



4080 McGinnis Ferry Road, Suite 901 • Alpharetta, GA 30005
PH: (770) 752 - 5656 • FAX: (770) 752 - 5650

November 30, 2006

The Honorable Grady L. Patterson, Jr.
Treasurer, State of South Carolina
116 Wade Hampton Building
Columbia, SC 29201

Dear Treasurer Patterson:

We have completed our actuarial analysis of the Fund ("the Fund") for the South Carolina Tuition Prepayment Program ("SCTPP" or "the Program") as of June 30, 2006. This report presents our findings with respect to the Fund's expected cash flows and adequacy of the Fund. The analyses have been prepared in accordance with generally accepted actuarial principles and practices commonly applicable to similar types of arrangements.

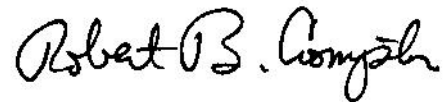
Currently the expected value of liabilities is \$201,738,232 and the value of assets is \$137,920,133, for a difference of \$63,818,099. The funded ratio is 68.4% of liabilities. These results are based on assumptions approved by SCTPP personnel after consultation with me.

It should be noted that in performing our analysis, we have used assumptions that are more stringent than in prior years, resulting in a larger deficit. If we had used the same assumptions as last year, the deficit would have been \$41,338,714. We believe the current assumptions contain *conservatism* - that is, they produce a deficit greater than what we believe to be a best estimate. To the extent that there is conservatism, the deficit will decrease in the future as actual events are more favorable than our projections. Our current best estimate of the deficit is based on the median result of the stochastic model of results discussed in this report. This best estimate shows a deficit of \$39,711,232. However, if tuition inflation should continue at 9% per year for the next 21 years, and investment returns are as projected, then the true deficit at June 30, 2006 is \$63.8 million.

It should be further noted that we have not assumed any further sales of prepaid tuition contracts. Generally the sale of additional contracts will generate positive additional surplus which will offset the existing excess of liabilities over assets.

We appreciate the opportunity to serve the State of South Carolina. Any questions about the report should be directed to me at (770) 752-5656.

Very truly yours,

A handwritten signature in black ink that reads "Robert B. Crompton". The signature is written in a cursive style with a large, stylized initial "R".

Robert B. Crompton, FSA, MAAA
Vice President
Actuarial Resources Corporation

TABLE OF CONTENTS

<u>Section</u>		<u>Page</u>
I.	Executive Summary	1
II.	Reliances & Actuarial Standards	3
III.	Description of the Program	4
IV.	Summary of Contract Data and Current Assets	6
V.	Actuarial Methods and Assumptions	8
VI.	Adequacy of the Fund as of June 30, 2006	13
VII.	Stochastic Analysis	16
VIII.	Break-Even Investment Return & Sensitivity Testing	22
IX.	Change in Actuarial Assumptions	23
X.	Expected Use of Funds	24

I. EXECUTIVE SUMMARY

The following are the key findings of our analysis.

Adequacy of the Fund

The Fund's liabilities exceed its assets by \$63,818,099. The key results are shown below.

Value as of June 30, 2006	Assets and Liabilities
Assets	
Investments	\$112,164,717
Future Contract Payments	24,329,235
Future Payments From Columbia Mgt.	<u>1,426,181</u>
Total Assets	<u>\$137,920,133</u>
Liabilities and Surplus	
Future Contract Benefits	\$200,312,051
Future Expenses	<u>1,426,181</u>
Total Liabilities	<u>\$201,738,232</u>
Surplus	<u>(\$63,818,099)</u>
Total Liabilities and Surplus	<u>\$137,920,133</u>
Funded Ratio	68.4%

Adequacy Methodology

In making our projections of the surplus in the table immediately above, we assume that the Program will not sell any additional prepaid tuition contracts. This is a conservative limitation that provides a static "snapshot view" of the Program as of June 30, 2006.

Investment Strategy

Based on discussions with Program personnel, the investment strategy of SCTPP is anticipated to be 50% allocation of assets to domestic equities and 50% allocation to fixed income securities. We understand that this allocation is based on a review of the projected cash flows of the Program, combined with projected liquidity needs.

The objective of the increase in equity investment is to provide higher portfolio returns than would be available from a portfolio consisting mainly of fixed income investments. We have not reviewed the strategy nor are we expressing an opinion on the strategy.

Key economic assumptions are listed below.

Key Assumptions	
Yield on Investments	
All future years	7.25%
Asset Allocation	
Cash & fixed income	50%
Equities	50%
Tuition Inflation	
All future years	9.0%
Bias Load	
All Years	3.0%

The assumption for investment returns is based on the recommendation of South Carolina Treasury investment personnel, who considered the likely returns of a 50% fixed income, 50% equity portfolio.

The tuition inflation assumptions are based on a combination of statistical models of tuition increases and on actuarial judgment. Our statistical models use information from the past 25 years. The rates shown in the table above represent our long-term average estimate of tuition inflation plus some conservatism.

III. RELIANCES & ACTUARIAL STANDARDS

In making the projections on which this report is based, we relied on the following information supplied to us as indicated below.

- Tuition and fee amounts at South Carolina public institutions of post-secondary education, supplied by the Office of the State Treasurer,
- Headcount at South Carolina public institutions of post-secondary education, supplied by the Office of the State Treasurer,
- Market value of assets of the Program's trust fund, supplied by the Office of the State Treasurer,
- Inventory of Program contracts, supplied by InTuition Solutions, Inc., the Program's records administrator,
- Assumptions regarding future investment returns on the Program's trust fund, supplied by the Office of the State Treasurer, after consultation with me regarding reasonableness and comparability to assumptions at other programs with similar investment profiles.

There are no actuarial standards of practice that apply specifically to prepaid tuition plans. However, there are two general standards that we believe apply:

- Actuarial Standard of Practice #3 "Actuarial Communications". This standard sets general guidelines for actuarial communications. This report is in compliance with this standard.
- Actuarial Standard of Practice #23 "Data Quality". This standard sets guidelines on review of data supplied by a third-party. We have performed reasonableness and consistency checks on the data supplied to us by personnel of the Program and by the records administrator, and are in compliance with this standard. Our review of the data was not an audit of the data.

IV. DESCRIPTION OF THE PROGRAM

The Program was created in 1997 by the South Carolina Legislature to "...assist the citizens of South Carolina with the expense of college by providing an advanced payment program for tuition at a fixed and guaranteed level for public colleges and universities." The Office of the South Carolina State Treasurer administers the Program. The Program is summarized below. This summary is provided for explanation purposes only, and the Program will be governed by the provisions of the enabling legislation and Treasury procedures.

Types of Contracts Available

There are currently two types of contracts available. Both types provide for tuition and mandatory fees imposed by public higher education institutions in the State of South Carolina.

The four-year college/university contract provides for up to eight semesters of tuition and fees at any accredited senior higher education institution. Program rules specify that this will not exceed 128 semester hours. The benefits provided for under this contract may also be used to provide for junior college tuition and fees or a combination of junior and senior college tuition and fees.

The two-year college/university contract provides for up to four semesters of tuition and fees at any accredited senior higher education institution. Program rules specify that this will not exceed 64 semester hours. The benefits provided for under this contract may also be used to provide for junior college tuition and fees or a combination of junior and senior college tuition and fees.

Both contracts require an enrollment fee at the time the enrollment form is submitted. Currently the enrollment fee is \$85.

Payment Options Available

There are currently three approved and published payment options for the Program:

- Lump-sum payments,
- 48 monthly installment payments and
- Extended payments, which are monthly installment payments which run until the year of anticipated matriculation of the beneficiary.

Additionally, the Program provides for additional forms of payment on an accommodation basis at the request of potential purchasers. These payment options typically provide for an initial lump sum coupled with installment payments.

Residency Requirements

There is no residency requirement for contract purchasers. However, there is a residency requirement for the contract beneficiary. The beneficiary is required to meet South Carolina residency requirements, be 21 years of age or younger and not have completed the tenth grade at the time the enrollment form is submitted to SCTPP.

Refunds

If the beneficiary dies or becomes disabled, then the purchaser will receive a refund equal to the lesser of the current Weighted Average Tuition or payments accumulated at interest. Applicable interest is determined by Treasury on a year-to-year basis.

If the beneficiary is awarded a scholarship, the contract owner may obtain a refund equal to the lesser of the current Weighted Average Tuition or payments accumulated at interest. This refund is available only after the beneficiary has reached his projected enrollment year.

Rollovers to the South Carolina Future Scholar Savings Program receive a refund equal to contract payments accumulated at 2% interest per year.

Voluntary terminations receive a refund equal to contract payments accumulated at 2% interest per year, less a deduction of the lesser of \$150 or 50% of the sum of all payments.

Involuntary terminations receive a refund equal to contract payments accumulated at 2% interest per year, less a deduction of the lesser of \$150 or 50% of the sum of all payments.

Change of Beneficiary

Generally, a contract owner can change the beneficiary at any time provided that the new beneficiary is the same age or younger than the original beneficiary, and is a member of the current beneficiary's immediate family.

Age Limit on Benefits

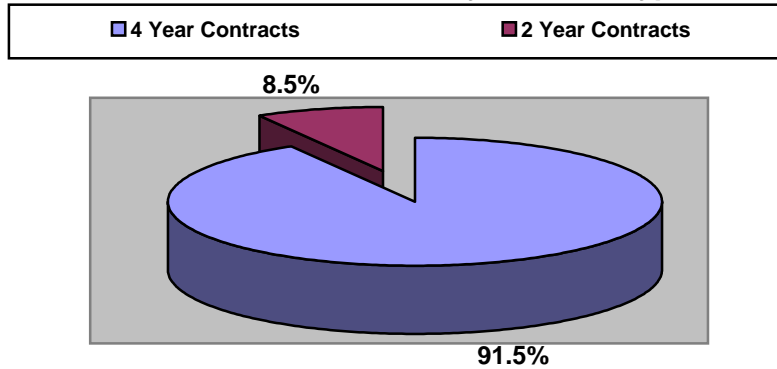
Benefits are available until the beneficiary is age 30. This limit may be extended to age 34 if the beneficiary has military service.

V. SUMMARY OF CONTRACT DATA AND CURRENT ASSETS

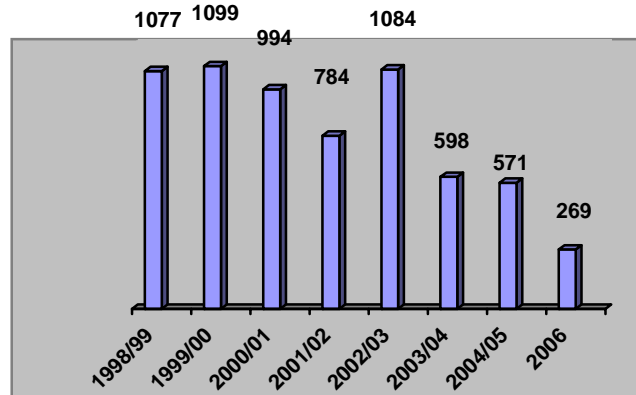
Contract Data

Data on the number of outstanding contracts, contributions, was provided by InTuition, Inc., the Program's records administrator. The graphs below summarize the data provided concerning these contracts.

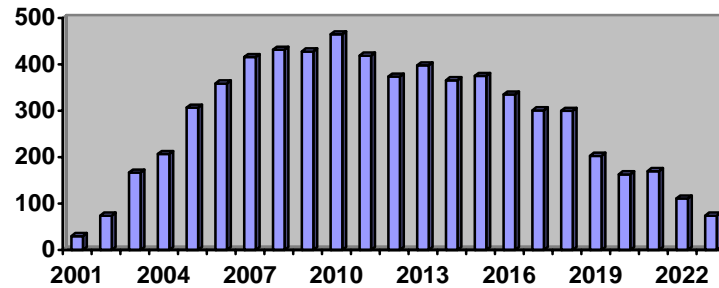
Distribution of Contracts by Contract Type



Distribution of Contracts by Enrollment Year



Distribution By Year of Matriculation



Current Assets

As of June 30, 2006 the Program’s assets were deployed in a mix of fixed income investments and equity investments. The allocation of assets to each class is shown in the following table.

Fund Investments

The market value of Program assets is shown in the table below.

Market value of assets held as of June 30, 2006		
	<u>Amount</u>	<u>% Of Total</u>
Cash & Fixed Income	56,794,768	50.6%
Equity Investments	55,369,949	49.4%
TOTAL	<u>\$112,164,717</u>	<u>100.0%</u>

Investment Strategy

The investment strategy is designed to achieve a rate of return in excess of anticipated increases in the WAT. The Fund's asset allocation anticipates that the amount invested in equities will move to approximately 50% and that the fixed income portion will move to approximately 50%.

VI. ACTUARIAL METHODS AND ASSUMPTIONS

Methods

The actuarial method for the determination of the adequacy of the Fund consists of projecting future tuition rates, future expenses based on the average anticipated number of contracts and future utilization of contracts. Future benefits and expenses are discounted using the assumed investment yield as the interest discount rate. The assumed discount rate is based on the current and anticipated mix of assets of the Fund.

For the projection of future benefits, the analysis proceeds as follows:

- Project future tuition rates for all years under consideration. Future tuition is based on the assumptions for tuition inflation.
- Determine the nominal cost of future benefit payments.
- Determine the nominal value of expenses.
- Determine the nominal value of future contract payments and revenue from Columbia Management.
- Determine the present value of future contract benefits, future expenses and future revenue based on the investment yield assumptions.
- Perform projections for all of the Program's beneficiaries to determine if the Fund is adequate in the aggregate.
- In making our projections of the surplus, we assume that the Program will not sell any more contracts. This is a conservative limitation that provides a static “snapshot view” of the Program as of June 30, 2006.

A dynamic view of the Program, which would include a reasonable projection of future contributions, provides a more realistic view of the Program since the Program is run with the intention of continuing to accept contributions. New contracts are projected to provide additional amounts of surplus, which provides protection against adverse fluctuations in experience.

Assumptions

Actuarial assumptions used to determine financial soundness of programs are of two general types: economic and demographic. Demographic assumptions determine the expected exposure to financial claims and generally answer the question "How and when will people use their contractual benefits?" Economic assumptions are concerned with the expected level of benefit usage and answer the question "What is the expected value of benefit usage?" The assumptions that we used were those that were approved by the South Carolina Treasurer's Office, after consultation with us.

Economic Assumptions

Economic assumptions are used to estimate the annual tuition rates at two and four year colleges, increases in Fund expenses, and Fund earnings on assets invested. Because inflation is a major component of the rate of increase in tuition rates and of investment returns, we considered these rates together. We believe that the difference in these rates is more important than the absolute level of the rates. The following paragraphs describe the economic assumptions used in this study.

Federal Income Tax

We assumed that Fund earnings are exempt from Federal Income Tax.

Annual Tuition Rates and Bias Load

Our assumptions were guided by our observations of historic tuition increases, trends in postsecondary enrollment in South Carolina and the level of legislative appropriations for postsecondary schools in South Carolina.

The Bias Load assumption accounts for Program enrollment at institutions that are more expensive than the Weighted Average Tuition. The choice of this assumption was based on a review of Program experience and what we have seen in other prepaid tuition programs.

The assumptions for tuition inflation and bias load are shown in the table immediately below.

Tuition Inflation	
All Years	9.0%
Bias Load	
All Years	3.0%

Fund Earnings Rate

In setting our assumptions for the yield on assets, we relied on input from Treasurer’s Office personnel

Our investment yield assumption is:

7.25% for all future.

These assumptions are based upon the recommendation of the Program’s in-house investment advisor.

Although we do not expect the Fund to realize these exact rates in any year, we believe they represent reasonable earnings rates over the time horizon of this report. In some years the Fund will have yields in excess of the assumed rate, while in other years the Fund will earn less than this rate.

Annual Expenses

The Program incurs expenses for records administration and for day-to-day operations of Treasury staff who work with the Program. In making our projections, we used the Program’s current records administration expenses, which are incurred based on inventory counts, and an additional aggregate expense for all other expense incurrals. The records administration expenses are assumed to increase at 2% per year. The actual current expense rates are shown in the table

Records Expense Item	Expense Rate
Active contracts, pre-matriculation	\$3.25 per month
Paid in full contract, pre-matriculation	\$1.40 per month
Tuition payments	\$5.00 per payment
All contracts, post-matriculation	\$1.40 per month

The aggregate expenses for the Program, excluding records administration, are \$325,000.

Demographic Assumptions

The demographic assumptions used in this report are based on our experience with similar types of liabilities. Our choice of assumptions is based on recent experience and our best estimates as to future events. These assumptions are as follows:

Mortality and Disability

We assumed that there would be no terminations due to death or disability.

At-Will Termination of Contract

Our projections include assumptions regarding voluntary termination of contracts prior to matriculation. These assumptions vary by payment type and by number of years from contract purchase. These assumptions are shown in the following table.

	Lump Sum	48 Months Payments	Extended Payments
Year of purchase	2.0%	5.0%	8.0%
Year of purchase+1	2.0%	4.0%	7.0%
Year of purchase+2	2.0%	3.0%	6.0%
Year of purchase+3	1.5%	2.0%	5.0%
Year of purchase+4	1.5%	1.0%	4.0%
Year of purchase+5	1.5%	1.0%	3.0%
Year of purchase+6	1.5%	1.0%	2.0%
Year of purchase+7	1.0%	1.0%	2.0%
Year of purchase+8	1.0%	1.0%	2.0%
Thereafter	1.0%	1.0%	1.0%

Matriculation Percent

All beneficiaries are assumed to matriculate at the matriculation date specified in the application, except for those who are projected to terminate.

Utilization of Benefits

Four-year contract beneficiaries are assumed to use their benefits ratably over four years, while two-year contract beneficiaries are assumed to use their benefits ratably over two years. However, for contracts which are past their anticipated matriculation date, but have not used any benefits, all benefits are projected to be used completely over the next two years.

We believe that this is a conservative assumption since experience at other prepaid tuition programs, and universities in general, indicates that the average student takes somewhat longer than four years to complete a four-year degree.

Dropout Rate

All beneficiaries are assumed to use 100% of their contractual benefits once they have enrolled in college.

Frequency of Beneficiary Replacement

Since all surviving beneficiaries are expected to matriculate and are expected to use their benefits until completion, the assumption is made that no replacement of beneficiaries will occur.

VII. ADEQUACY OF THE FUND AS OF JUNE 30, 2006

In determining the adequacy of the Fund, we estimated the future disbursements for higher education expenses of beneficiaries, expenses and refunds for terminated contracts. We also projected the future assets based on current assets and expected earnings on assets. We believe these estimates are reasonable based on the information available and our past experience and judgment.

The estimates of the prospective assets and liabilities of the Fund are summarized in the table on the following page and demonstrate the financial position of the Fund. The value of all assets is \$137,920,133 while the expected value of all liabilities is \$201,738,232. The expected present value of the excess of liabilities over assets is \$63,818,099.

The Program's surplus is the amount of funds over and above that amount which is necessary to meet benefit usage and expenses on our baseline assumptions. Surplus provides protection for events that are more adverse than our baseline assumptions.

The surplus will change from year to year due to positive and negative cash flows and due to the change in the present value of future benefit usage and expense payments because of the passage of time. The surplus will also change due to the variance of experience from the assumptions. These variances include tuition increases, investment income and expenses.

The surplus will also change due to the growth of the program and due to the updating of the assumptions to reflect the Program's emerging experience. The changes for the year ending June 30, 2006 are summarized in the table below.

Progression of Surplus	
Surplus at June 30, 2005	(\$ 37,843,198)
Projected Decrease to June 30, 2006	(2,743,632)
Gain from Favorable Tuition Inflation	3,302,049
Loss due to Unfavorable Investment Experience	(3,609,363)
Gain due to Additional Contract Sales	463,354
All Other Experience Items ¹	(907,924)
Loss Due to Change In Assumptions	(22,479,385)
Surplus at June 30, 2006	(\$ 63,818,099)

¹ Other experience items consist principally of differences between actual and projected contract cancellations and between actual and projected expenses.

In the following chart we show the value of expected future benefit usage, expected future payments, current assets and expected surplus as of the end of each future year for contracts in place as of June 30, 2006. Note that existing assets are projected to be sufficient to meet future liabilities through 2016.

PRESENT VALUE OF ASSETS AND LIABILITIES

Fiscal Year Ending	Value of Assets	Present Value of Future Benefits And Expenses	Surplus/ (Deficit)
2006	137,920,133	201,738,232	(63,818,099)
2007	134,483,793	202,928,704	(68,444,911)
2008	129,127,689	202,534,856	(73,407,167)
2009	121,863,887	200,593,073	(78,729,187)
2010	112,558,784	196,995,837	(84,437,053)
2011	100,406,668	190,965,407	(90,558,739)
2012	86,116,994	183,241,241	(97,124,248)
2013	70,328,067	174,493,823	(104,165,756)
2014	52,373,686	164,091,459	(111,717,773)
2015	32,929,409	152,746,721	(119,817,312)
2016	11,163,276	139,667,343	(128,504,067)
2017	(13,352,299)	124,468,313	(137,820,611)
2018	(39,567,549)	108,245,056	(147,812,606)
2019	(68,095,813)	90,433,206	(158,529,020)
2020	(96,762,639)	73,259,735	(170,022,374)
2021	(125,355,999)	56,992,997	(182,348,996)
2022	(154,711,280)	40,858,017	(195,569,298)
2023	(182,515,288)	27,232,784	(209,748,072)
2024	(209,402,375)	15,552,432	(224,954,807)
2025	(234,631,595)	6,632,436	(241,264,031)
2026	(256,936,148)	1,819,525	(258,755,673)
2027	(277,515,343)	961,223	(278,476,566)
2028	(290,771,520)	- 0 -	(290,771,520)

VIII. STOCHASTIC ANALYSIS

We have improved the stochastic analysis of the Program in the following important areas:

- Incorporation of serial correlation,
- Incorporation of heteroscedasticity,
- Asset class returns treated as the risk-free return plus a spread and
- Incorporation of Bayesian techniques to better reflect experience.

Serial Correlation

Serial correlation is the statistical connection of returns and inflation rates with prior returns and inflation rates. Many financial statistics show a strong relationship with their preceding values. For example, returns on Treasury Bills show a strong connection with returns for up to three years previously. Likewise, inflation at some of the State-related campuses shows a connection with inflation for up to eight years previously. We have constructed our stochastic analysis model to reflect these serial correlations.

Heteroscedasticity

Heteroscedasticity is a technical term that means the volatility of a statistic changes over time. For those items in our projection that appear to have changing volatility, we have incorporated stochastic shifts in the volatility.

Asset Class Returns Based on Risk-Free Return plus a Spread

Modern financial theory considers the *risk-free return* to be the fundamental component of the capital markets. Further, any investment can be considered as the sum of the risk-free return plus a spread reflective of the volatility of that investment's returns.

We have constructed our asset returns by modeling the 90-day Treasury Bill return as the risk-free return, then constructing separate models for equity spreads and fixed-income spreads.

Bayesian Approach to Setting Parameters

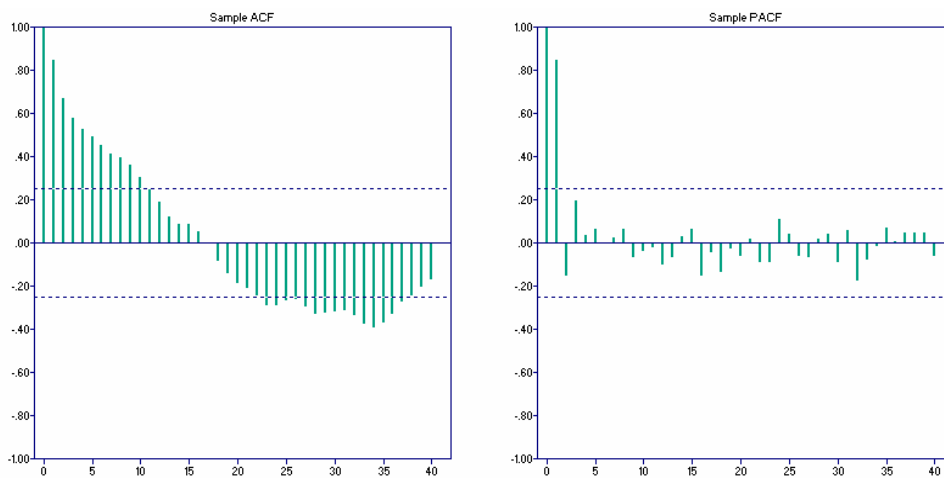
We used a statistical technique known as "Bayesian statistics" to set the stochastic parameters in our model. Given prior beliefs regarding the stochastic elements in the projection, the Bayesian approach constructs the *most-likely* parameters for these stochastic elements based on historical information.

Not only does this improve the stochastic model, it also allows the results of the stochastic model to be used as a "yardstick" with which to judge the assumptions on which our actuarial reserve is based.

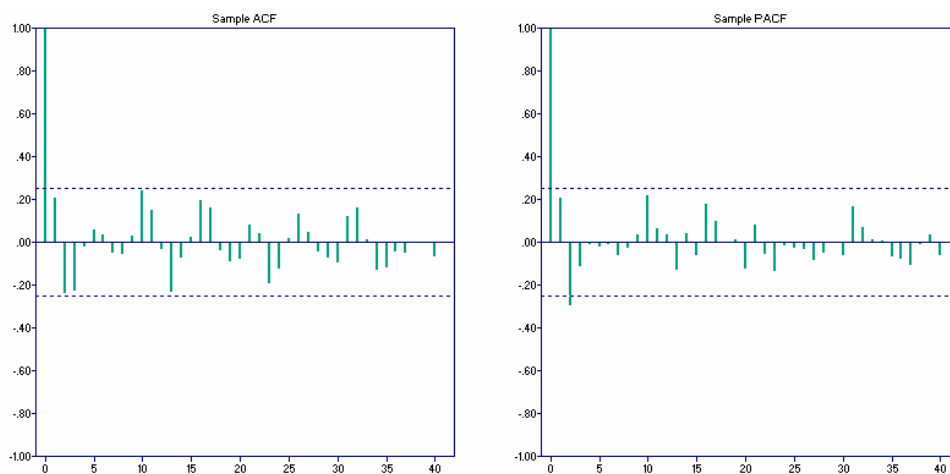
Risk-Free Return Model

We modeled risk-free returns according to a lognormal distribution. Technically, we modeled the natural logarithm of the change in the risk free returns as a normal distribution. Modeling the natural logarithm as a normal distribution is exactly equivalent to modeling the underlying value as a lognormal distribution. The reason for using the change in returns rather than the returns is discussed below.

The autocorrelation (ACF) and partial autocorrelation (PACF) values of the natural log of the risk free returns are shown below. The dashed horizontal lines indicate the approximate 95% confidence interval for these values. The horizontal scale is the time lag. These values indicate that risk-free returns are highly autocorrelated and nonstationary. The standard approach for creating a stationary series is to take differences (that is, the value of the change rather than the underlying value).



We transformed the data into the changes and obtained the ACF and PACF shown below. From inspection, it is apparent that the changes are, if not stationary, at least close to stationary. It is also apparent that an autoregressive model with 2 or 3 factors would be appropriate in modeling the change in the natural log of the risk-free returns.



Our model for the change in the natural log of the risk free returns is:

$$Y_t = \text{Normal}(\mu_t, \sigma_t)$$

Where:

Y_t is the change for year t

$$\mu_t = 0.03538 + 0.2014 (\mu_{t-1} - .03538) - 0.2869 (\mu_{t-2} - .03538) - 0.1437 (\mu_{t-3} - .03538) + \text{Bernoulli}(.03831) * \text{Normal}(0, .063)$$

$\text{Bernoulli}(.03831)$ is a Bernoulli distribution with a “p” of .03831

$\text{Normal}(0, .063)$ is a Normal distribution with mean zero and standard deviation of .063

$\sigma_t = \sigma_{t-1} * \text{Bernoulli}(.06608) * \text{Trunc_Normal}(1, 2, .2, 5)$ is the variance for year t

$\text{Bernoulli}(.06608)$ is a Bernoulli distribution with a “p” of .06608

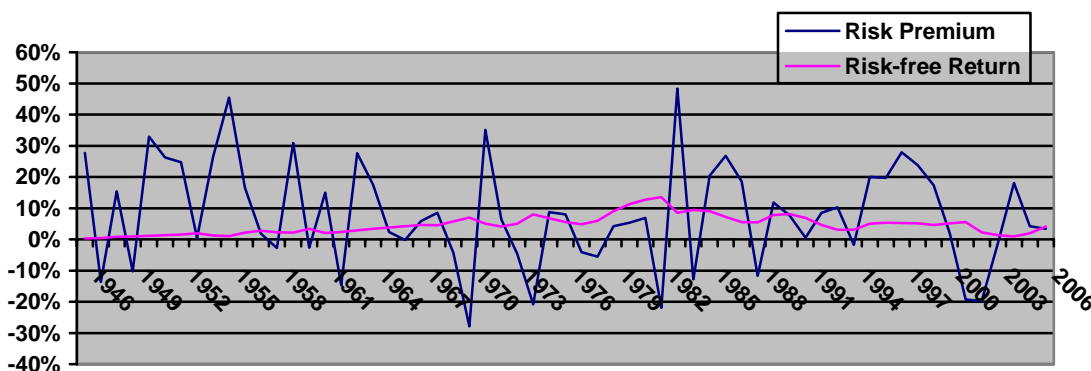
$\text{Trunc_Normal}(1, 2, .2, 5)$ is a truncated Normal distribution with $\mu = 1$, $\sigma = 2$ and truncated at 0.2 on the left and at 5 on the right.

$\sigma_t = \sigma_{t-1}$ if the Bernoulli distribution yields zero

In words, the mean is the sum of an autoregressive process plus an additive random shock. The standard deviation is subject to a random multiplicative shock. The Bernoulli factor for the mean results in a 3.8% likelihood of a shock in any year while the Bernoulli factor for the standard deviation gives a 6.6% likelihood of a change in the volatility in any year. The amount of the volatility change is proportional and varies from 1/5 to 5.

Equity Risk Premium

The chart below shows historic equity risk premiums for the post-WWII era plotted against risk-free returns.



Equity premiums are stationary or close to stationary (in the statistical sense – that is, the average value doesn’t move very much over time), so no differencing was applied to these rates. We modeled the geometric (as opposed to arithmetic) equity risk premium as follows:

$$Z_t = \text{Normal}(\mu_t, \sigma)$$

Where:

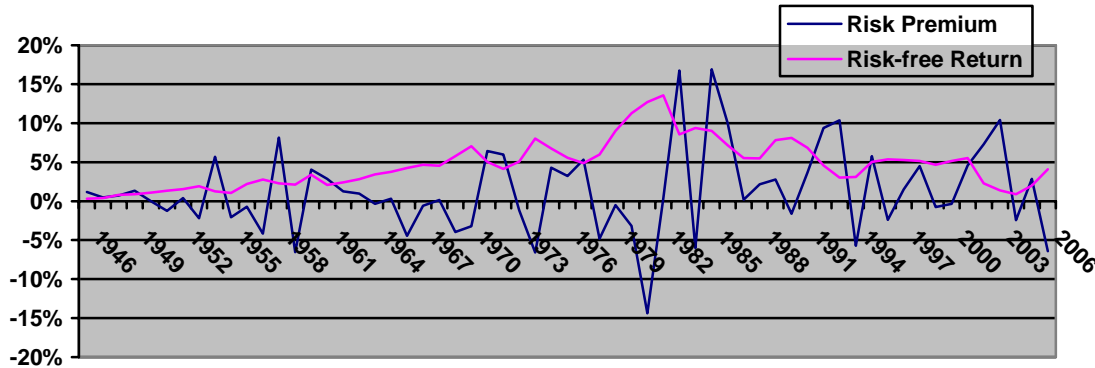
Z_t is the risk-premium for year t

$$\mu_t = 0.0631 - 1.988 (Y_t - Y_{t-1}) - 0.04906 (\mu_{t-3} - .0631) + 0.2596 (\mu_{t-4} - .0631) - 0.1215 * (\mu_{t-6} - .0631)$$

$$\sigma = .158$$

Fixed-Income Risk Premium

The chart below shows historic fixed-income risk premiums for the post-WWII era plotted against risk-free returns.



We have treated fixed-income risk premiums in a manner consistent with equity risk premiums according to the following model

$$X_t = \text{Normal}(\mu_t, \sigma)$$

Where:

X_t is the risk-premium for year t

$$\mu_t = 0.01431 - 2.335 (Y_t - Y_{t-1}) - 0.09233 (\mu_{t-4} - .01431) - 0.1805 (\mu_{t-5} - .01431) + 0.124 * (\mu_{t-6} - .01431)$$

$$\sigma = .158$$

Final Fixed Income Returns

The fixed income risk premiums described above are based on Ibbotson's medium-term Treasury bond return data. We chose to use the Lehman Brothers Government/Credit Index as representative of the Program's fixed income returns. We performed regression analysis of the Index returns against Ibbotson's Treasury returns in order to convert the Risk Free + Spread return to the benchmark return.

The regression equation is:

$$\text{Benchmark Fixed Income Return} = .019881 + .684845 * \text{Medium-term Treasury return.}$$

The r^2 value from this regression is 94.2%

Tuition Inflation

We modeled tuition inflation as a Beta distribution with varying parameters. That is,

$$W_t = \text{Beta}(\alpha_t, \beta_t)$$

Where:

W_t is the tuition inflation for year t

α_t and β_t are the Beta distribution parameters for year t , and are determined in the standard manner from year t 's mean and variance.

$$\text{mean}_t = 0.08986 + 0.1622 (\text{mean}_{t-1} - .08986) + 0.3197 (\text{mean}_{t-2} - .08986) - .2775 * (\text{mean}_{t-4} - .08986) + \text{Bernoulli}(.09082) * \text{Normal}(0, .01125)$$

$\text{Bernoulli}(.09082)$ is a Bernoulli distribution with a "p" of .09082.

$\text{Normal}(0, .01125)$ is a Normal distribution with mean zero and standard deviation Of 0.01125.

$\text{variance}_t = \text{variance}_{t-1} * \text{Bernoulli}(.0879) * \text{Truncated-Normal}(1, 2, 0.2, 5)$ if the Bernoulli distribution generates zero, else

$$\text{variance}_t = \text{variance}_{t-1}$$

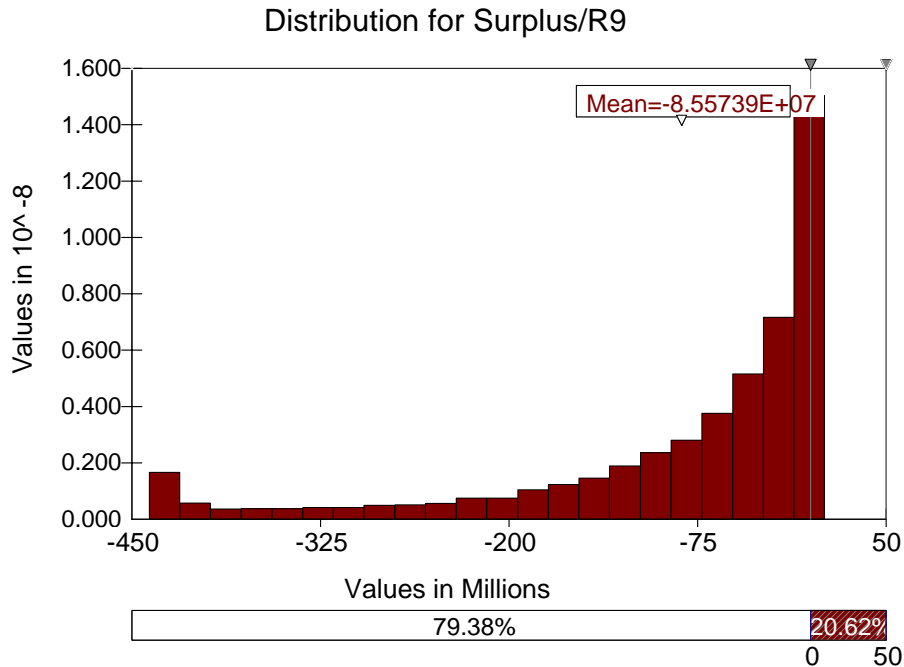
$\text{Bernoulli}(.0879)$ is a Bernoulli distribution with a "p" of .0879

$\text{Truncated-Normal}(1, 2, 0.2, 5)$ is a truncated normal distribution with $\mu = 1$, $\sigma = 2$, truncated on the left at 0.2 and on the right at 5.0.

Results

Based on 10,000 scenarios, the results of our projections are shown below.

Proportion with positive Actuarial Reserve	20.6%
25% of results are better than:	(4,375,125)
50% of results are better than:	(39,711,232)
75% of results are better than:	(118,662,544)
Largest Actuarial Reserve	9,283,841
Smallest Actuarial Reserve	(438,559,648)
Mean Actuarial Reserve	(85,573,905)



The most important measures from the table immediately above are the Proportion with positive Actuarial Reserve and the 50% Results. The Proportion with positive Actuarial Reserve probability of 20.6% indicates that there is approximately a one-in-five likelihood that the Program will have a surplus.

The 50% Results measure is a “best-estimate” measure of results. If our assumptions are neither conservative (that is they understate results) nor aggressive (that is they overstate results) then the 50% Results measure should be close to our projected deficit of \$63,818,099. The table above indicates that our assumptions are significantly conservative.

The Smallest Actuarial Reserve indicates what happens if economic events continue adversely for the lifetime of the current Program contracts –high tuition increases, coupled with negative returns in the equity market until the end of the projection horizon. On the other hand, the Largest Actuarial Reserve indicates what happens if economic conditions are favorable for the remaining lifetime of the current contracts.

IX. BREAK-EVEN INVESTMENT RETURN & SENSITIVITY TESTING

We calculated both the levelized investment return necessary to provide a break-even result on the Program’s surplus and the levelized tuition increase necessary to provide break-even results. These break-even rates are shown in the table below.

Break-even investment return	13.56% per year
Break-even tuition inflation	2.87% per year

We also investigated the effect of variances in both university inflation and investment yield assumptions from those anticipated by the adequacy test assumptions. These scenarios are described below and are based on level adjustments to the baseline adequacy assumptions discussed earlier in this report.

- 1) Tuition inflation lower than adequacy test assumptions by 0.25% every year.
- 2) Tuition inflation higher than adequacy test assumptions by 0.25% every year.
- 3) Investment yields higher than adequacy test assumptions by 0.25% every year.
- 4) Investment yields lower than adequacy test assumptions by 0.25% every year.
- 5) Tuition inflation higher and investment yields lower than adequacy test assumptions by 0.25% every year.

The Surplus for each of these scenarios is shown below.

Sensitivity Testing Results		
Scenario	Surplus	Variance From Baseline
1	(60,487,268)	3,330,831
2	(67,224,556)	(3,406,457)
3	(60,379,371)	3,438,728
4	(67,355,658)	(3,537,559)
5	(70,852,359)	(7,034,260)

X. CHANGES IN ACTUARIAL ASSUMPTIONS

Since the last Actuarial Report, there has been one change in the assumptions used for the projections on which the results are based. This change and the rationale for the change are discussed below.

Changes in Tuition Inflation

Last year we assumed that tuition would increase by 8.5% annually for two years, then continue to increase at a rate of 7.0% annually for all future years. This year we assumed that tuition would increase by 9.0% annually for all future years. This change reflects the double-digit increases of the past several years and the belief that more double-digit increases may occur in the near future.

Quantification of Change

The effect of this change is to increase the deficit by \$22,479,385. Without these changes, the deficit would have been (\$41,338,714).

XI. EXPECTED USE OF FUNDS

The Fund is expected to pay benefits and expenses in the following proportions:

- Tuition payments - 95.0%
- Expenses - 0.7%.

We note that this lifetime average expense ratio is higher than the Program's current expense ratio. The reason for the apparent discrepancy is that our projections assume no further contract sales, resulting in an increasing amount of overhead per contract remaining as time passes

- Payments of refunds to contract owners - 4.3%

These results are shown graphically below.

