EXHIBIT #5
DATE Feb. 8th
BILL NO. None

# Montana Board of Investments Presentation on Pensions & Investments

**To:** House State Administration Committee

**By:** Carroll South, Executive Director

**Date:** February 8, 2011



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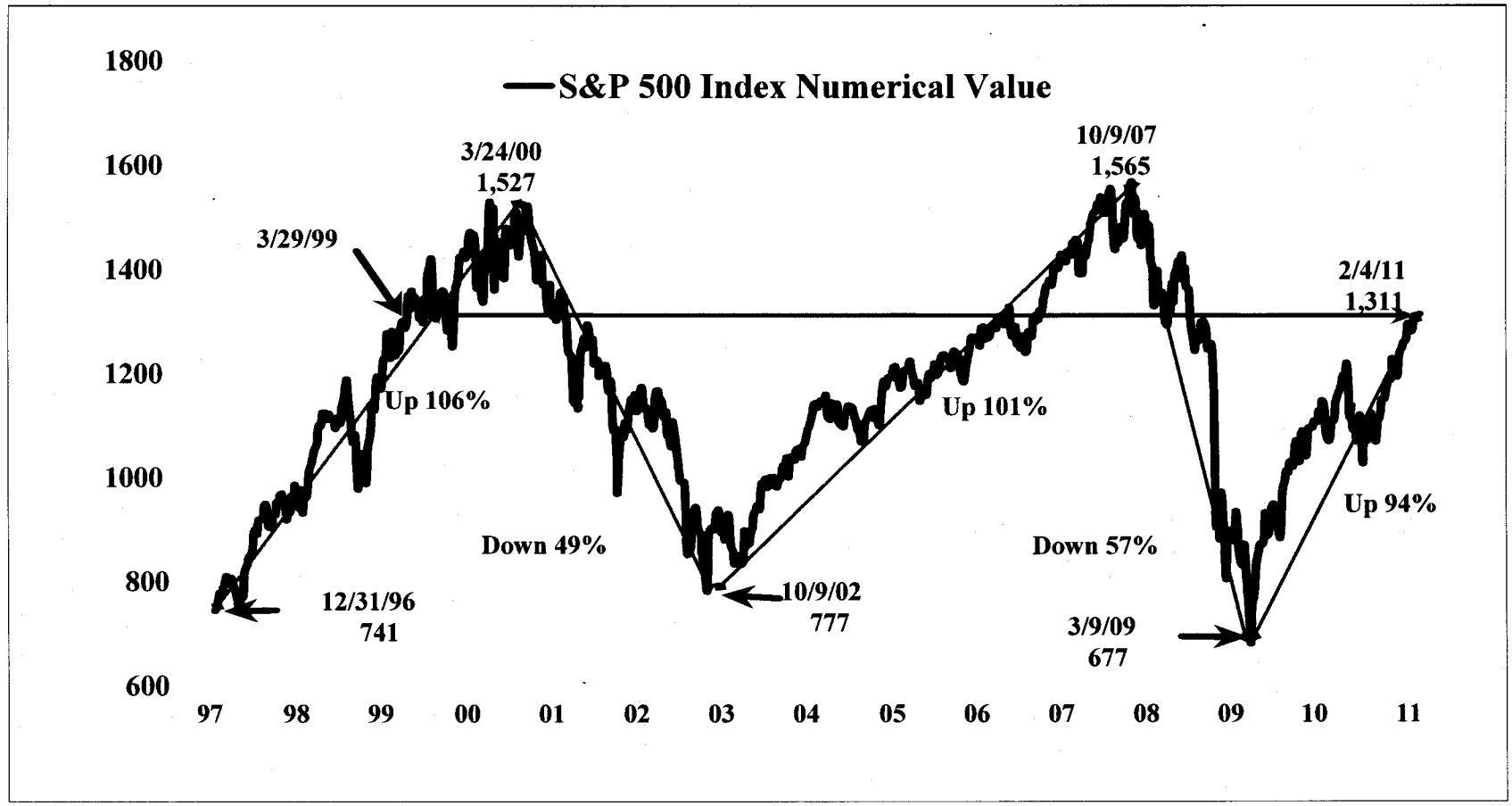
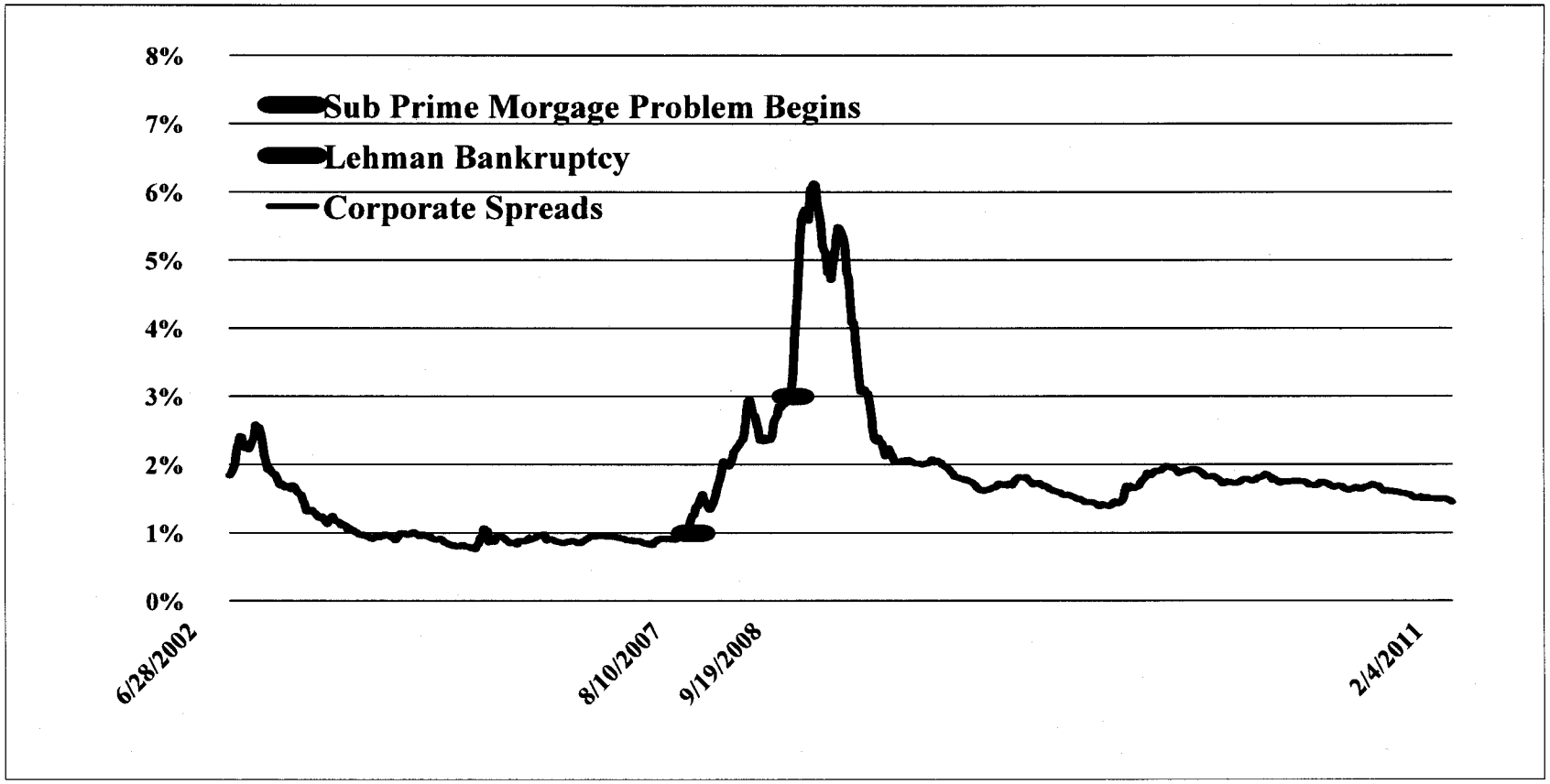
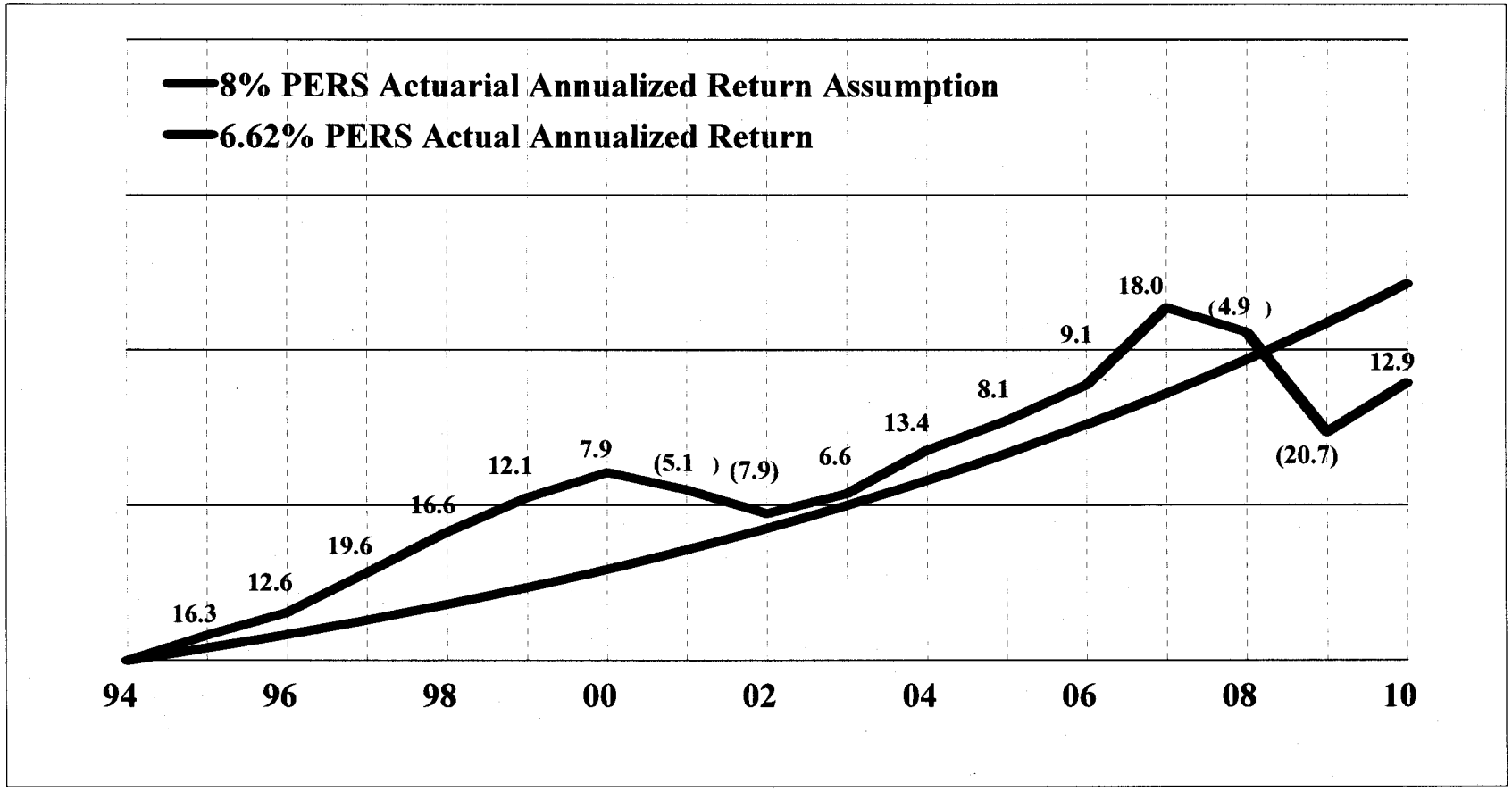
# Stock Market Volatility



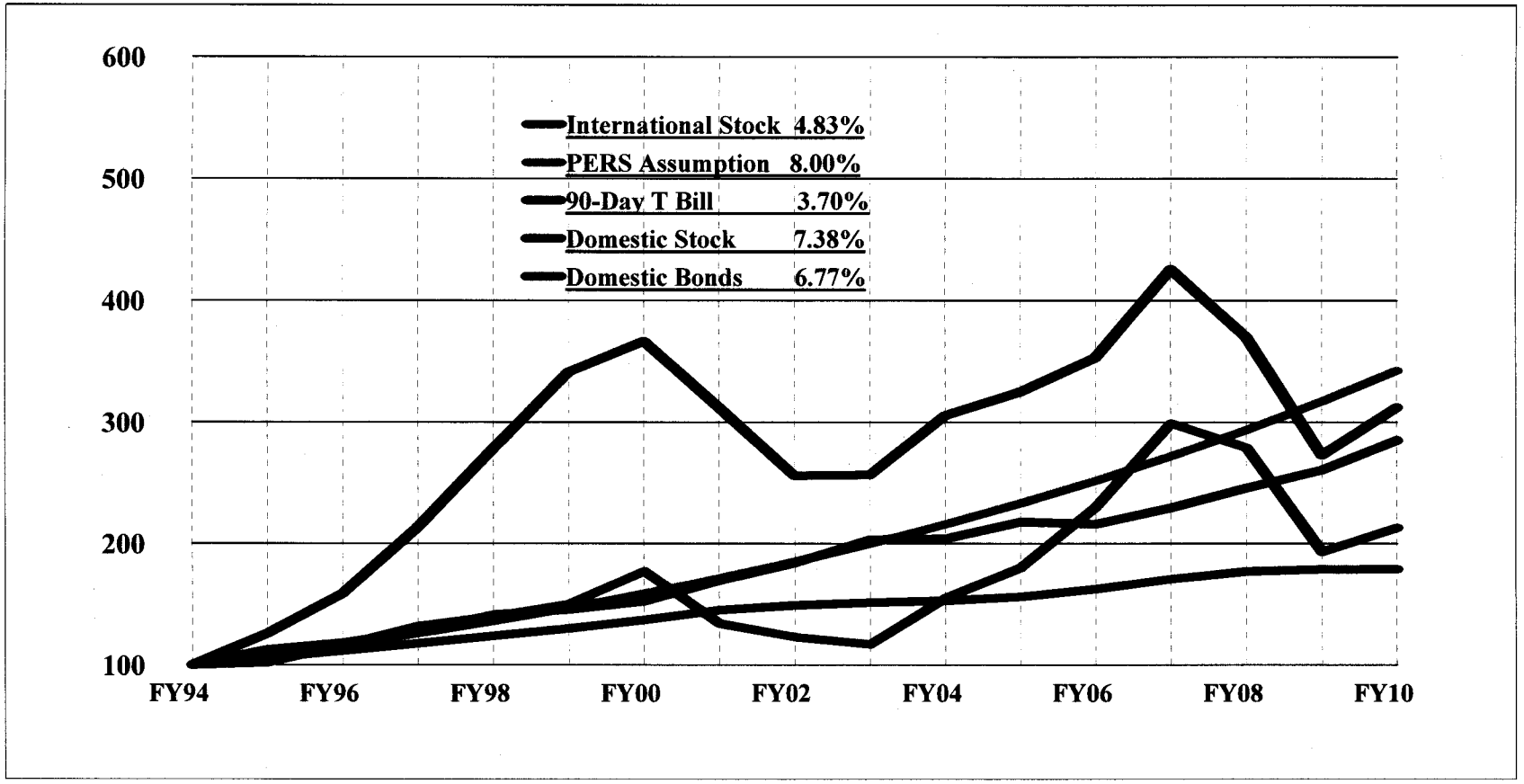
# Corporate Bond Spreads



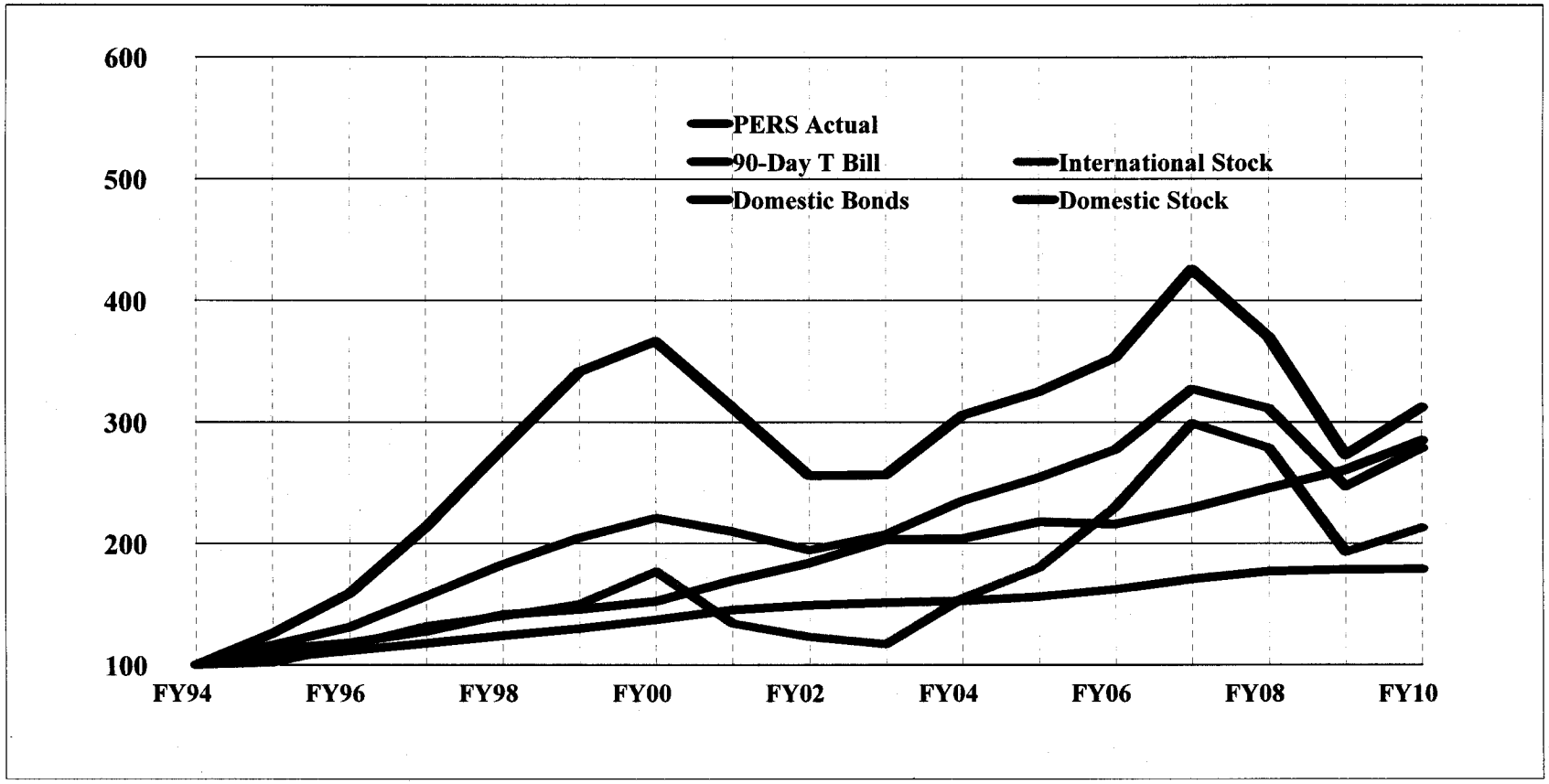
# Actual Investment Return Versus Actuarial Assumption



# Asset Class Annualized Return & Actuarial Assumption



# Major Asset Class Performance Versus Actual Performance



# Market/Actuarial Values of Assets Annual Change

| | | | | |
|---|---|---|---|---|
| Public Employees | 2,998,626,255 | 3,315,905,638 | 317,279,383 | 10.58% |
| Teachers | 2,301,828,565 | 2,521,445,720 | 219,617,155 | 9.54% |
| Police | 162,053,923 | 187,141,042 | 25,087,119 | 15.48% |
| Firefighters | 159,304,345 | 184,479,255 | 25,174,910 | 15.80% |
| Sheriffs | 151,457,615 | 172,635,424 | 21,177,809 | 13.98% |
| Highway Patrol | 74,557,199 | 82,888,491 | 8,331,292 | 11.17% |
| Game Wardens | 61,881,766 | 74,135,714 | 12,253,948 | 19.80% |
| Judges | 46,645,640 | 52,564,722 | 5,919,082 | 12.69% |
| Vol Firefighters | 20,438,182 | 22,634,510 | 2,196,328 | 10.75% |

| | | | | |
|---|---|---|---|---|
| Public Employees | 4,002,212,253 | 3,889,890,145 | (112,322,108) | -2.81% |
| Teachers | 2,762,194,278 | 2,956,583,029 | 194,388,751 | 7.04% |
| Police | 214,344,558 | 217,545,472 | 3,200,914 | 1.49% |
| Firefighters | 209,775,081 | 213,755,146 | 3,980,065 | 1.90% |
| Sheriffs | 200,690,401 | 200,739,149 | 48,748 | 0.02% |
| Highway Patrol | 99,651,544 | 97,204,042 | (2,447,502) | -2.46% |
| Game Wardens | 81,176,976 | 85,150,605 | 3,973,629 | 4.90% |
| Judges | 61,928,749 | 61,277,322 | (651,427) | -1.05% |
| Vol Firefighters | 27,225,915 | 26,575,478 | (650,437) | -2.39% |

# Fiscal Year 2010 Market/Actuarial Values of Assets

| | | | | |
|---|---|---|---|---|
| Public Employees | 3,315,905,638 | 3,889,890,145 | 573,984,507 | 117.31% |
| Teachers | 2,521,445,720 | 2,956,583,029 | 435,137,309 | 117.26% |
| Police | 187,141,042 | 217,545,472 | 30,404,430 | 116.25% |
| Firefighters | 184,479,255 | 213,755,146 | 29,275,891 | 115.87% |
| Sheriffs | 172,635,424 | 200,739,149 | 28,103,725 | 116.28% |
| Highway Patrol | 82,888,491 | 97,204,042 | 14,315,551 | 117.27% |
| Game Wardens | 74,135,714 | 85,150,605 | 11,014,891 | 114.86% |
| Judges | 52,564,722 | 61,277,322 | 8,712,600 | 116.57% |
| Vol Firefighters | 22,634,510 | 26,575,478 | 3,940,968 | 117.41% |

# The Asset Smoothing Process

| | | | | | | |
|---|---|---|---|---|---|---|
| **Market Value** | **6,402,333,540** | **7,002,941,047** | **8,185,829,107** | **7,647,013,247** | **5,976,793,490** | **6,613,830,516** |
| **FY 2003** | **(10,745,000)** | | | | | |
| **FY 2004** | **85,208,000** | **42,605,000** | | | | |
| **FY 2005** | **(9,788,836)** | **388,000** | **193,000** | | | |
| **FY 2006** | | **27,780,000** | **18,521,000** | **9,259,000** | | |
| **FY 2007** | | | **516,746,482** | **209,146,000** | **104,573,000** | |
| **FY 2008** | | | | **(644,939,134)** | **(319,464,500)** | **(159,732,250)** |
| **FY 2009** | | | | | **(1,467,514,765)** | **(671,432,700)** |
| **FY 2010** | | | | | | **(303,724,920)** |
| **Excluded Gain/Loss** | **64,674,164** | **70,773,000** | **535,460,482** | **(426,534,134)** | **(1,682,406,265)** | **(1,134,889,870)** |

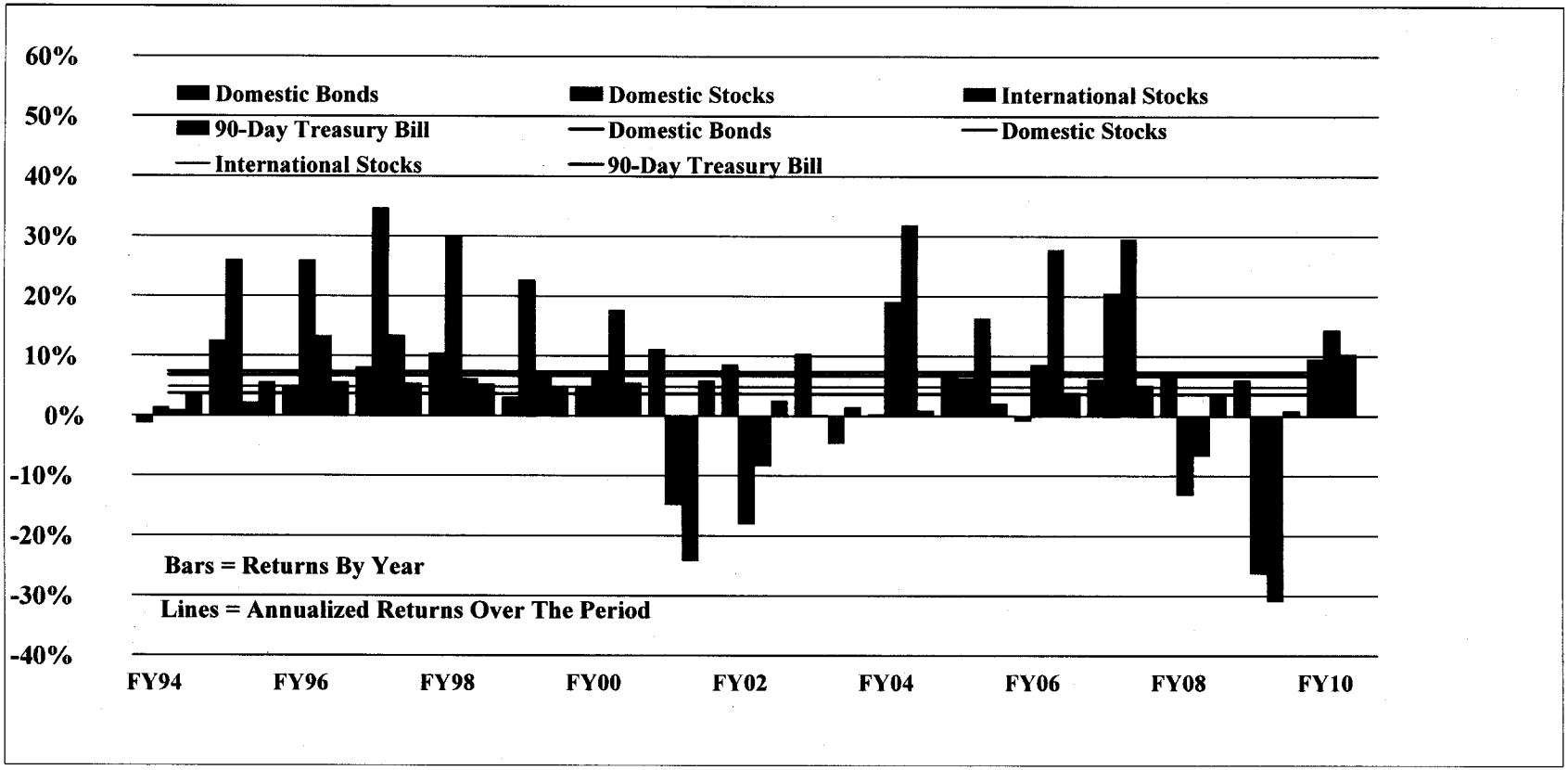
# How The Unfunded Liability Is Calculated

| | | | | | |
|---|---|---|---|---|---|
| Public Employees | 6,260,270,564 | 1,018,451,770 | 5,241,818,794 | 3,889,890,145 | (1,351,928,649) |
| Teachers | 5,115,900,000 | 597,700,000 | 4,518,168,000 | 2,956,583,029 | (1,561,584,971) |
| Police | 461,113,674 | 80,720,490 | 380,393,184 | 217,545,472 | (162,847,712) |
| Firefighters | 426,378,201 | 90,915,142 | 335,463,059 | 213,755,146 | (121,707,913) |
| Sheriffs | 339,597,725 | 92,863,924 | 246,733,801 | 200,739,149 | (45,994,652) |
| Highway Patrol | 177,908,048 | 26,730,662 | 151,177,386 | 97,204,042 | (53,973,344) |
| Game Wardens | 177,175,348 | 63,320,468 | 113,854,880 | 85,150,605 | (28,704,275) |
| Judges | 51,482,210 | 8,969,485 | 42,512,725 | 61,277,322 | 18,764,597 |
| Vol Firefighters | 35,494,343 | 982,832 | 34,511,511 | 26,575,478 | (7,936,033) |

# Asset Ranges & Return/Risk As of 12/31/2010

| | | | | | |
|---|---|---|---|---|---|
| Domestic Stock | 30%-50% | 36.97% | 2,750,259,068 | 8.15% | 17.50 |
| International Stock | 15%-30% | 18.85% | 1,402,269,068 | 8.60% | 19.10 |
| Private Equity | 09%15% | 12.57% | 935,258,000 | 12.25% | 29.75 |
| Core Bonds | 22%-29% | 21.89% | 1,628,505,951 | 5.00% | 5.00 |
| High Yield Bonds | 01%-05% | 3.18% | 236,907,509 | 7.00% | 14.00 |
| Real Estate | 04%-10% | 5.84% | 434,598,462 | 8.35% | 11.62 |
| Cash | 01%-05% | 0.69% | 51,227,866 | 3.00% | 2.50 |

# Major Asset Class Volatility (Risk)

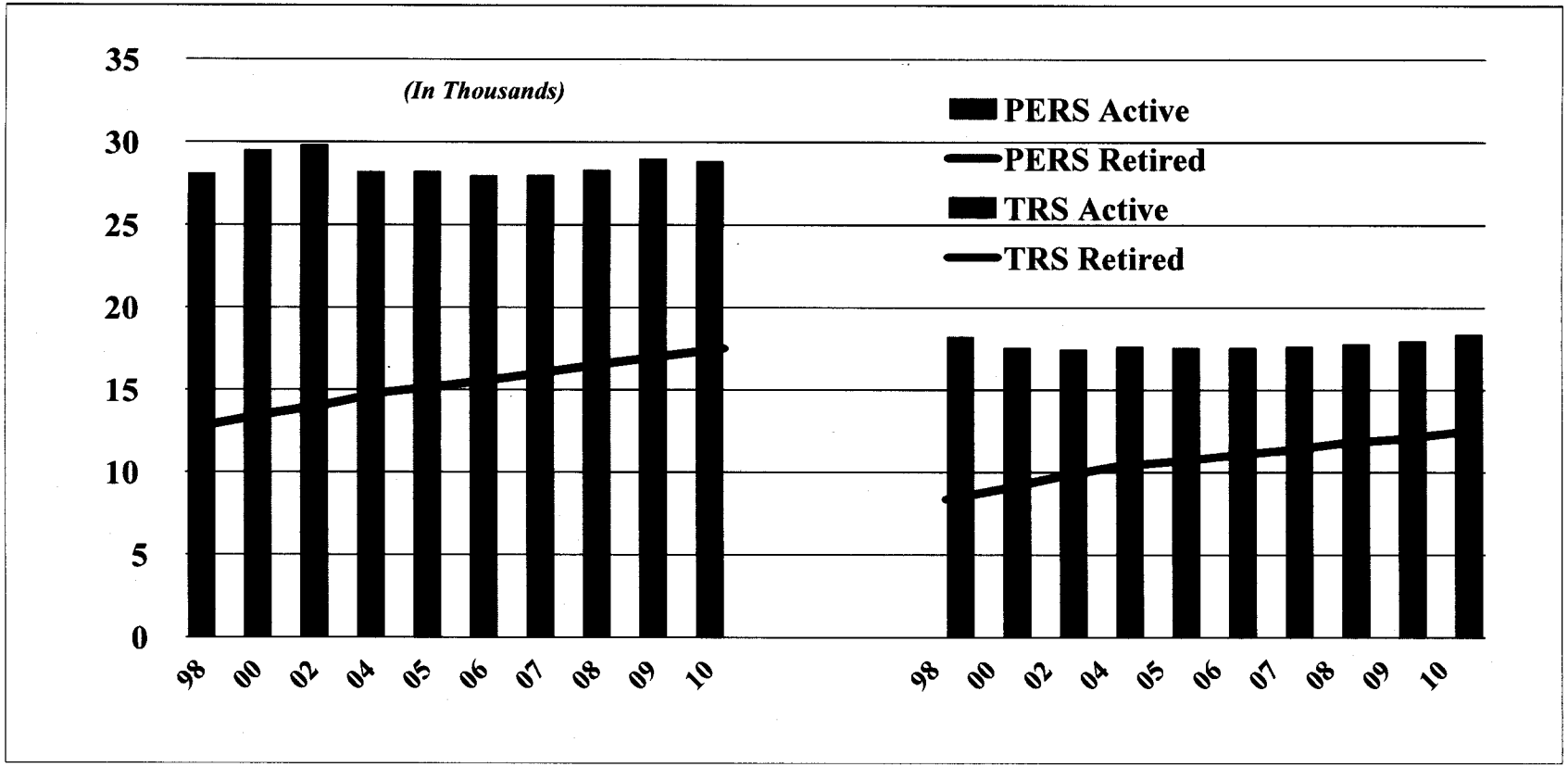


## Annual Compounded Investment Returns From 1926-2009 *

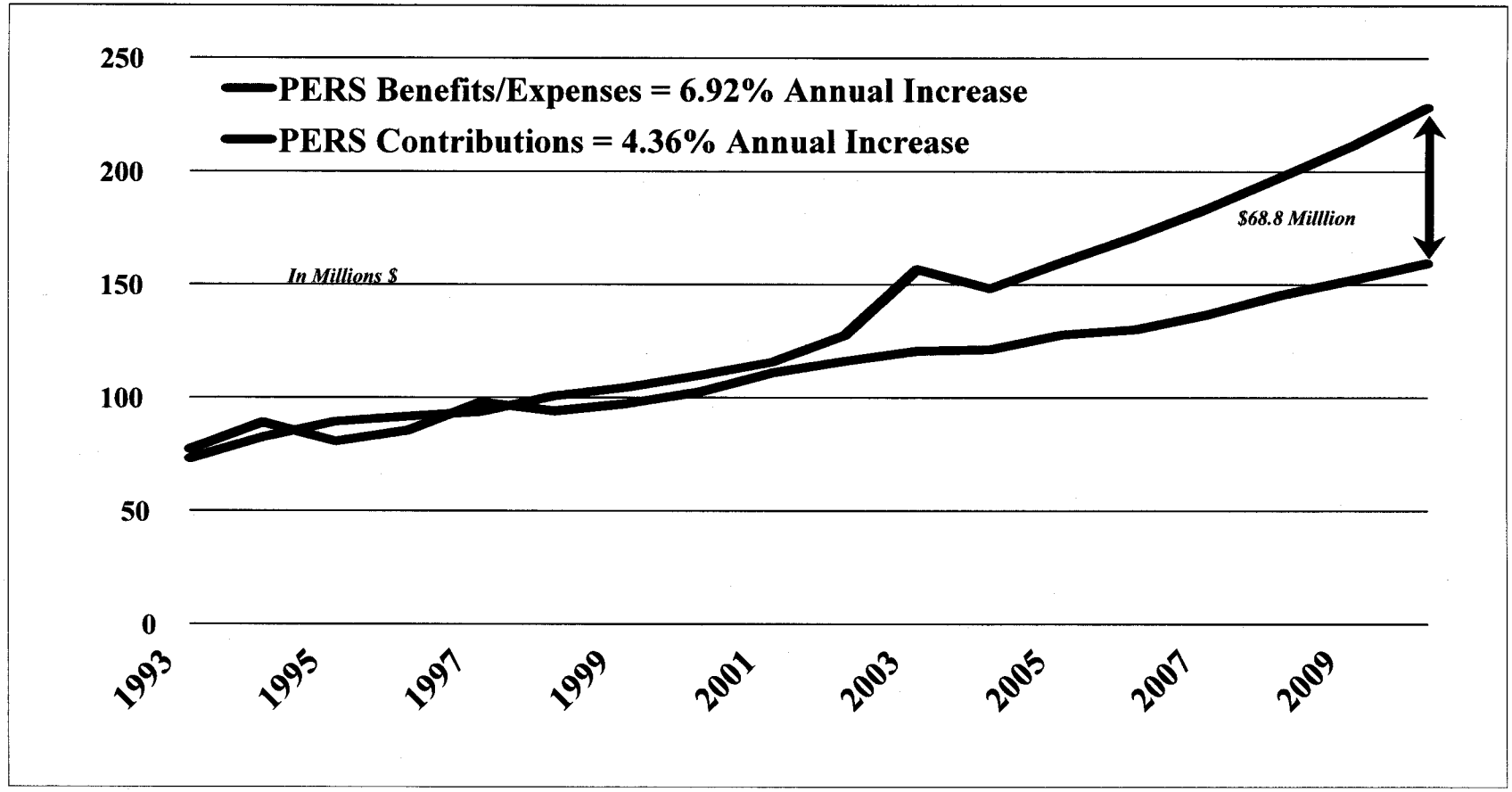
| | |
|---|---|
| ➢ Large Company Domestic Stock | 9.8% |
| ➢ Small Company Domestic Stock | 11.9% |
| ➢ Long-Term Government Bonds | 5.4% |
| ➢ Intermediate-Term Government Bonds | 5.3% |
| ➢ Long-Term Domestic Corporate Bonds | 5.9% |
| ➢ US Government Treasury Bills | 3.7% |

* From Ibbotson SSBI 2010 Classic Yearbook

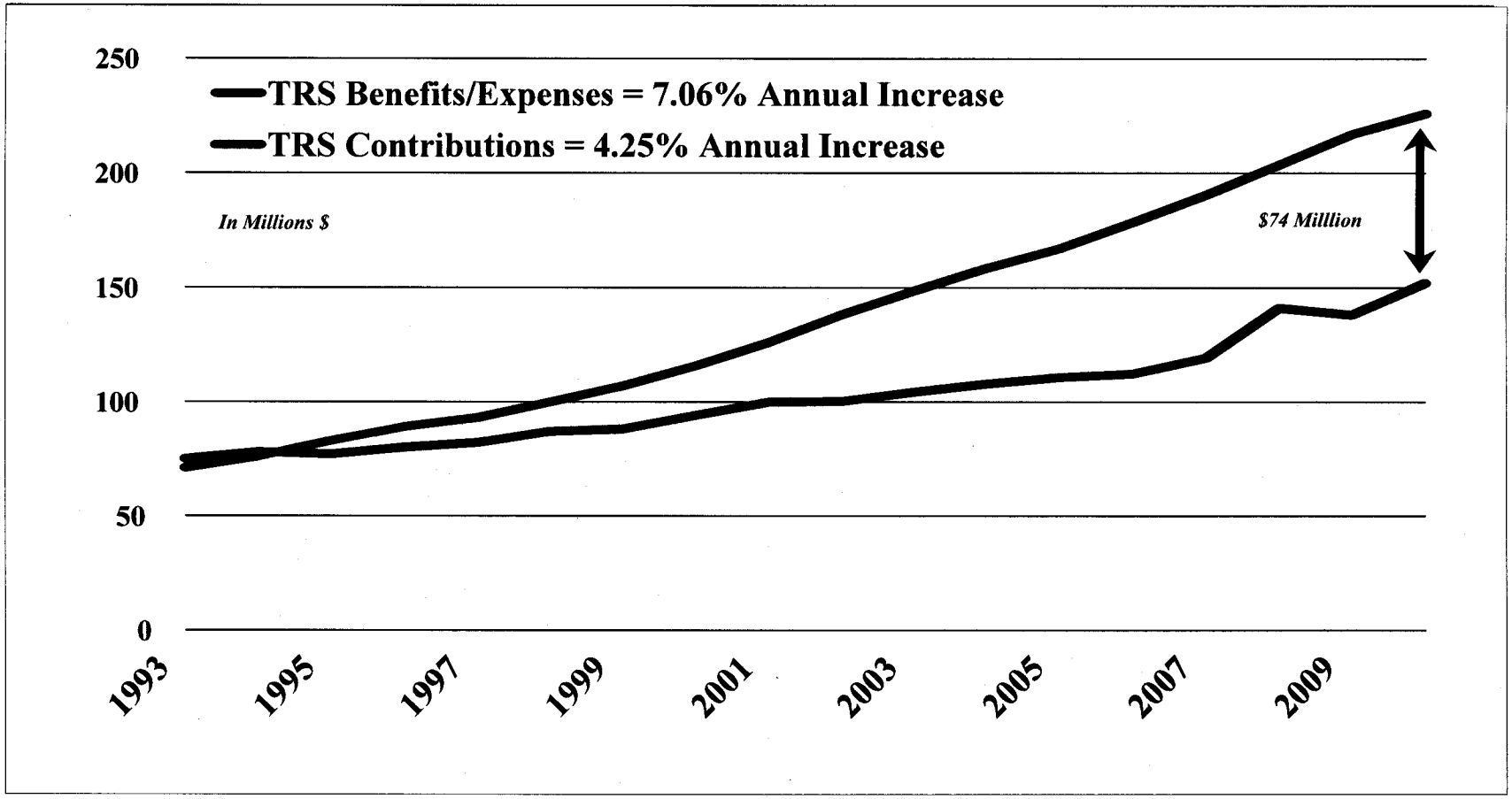
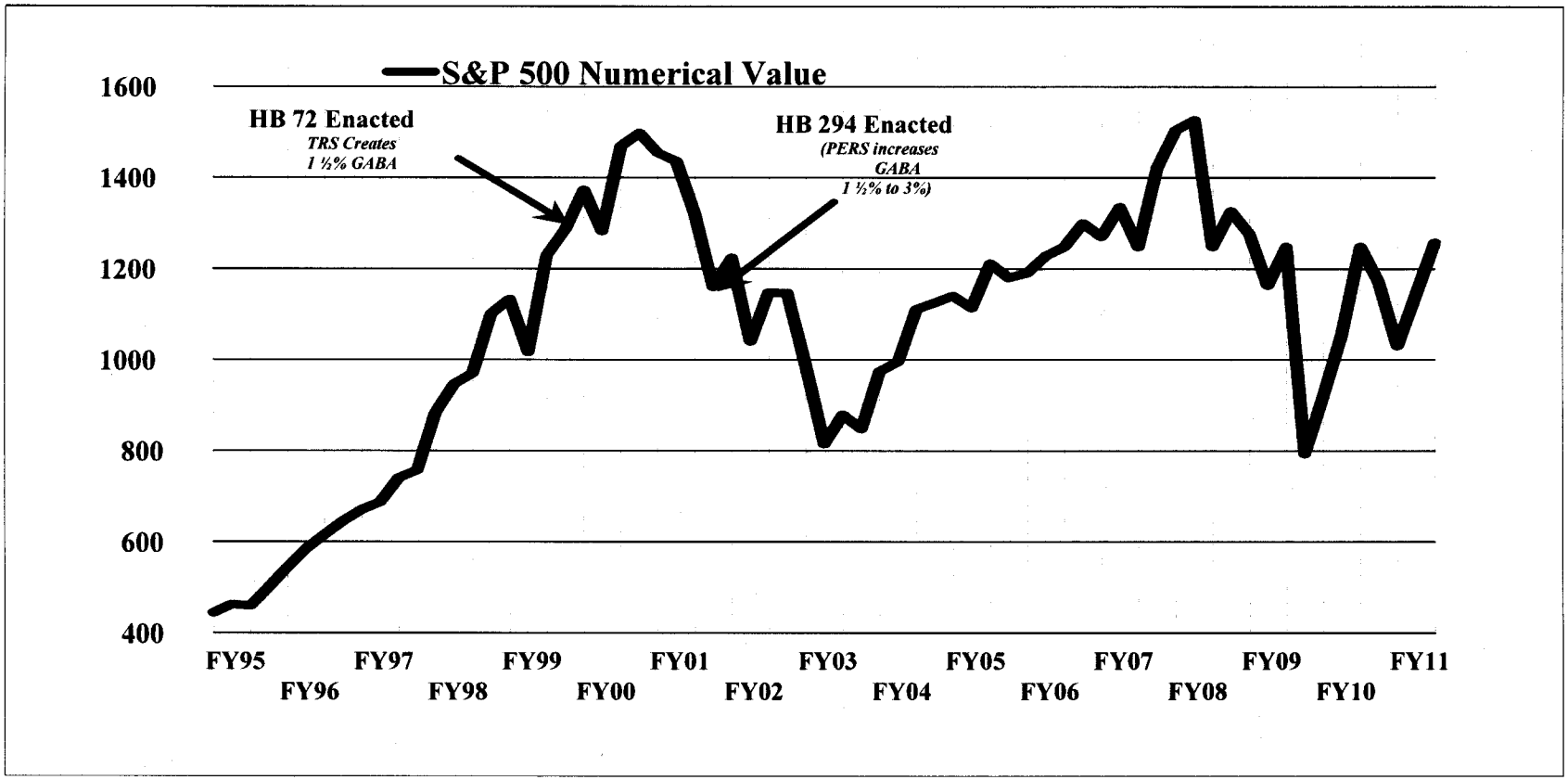
# PERS/TRS Membership History



# PERS Contributions/Benefits History



# TRS Contributions/Benefits History



# PERS/TRS Benefit Increases & The Stock Market