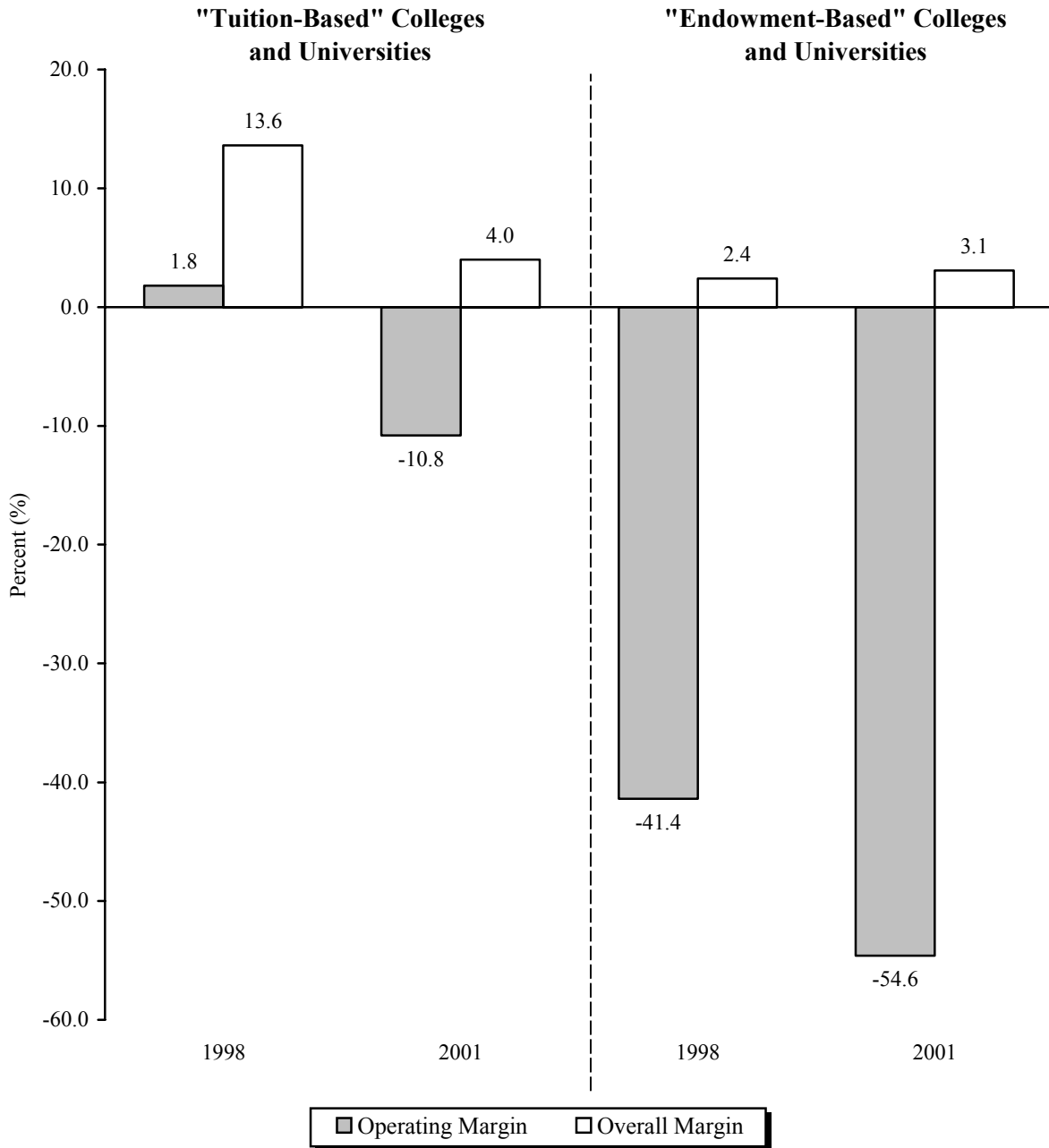


Note: Graphs show the compound annual growth rate from 1998 to 2001.

**Exhibit 9**

**CHANGE IN MARGINS**

**Operating Margin and Overall Margin  
1998 and 2001**



Notes: Margin is calculated as net income (or loss) as a percentage of total income. "Operating margin" excludes gifts and endowment support, which are included in "overall margin."