
INTEREST EARNINGS

SECTION 5

OBPP Staff:

Amy Carlson	444-4893
Eric Dale	444-3191
Ryan Evans	444-3163
Ralph Franklin	444-1337
Stephanie Morrison	444-5542

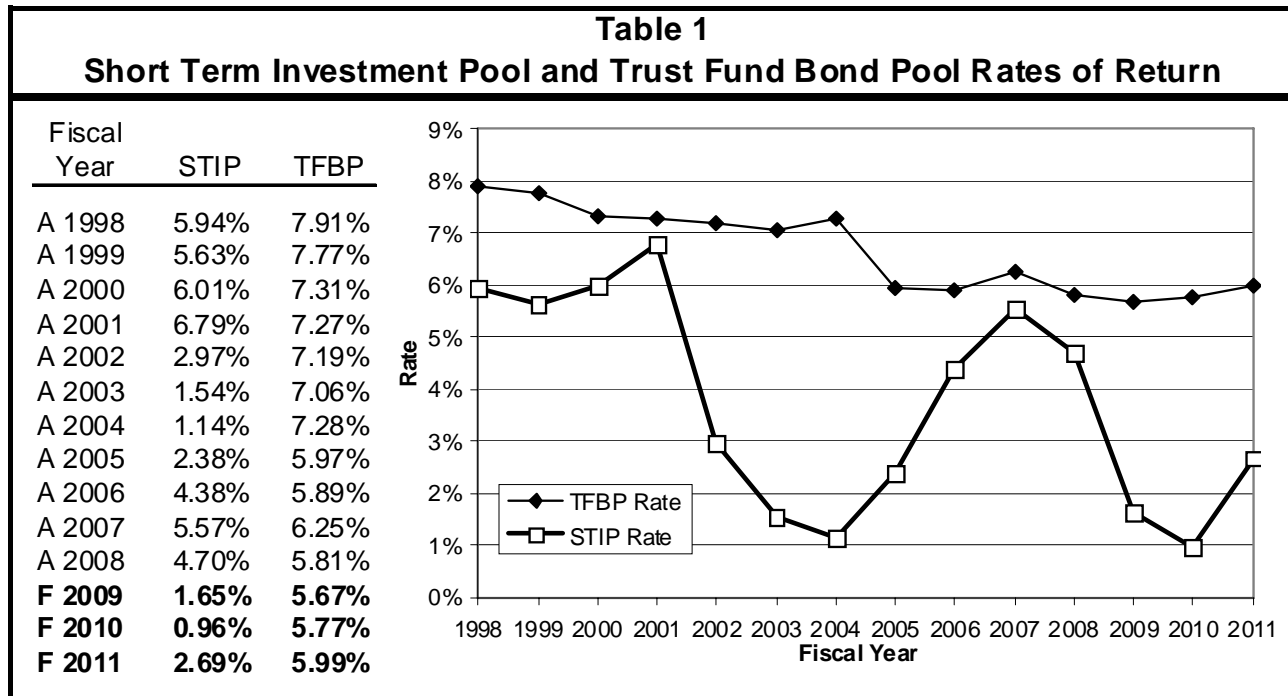


GOVERNOR'S OFFICE OF
BUDGET AND PROGRAM PLANNING

Revenue Description

The Board of Investment (BOI) manages trust fund balances and invests agency cash balances for the state. The board invests most of the agency cash and a small portion of fund balances in the short term investment pool (STIP). The STIP is managed like a money market account so that daily withdrawals and deposits are allowed and the pool still earns interest. The board also manages trust fund balances in the Trust Fund Bond Pool (TFBP). The TFBP's portfolio is mainly comprised of long-term bonds and is managed in such a way to try to provide consistent interest earnings. The estimates for the rates of return are used to forecast revenue earnings for the treasury cash account, the common school trust, the various coal trusts, and several other funds.

Table 1 shows actual annual percentage interest rates of both STIP and TFBP in FY 1998 through FY 2008 and projections for FY 2009 through FY 2011.



The STIP rate decreased substantially from FY 2001 to FY 2004 due to a collapse in short-term interest rates. Short-term interest rates started rising through FY 2007. Turmoil in the national economy, beginning in FY 2008, caused the Federal Open Market Committee (FOMC) to cut their target federal funds rate in order to help stimulate the economy. The federal funds rate is the rate at which banks lend each other overnight to meet daily reserve requirements, and this rate is a benchmark for many other types of short term interest rates. The FOMC is expected to keep their target rate close to 1% for all of FY 2009. As the economy recovers, the FOMC is then expected to slowly raise rates as the economy recovers.

The TFBP yield has been slowly decreasing since FY 1998. The reason for the decrease is primarily due to the fact that as older bonds, with relatively high rates of return, were slowly being replaced with new bonds that had relatively lower rates of return. The TFBP rate increase in FY 2004 was caused in large part because of the sale of older bonds with higher interest rates. The unusually large decrease in TFBP yield in FY 2005 was caused largely by unusually large capital loss. TFBP yields are anticipated to continue declining in FY 2009 before increasing through FY 2011.

Risks

- The FOMC may raise or lower interest rates faster or slower than anticipated.
- If the national economy were to enter a deep recession, there will be an increased likelihood some of the investments could default, significantly reducing the rates of return on the total investment.

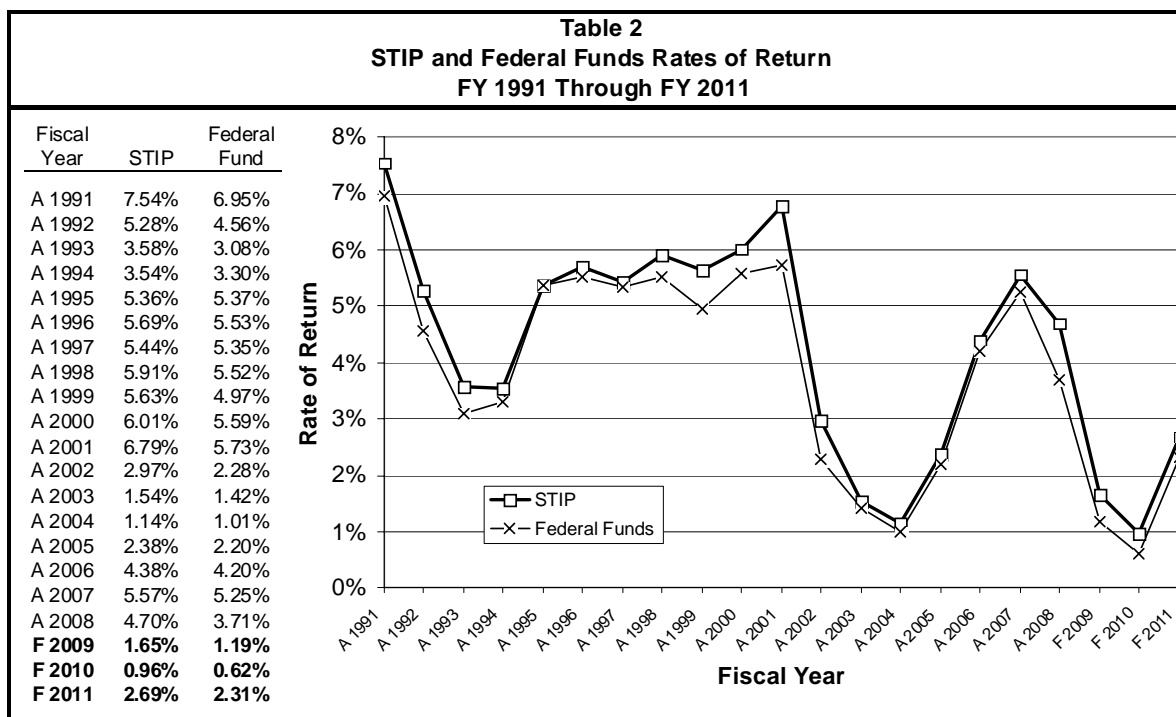
Forecast Methodology

There are two steps in calculating the STIP rate of return:

Step 1: Examine the relationship between the federal fund rate and the STIP rate of return using a statistical regression.

Step 2: Apply this relationship to the Global Insight forecast for the federal fund rate.

Table 2 shows the actual annual average STIP and federal funds rate for FY 1990 through FY 2008 and forecasted values for FY 2009 through FY 2011.



There are four steps in calculating the TFBP rate of return:

Step 1: Determine which bonds will mature.

Step 2: Assume that the new bonds will be reinvested in similar bonds. That these bonds will receive a return equal to the Global Insight forecast, which is not necessarily the same rate as the matured bonds.

Step 3: Bonds that have not yet matured will continue to receive their current returns.

Step 4: Calculate the total rate of return for the TFBP.

Table 3 shows the estimated book value, income, and rate of return for both the non maturing bonds and the new bonds being purchased.

Table 3
Trust Fund Bond Pool Forecast
(\$ millions)

TFBP Components	FY 2009	FY 2010	FY 2011
Non Maturing Bonds			
Book Value ¹	\$1,415.5	\$1,418.0	\$1,381.0
Income	\$79.6	\$81.1	\$81.6
Rate of Return	5.62%	5.72%	5.91%
New Bonds			
Book Value	\$28.0	\$29.1	\$77.1
Income	\$2.3	\$2.4	\$5.8
Rate of Return	8.17%	8.12%	7.49%
Total			
Book Value	\$1,443.5	\$1,447.1	\$1,458.1
Income	\$81.9	\$83.5	\$87.3
Rate of Return	5.67%	5.77%	5.99%

¹This amount does not include CRP, a small amount of STIP, and 4 investments that have a different structure, but are assumed to have comparable yields.

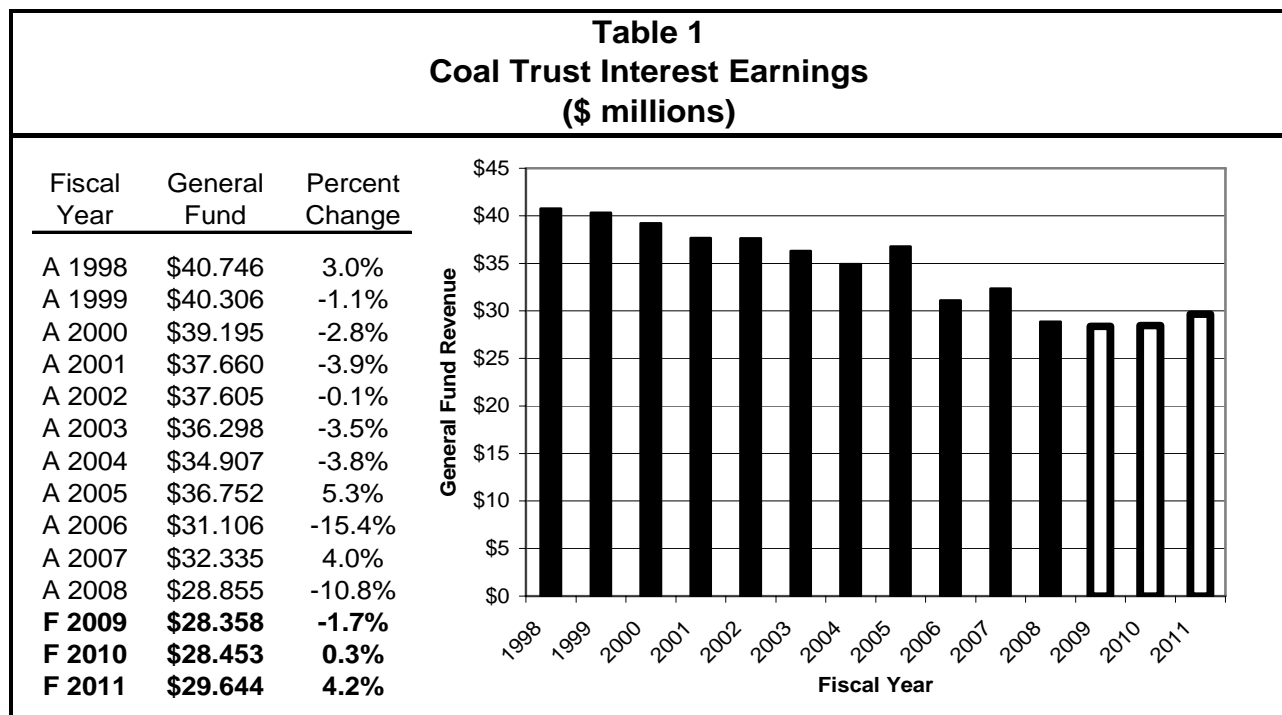
Data Sources

The State Street Bank and BOI provide monthly reports on STIP and TFBP investment earnings and balances. TFBP specific data was obtained from the Board of Investment's website at <http://www.investmentmt.com>. Historic Federal Funds Rate can be found at <http://www.federalreserve.gov/releases/h15/data.htm>. Forecasted Baa corporate bond and federal funds rates of return are from Global Insight's U.S. Economic Outlook.

Revenue Description

Article 1X, Section 5 of the Montana Constitution established the coal severance tax permanent trust fund into which at least half of coal severance tax revenue must be deposited. Under current law, half of the severance tax revenue is deposited in the trust fund, which is divided into several funds with different purposes. The trust funds are described in more detail in the *Introduction to the Coal Trusts*. Interest earnings from the coal severance tax permanent fund and the coal severance tax bond fund are allocated to the general fund.

Table 1 shows actual interest earnings allocated from the coal severance tax permanent fund and the coal severance tax bond fund to the general fund from FY 1998 through FY 2008 and the revenue forecasts for FY 2009 through FY 2011.



General fund revenue from the coal severance tax permanent fund fell every year from FY 1998 through FY 2004. This was primarily caused by declining long-term interest rates. In FY 2005, revenue from the coal trust increased because there were capital gains of \$0.9 million and a \$1.5 million increase in loan interest income, which offset declines in bond interest income. A \$20 million in fund balance transfer to the big sky economic development fund decreased income in FY 2006. In FY 2009, coal trust interest revenue is projected to fall due to falling interest rates, and then increase in FY 2010 and FY 2011 as interest rates increase.

Forecast Methodology

The interest earnings are forecast in 3 main steps:

Step 1: The composition of the assets in the fund is first estimated. The fund is invested primarily in the TFBP, but it is also partially invested in STIP and commercial loans.

Step 2: Apply the forecasted rates of return for each type of investment.

Step 3: Estimate other income and administrative costs, and then add all of the pieces together.

The Permanent Fund is invested in commercial loans, the Trust Fund Bond Pool (TFBP), and the Short Term Investment Pool (STIP). Table 2 shows the actual average balance, income, and rate of return for each type of investment as well as the fund totals for FY 1998 through FY 2008 and forecasted values for FY 2009 through FY 2011.

<u>Loan Income</u>				<u>TFBP Income</u>			
Fiscal Year	Balance ¹	Interest Rate	Income ²	Fiscal Year	Balance ¹	Interest Rate	Income ²
A 1998	\$114.49	5.83%	\$6.68	A 1998	\$402.37	7.98%	\$32.10
A 1999	\$114.09	6.09%	\$6.95	A 1999	\$412.31	7.83%	\$32.30
A 2000	\$128.43	5.76%	\$7.40	A 2000	\$411.44	7.38%	\$30.38
A 2001	\$129.51	5.56%	\$7.20	A 2001	\$401.25	7.34%	\$29.46
A 2002	\$144.97	5.93%	\$8.60	A 2002	\$366.60	7.19%	\$26.36
A 2003	\$183.67	5.79%	\$10.63	A 2003	\$340.95	7.12%	\$24.29
A 2004	\$161.09	5.65%	\$9.09	A 2004	\$350.68	7.33%	\$25.69
A 2005	\$169.40	6.22%	\$10.54	A 2005	\$358.51	6.84%	\$24.52
A 2006	\$165.47	5.26%	\$8.70	A 2006	\$324.78	5.87%	\$19.05
A 2007	\$201.53	5.06%	\$10.20	A 2007	\$311.42	6.18%	\$19.24
A 2008	\$191.09	5.06%	\$9.67	A 2008	\$311.15	5.77%	\$17.95
F 2009	\$191.09	5.06%	\$9.67	F 2009	\$311.15	5.67%	\$17.65
F 2010	\$191.09	5.06%	\$9.67	F 2010	\$311.15	5.77%	\$17.94
F 2011	\$191.09	5.06%	\$9.67	F 2011	\$311.15	5.99%	\$18.63
<u>Stip Income</u>				<u>Trust Fund Total</u>			
Fiscal Year	Balance	Interest Rate	Income	Fiscal Year	Balance	Interest Rate	Income
A 1998	\$14.21	5.62%	\$0.80	A 1998	\$531.08	7.45%	\$39.57
A 1999	\$12.32	5.56%	\$0.68	A 1999	\$538.72	7.41%	\$39.94
A 2000	\$13.51	5.35%	\$0.72	A 2000	\$553.38	6.96%	\$38.50
A 2001	\$13.85	6.38%	\$0.88	A 2001	\$544.61	6.89%	\$37.54
A 2002	\$28.80	2.99%	\$0.86	A 2002	\$540.37	6.63%	\$35.83
A 2003	\$18.40	1.43%	\$0.26	A 2003	\$543.02	6.48%	\$35.18
A 2004	\$32.43	1.12%	\$0.36	A 2004	\$544.20	6.46%	\$35.15
A 2005	\$20.89	2.38%	\$0.50	A 2005	\$548.79	6.48%	\$35.55
A 2006	\$41.88	4.26%	\$1.78	A 2006	\$532.12	5.55%	\$29.54
A 2007	\$18.19	5.58%	\$1.01	A 2007	\$531.13	5.73%	\$30.46
A 2008	\$28.92	4.33%	\$1.25	A 2008	\$531.15	5.44%	\$28.87
F 2009	\$28.92	1.65%	\$0.48	F 2009	\$531.15	5.23%	\$27.80
F 2010	\$28.92	0.96%	\$0.28	F 2010	\$531.15	5.25%	\$27.89
F 2011	\$28.92	2.69%	\$0.78	F 2011	\$531.15	5.48%	\$29.08

¹Balances are adjusted for SB495 loan to common schools.
²Income amount are adjusted for sb495 loan payments from the common schools.

Although the Montana constitution says one half of revenue from the coal severance tax is to be deposited in a trust fund, there are four coal trust sub-funds that receive revenue from the coal severance tax. Besides the Coal Severance Tax Permanent Fund that benefits the state general fund, there is also the Treasure State Endowment Fund, the Treasure State Endowment Regional Water Systems Fund, and the Big Sky Economic Development Fund. Currently, the three sub-funds receive the 50% of the coal severance tax as established in Article 1X, Section 5 of the Montana Constitution. Since no new money is deposited in the Coal Severance Tax Permanent Fund from the coal severance tax until FY 2016, the balance is projected to remain at FY 2008 levels for FY 2009 through FY 2011.

Loan rates have remained relatively stable as interest rates have fluctuated and are continued to remain stable in FY 2009 through FY 2011. The primary reason these interest rates have not fluctuated as much is due to the fact that many of these loans are economic development loans that include rate reductions. The TFFB and STIP rates are forecast in the *Interest Rate Introduction* section.

Table 3 shows actual administrative expenses, capital gains income, other income, and interest income for FY 2001 through FY 2008 and forecasted income for FY 2009 through FY 2010. The last column also shows the overall rate of return for the Coal Severance Tax Permanent Trust Fund.

Fiscal Year	Interest Income	Capital Gain	Other Revenue	Admin. Expense	Total Revenue	Implied Rate of Return
A 2001	37.54	+ 0.00	+ 0.29	+ (0.17)	= 37.66	6.91%
A 2002	35.83	+ 0.30	+ 1.79	+ (0.32)	= 37.61	6.96%
A 2003	35.18	+ 0.65	+ 0.85	+ (0.38)	= 36.30	6.68%
A 2004	35.15	+ 0.00	+ 0.25	+ (0.49)	= 34.91	6.41%
A 2005	35.55	+ 0.86	+ 0.81	+ (0.47)	= 36.75	6.70%
A 2006	29.54	+ 0.34	+ 1.61	+ (0.39)	= 31.11	5.85%
A 2007	30.46	+ 0.53	+ 1.63	+ (0.28)	= 32.33	6.09%
A 2008	28.87	+ 0.00	+ 0.37	+ (0.39)	= 28.85	5.43%
F 2009	27.80	+ 0.00	+ 0.95	+ (0.39)	= 28.36	5.34%
F 2010	27.89	+ 0.00	+ 0.95	+ (0.39)	= 28.45	5.36%
F 2011	29.08	+ 0.00	+ 0.95	+ (0.39)	= 29.64	5.58%

Occasionally Permanent Fund TFBP shares are sold. An example of this is the shares sold to finance the Big Sky Economic Development fund transfer in FY 2005. About 186,000 shares were sold for a capital gain of \$0.86 million. The capital gain occurred because the TFBP share price at the time of sale was more than the average price paid for TFBP shares in the permanent fund. No capital gains are forecast for FY 2009 through FY 2010.

The other revenue category consists mainly of two sources. 1). The Permanent Fund also receives income from a bond fund that is set up to provide debt security for bonds called coal severance tax bonds. This balance earns a small amount of interest. 2). The interest earnings from the permanent fund and the bond fund are deposited into the coal tax income fund. Although the income fund balance is swept monthly into the general fund, it is invested in STIP during the interim. The income from this investment is returned to the income fund before being deposited into the general fund. These two combined sources of revenue are forecast using the average for FY 2001 through FY 2008.

The administrative expenses are forecast to remain at their FY 2008 levels for FY 2009 through FY 2010.

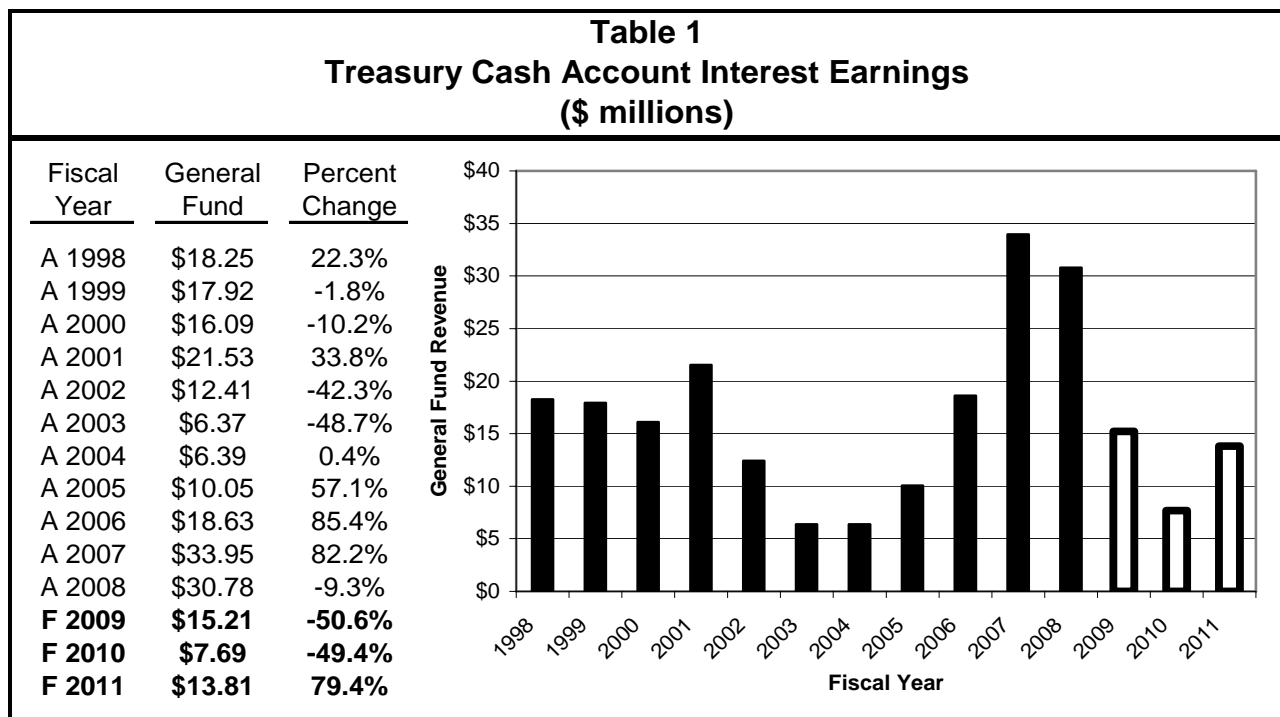
Data Sources

The State Street Bank and BOI provide monthly reports on the trust fund balances and income. Fiscal year end revenues and administrative expenses were obtained from SABHRS.

Revenue Description

The treasury cash account (TCA) contains general fund cash balances and cash balances from several other funds whose interest earnings are deposited into the general fund. The Board of Investments (BOI) invests TCA balances and the interest earned is paid into the general fund. In some years, the state borrows money to maintain a positive balance in the general fund by issuing tax or revenue anticipation notes (TRANS). TRANS are short-term bonds that are repaid in the same fiscal year that they are issued. Issuing TRANS increases the average balance in the TCA and, therefore, increases the interest earned on the account. However, the state pays interest on the TRANS.

Table 1 shows actual revenue generated from the treasury cash account for FY 1998 through FY 2008, and projected revenues for FY 2009 through FY 2010.



In FY 2003 and FY 2004, short-term interest rates were very low and TCA interest earnings decreased to less than \$6.4 million per year. Interest earnings increased in FY 2005 through FY 2007 due to increased balances and higher short-term interest rates. Both the average balance and short term rates are expected to decline in coming years. These two factors are the primary reasons interest earnings will decline from FY 2007 and FY 2008 levels. Short-term interest rates are expected to remain low in FY 2009 before beginning to increase in FY 2010 and FY 2011.

Risks

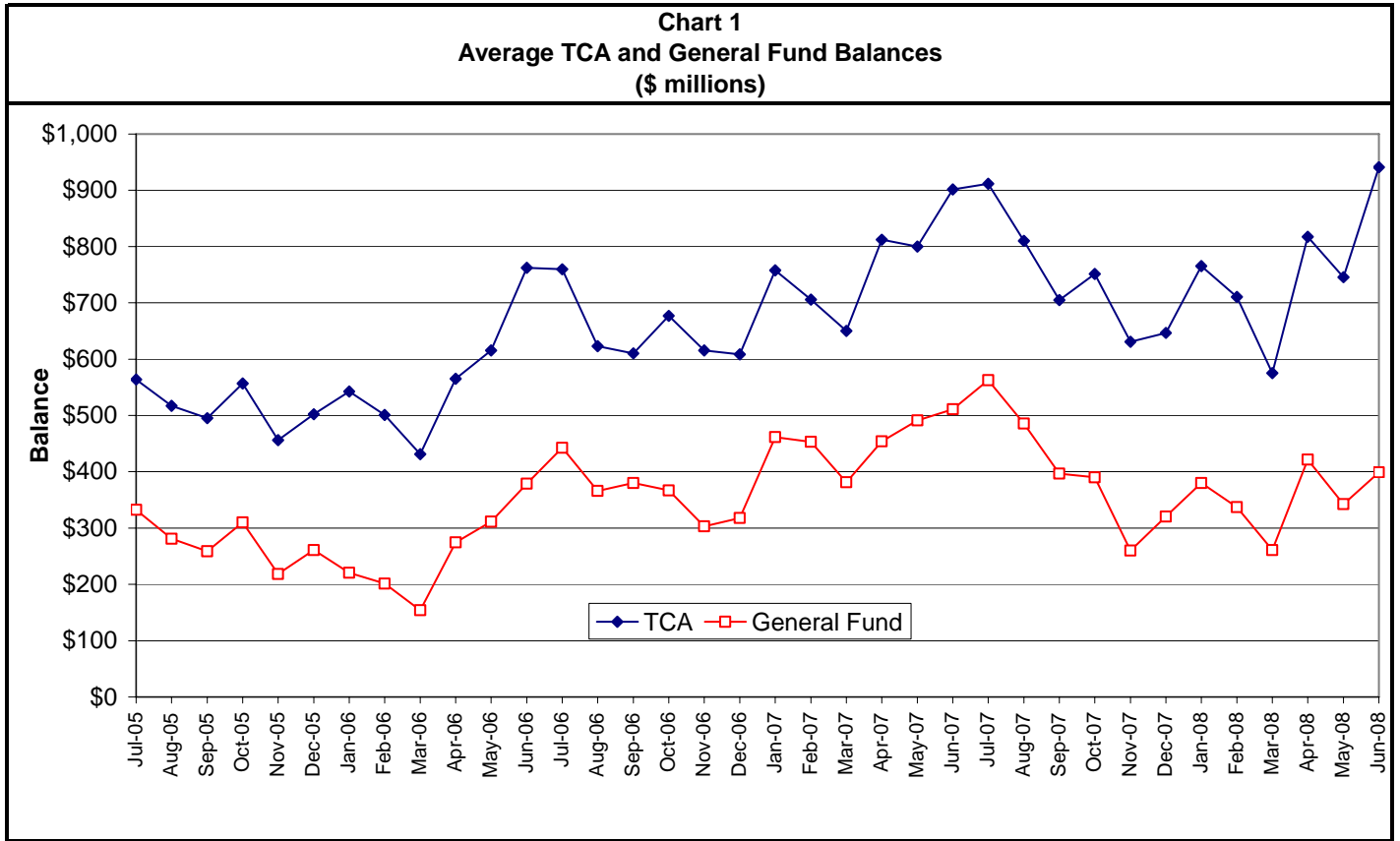
- Short term and medium term interest rates have been very volatile in recent months, and continued variation could affect TCA revenues.
- The average fund balance in FY 2007 and FY 2008 were much higher than anticipated. If the average balance differs significantly, then the actual revenue may also differ for the estimate. If total state revenue is lower than expected, then the TCA balance will likely be lower than anticipated in this estimate.
- If the revenues or expenditures for the state in the future are significantly different from projections, then the balance could be different than estimated.

Forecast Methodology

There are two main steps in calculating TCA earnings:

Step 1: Determine the average balance. The average general fund balance is projected to fall from FY 2009 through FY 2011 using executive budget recommendations of ending fund balance. The portion of the total that is attributable to the general fund has remained relatively stable with a large spike in FY 2007 due to larger than expected revenues.

Table 2 shows the monthly balance for TCA balance and the average general fund balance from the beginning of FY 2006 to the end of FY 2008.



Although there are many funds contributing to the fund, the general fund is the primary fund in the account.

Table 2 shows the annual average balance of the general fund, the average TCA balance, and the general fund percentage of the total.

Fiscal Year	TCA	General Fund	General Fund %
A 2006	\$542.42	\$266.81	49.19%
A 2007	\$710.10	\$410.72	57.84%
A 2008	\$750.83	\$379.71	50.57%
F 2009	\$750.01	\$394.01	52.53%
F 2010	\$670.21	\$352.08	52.53%
F 2011	\$536.96	\$282.08	52.53%

Step 2: Determine the appropriate rate of return and calculate the income. TCA balances are invested in overnight repurchase agreements, the short-term investment pool (STIP), and medium-term bonds. Table 3 shows the average balance, rate of return, and income for these investments from FY 2003 to FY 2008, and forecasted values for FY 2009 through FY 2011.

<u>Cash</u>				<u>STIP</u>			
Fiscal Year	Balance	Interest Rate	Income	Fiscal Year	Balance	Interest Rate	Income
A 2003	\$116.37	X 1.55%	= \$1.80	A 2003	\$99.46	X 1.50%	= \$1.49
A 2004	\$82.86	X 1.26%	= \$1.05	A 2004	\$103.50	X 0.96%	= \$0.99
A 2005	\$23.44	X 2.11%	= \$0.50	A 2005	\$186.46	X 2.04%	= \$3.81
A 2006	\$19.73	X 4.46%	= \$0.88	A 2006	\$279.54	X 3.76%	= \$10.52
A 2007	\$20.70	X 4.56%	= \$0.94	A 2007	\$530.58	X 5.06%	= \$26.86
A 2008	\$23.66	X 3.97%	= \$0.94	A 2008	\$591.84	X 3.88%	= \$22.98
F 2009	\$23.66	X 0.97%	= \$0.23	F 2009	\$591.03	X 1.65%	= \$9.76
F 2010	\$23.66	X 0.62%	= \$0.15	F 2010	\$511.23	X 0.96%	= \$4.90
F 2011	\$23.66	X 2.31%	= \$0.55	F 2011	\$377.98	X 2.69%	= \$10.16
<u>Medium Term Bonds</u>				<u>Total</u>			
Fiscal Year	Balance	Interest Rate	Income	Fiscal Year	Balance	Interest Rate	Gross Income
A 2003	\$58.10	X 5.39%	= \$3.13	A 2003	\$273.93	X 2.35%	= \$6.42
A 2004	\$125.12	X 3.52%	= \$4.41	A 2004	\$311.48	X 2.07%	= \$6.45
A 2005	\$209.44	X 2.77%	= \$5.79	A 2005	\$419.35	X 2.41%	= \$10.10
A 2006	\$243.15	X 3.00%	= \$7.29	A 2006	\$542.42	X 3.45%	= \$18.69
A 2007	\$158.82	X 3.90%	= \$6.20	A 2007	\$710.10	X 4.79%	= \$34.00
A 2008	\$135.32	X 5.12%	= \$6.92	A 2008	\$750.83	X 4.11%	= \$30.84
F 2009	\$135.32	X 3.81%	= \$5.15	F 2009	\$750.01	X 2.02%	= \$15.14
F 2010	\$135.32	X 1.91%	= \$2.58	F 2010	\$670.21	X 1.14%	= \$7.63
F 2011	\$135.32	X 2.25%	= \$3.04	F 2011	\$536.96	X 2.56%	= \$13.74

The increase in overall fund balance from FY 2003 to FY 2008 has been most perceptible in the amount invested in STIP. As the total fund balance decreases the portion invested in STIP will decline through FY 2011, and the non-STIP portions will remain relatively constant.

The STIP rate of return was calculated in the Interest Rate Introduction section. The interest rate on cash invested in overnight repurchase agreements is generally the federal funds target rate. Global Insight forecasts the federal funds rate which is used as the cash investment interest rate.

The medium term interest rates are calculated by first determining the maturity dates of the bonds then assume new investment will earn a rate of return equal to what Global Insight has forecasted for investment of similar risk and maturity and calculate an overall rate of return.

Step 3: Use the calculated general fund TCA earning and deduct administration expenses. Table 4 shows the administration expenses from FY 2003 to FY 2008 and estimated values for FY 2009 through FY 2010.

Table 4					
Net TCA Income					
(\$ millions)					
Fiscal Year	Gross Income		Administrative Expense		Net Income
A 2003	\$6.42	+	(\$0.06)	=	\$6.37
A 2004	\$6.45	+	(\$0.05)	=	\$6.39
A 2005	\$10.10	+	(\$0.05)	=	\$10.05
A 2006	\$18.69	+	(\$0.06)	=	\$18.63
A 2007	\$34.00	+	(\$0.05)	=	\$33.95
A 2008	\$30.84	+	(\$0.06)	=	\$30.78
F 2009	\$15.14	+	(\$0.06)	=	\$15.21
F 2010	\$7.63	+	(\$0.06)	=	\$7.69
F 2011	\$13.74	+	(\$0.06)	=	\$13.81

Expenses are projected to remain at their FY 2008 levels.

Data Sources

Fiscal year end revenues are from SABHRS. The State Street Bank and BOI provide monthly reports on TCA investment earnings and balances. Forecasted rates of return are from Global Insight's U.S. Economic Outlook. General fund balances were provided by the Department of Administration.