

**Bond Portfolio Proposal for  
St. John's University  
Graduate Student Managed Investment Fund**

**FIN 284 Asset Management**

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## EXECUTIVE SUMMARY

Our group is proposing the addition of Treasury Bonds to the Student Portfolio because the of the St. John's University Graduate Student Managed Investment Fund (the "Fund") portfolio was organized to be 80 percent equity and 20 percent fixed income including cash. At the present time, the Fund's asset allocation is 81 percent equity and 19 percent in cash. The Fund currently has cash assets totaling an aggregate of over \$63,000 which is held in a sweep deposit account that earns an annual yield of just 0.698 percent. This return is much lower than the risk-free yield on Treasury bills or notes, which currently yield in excess of 4.5 percent

Statistically, compared with the \$16 trillion U.S. stock market, the bond market is larger at \$18 trillion. Worldwide, the various stock markets total \$33 trillion in comparison with the \$36 trillion bond market which is composed of government and corporate debt.

Bonds offer a number of advantages over stocks. They are typically less volatile, offer a stated or predictable rate of return or yield and, depending upon the volatility of the stock market, can offer a competitive return. While the average annual compound rate of return on government/corporate/corporate bonds was slightly over 10 percent compared with 14 percent for common stocks from 1980 through 2004, researchers do not expect this trend to continue. Some suggest that the normal risk-premium of stocks is so low that a negative premium is a possibility. In the same time frame, bonds had a corresponding standard deviation of 7 percent for bonds in contrast with a 17 percent for stocks which means that they were not as volatile as stocks. While the historical correlation coefficient between stocks and bonds over a forty year period averaged 0.127, it was actually more volatile when measured in shorter time frames. When groups of future St. John University ("SJU") students are managing the Fund, we believe that there will be substantial opportunities in bonds that will further enhance the Fund's risk-return performance.

Consequently, we are proposing the establishment of a bond component to the Fund as a complementary alternative to the stock portion of the portfolio. In formulating this proposal, we have considered the investment objectives and constraints of the Fund, its management style when overseen by different groups of SJU students within the time frames of each group's semester and the different types of bonds available which include conventional Treasury Bonds and Treasury Inflation Protected Securities also known as TIPS and corporate bonds such as those ranked from AAA to BAA by Moody's, one of the recognized rating service companies.

Based upon the following analyses, we are suggesting the purchase of conventional treasury bonds in specific time frames to form the initial core of the Fund's Bond Portfolio. Secondly, we are suggesting that any remaining cash balance be moved into a money market fund, currently yielding 2.75 percent less any minimum required cash balances in the Student Fund's current E\*Trade account.

### **Buy-Hold-Strategy & Laddered Approach**

We are suggesting investing an aggregate of fifty thousand dollars of the monies currently available in the Fund's money market account divided equally into new, safe but higher-yielding fixed-income investment assets, in a laddered approach of one, two, three, four and/or five year Treasury Notes. The notes could then be held to maturity, and every year, a maturing note could be replaced with another 5-year note. The laddered approach lends itself to the "buy-and-hold", passive management style of the Fund and will enable future SJU student managers to recoup a smoother return over the life of the bond portfolio investing in both short-term and longer term notes which reduces the interest rate risk and, if these securities are held to maturity, price volatility is not really a factor. Also, in spreading the allocations of the bond investment across notes with different maturities, only a proportion of the bonds mature at any one time, thereby reducing the reinvestment risk.

### **Core-Plus Bond Portfolio Management**

The proposed passive management buy-and-hold strategy also lends itself to being part of a combined approach commonly referred to as a core-plus bond portfolio management style which is being used more frequently by professional managed bond portfolios to generate better returns.. This management style has a core portfolio of passively managed bond investments representing typically 70-80percent of the bond portfolio with the rest to be purchased in other more aggressive bond investments offering higher yields. If the proposed laddered strategy is accepted by the Committee, it would form the core of the bond portfolio. Students in future classes as early as twelve months after the implementation of this portfolio would be evaluating the bond portfolio and possibly recommending selling an existing note in the portfolio and replacing it with another bond or simply reinvesting the note upon maturity. If the spread between high quality corporate bonds and treasuries increases, then it might be worthwhile to replace with corporate bonds, in which case detailed credit analyses must be performed. One final consideration is that if the shape of the yield curve becomes steeper, then longer term bonds such as 10-year bonds might also be worthwhile to include.

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# I. THE PRESENT ENDOWMENT FUND

The present student-run Endowment Fund (the “Fund”) is financed by gifts and donations from sponsors and used to fund specific projects.

## **Endowment Fund Investment Objectives:**

As we have been learning in class, market timing and stock selection are not the keys to reaching investment goals. Professionals consider asset allocation more important than market timing and stock selection to reaching investment goals. The most important step in the entire investment process is first defining the investment objectives, including the preservation of the principal value and desired earnings. Then establishing the initial boundaries for the portfolio's risk tolerance and return requirements.

## **Portfolio Management:**

*Portfolio Management* is implementing the objectives of the Fund by carefully allocating cash assets to stocks and bonds that are appropriate to the Fund's objectives and will generate desired interest, dividends and capital gains. Part of the consideration for every security under review both in the portfolio and being suggested for the portfolio includes initial determination and then periodic reviews of risk tolerance. In addition, as the Fund has tax-exempt status, maintaining that status or tax management has to be addressed as a component of asset allocation.

## **Investment Constraints**

Candidate securities, equities or fixed income, have similar investment constraints besides the requirement that the security be the only representative of its industry, market or sector in the portfolio. They must be in agreement with the University's value system and Policy of Social Responsibility and its tax-exempt status.

*Liquidity* is also an essential factor even though the Fund's purchases/sales of securities are infrequent because of the purpose of the Fund. Lastly, the *investment horizon* has to be considered as the time frame for the length of time the security may be held would probably be long-term.

## **Management of the proposed Bond Portfolio**

Based upon the Fund's objectives and current portfolio structure, we are suggesting the establishment of a bond portfolio composed of Treasury bonds which can be bought and held to maturity in the portfolio or sold at the discretion of the Fund's future student managers generating investment returns from interest income and capital gains on bond sales. The addition of a Bond component to will create additional opportunities for students to gain experience in evaluating and managing fixed income instruments.

## **II. BOND SELECTION RECOMMENDATION**

To recommend what type of fixed-income securities and what management strategy to meet the goals of investment, the risk in the bond market is analyzed, and correlation between risk and annual return is considered.

### **1. Risk in the bond market**

#### *Interest risk or price risk*

Bond prices are inversely related to changes in market yields. Particularly, some features of bond will affect on the price sensitivity.

- The longer the maturity, the greater the price sensitivity to the interest rate change
- The higher coupon, the lower the price sensitivity to the interest rate
- When market yields are low, bond price are more sensitive to a change in interest rate.

To reduce price risk, a portfolio can be structured by using laddered maturities, shorter maturities.

#### *Inflation risk*

The purchasing power of a bondholder's coupon payment is directly affected by the rate of inflation. Real returns are reduced by the level of inflation.

$$(1 + \text{real interest rate}) = (1 + \text{nominal interest rate}) / (1 + \text{rate of inflation})$$

To manage inflation risk, we should invest in a variety of inflation protected securities, including TIPS, FDIC insured bank and corporation bonds. A broad range of maturities, crediting ratings, and payment structures are offered as well. However, inflation rate is predicted as a stable and low rate, so the effect of inflation on the portfolio is not considered.

### *Default risk*

The ability of an issuer is measured by the firm's ability to generate sufficient cash flows. Normally, investors depend on issuer's credit worthiness. The following chart exhibits investment grade rating of major rating agencies:

Moody's	Standard & Poor's	Fitch	Risk Level
Aaa	AAA	AAA	Max. Safety
Aa1, Aa2, Aa3	AA+, AA, AA-	AA+, AA, AA-	Upper Tier
A1, A2, A3	A+, A, A-	A+, A, A-	Middle Tier
Baa1, Baa2, Baa3	BBB+, BBB, BBB-	BBB+, BBB, BBB-	Lower Tier

The default risk is ranked by type of bond:

- U.S Treasury/ agency- almost no chance for default.
- Municipal bonds- investment grade bonds have very slight chance of default (one analysis showed less than 0.05% over 30 years)
- Corporate bonds- investment grade bonds have higher risk, but still low.
- Junk bonds- below investment grade have much higher risk.
- Foreign bonds – may have a high risk.

Unrated bond – highest risk of all<sup>1</sup>

To manage default risk and to implement the targets which discussed in the first part, treasury securities are chosen in the portfolio.

Also, we consider cumulative default risk to decide what bond in the portfolio. From the rate of average cumulative default, conventional bonds, treasury securities, are priority because the target of the investment is avoiding risk.

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<sup>2</sup> How to avoid default risk, website: <http://stocks.about.com>

*Table1. Average Cumulative Default Rates for Corporate Bond: 1978 - 2004*

Rating	Years since issue		
	5	10	15
AAA	0.10%.	0.52%	0.52%
AA	0.26	0.83	1.31
A	0.57	1.58	2.32
BBB	2.16	4.66	6.64
BB	10.59	17.40	19.52
CCC	46.87	52.22	54.38

*Source: Rating Performance 2004(New York: Standard & Poor)*

*Opportunity cost risk*

A risk that investors fail to place fund in cash, in anticipation of investing these funds at higher yields in the future. They have to sacrifice investing in the current securities. The steeper the yield curve, the higher the potential opportunity cost. The short term instruments have low rate of return, investors tend to hold cash and wait until yields of long term securities increase in the future.

*Reinvestment risk*

When interest rate tends to decline, investors will replace a matured bond or recall bonds prior to maturity to retain the same cash flow. As a result, they sacrifice yield, risk increases

To avoid investment risk, investors should invest in non-callable bonds. Notably, the yield of non-callable bonds will slightly lower than that of callable bonds.

*Liquidity risk*

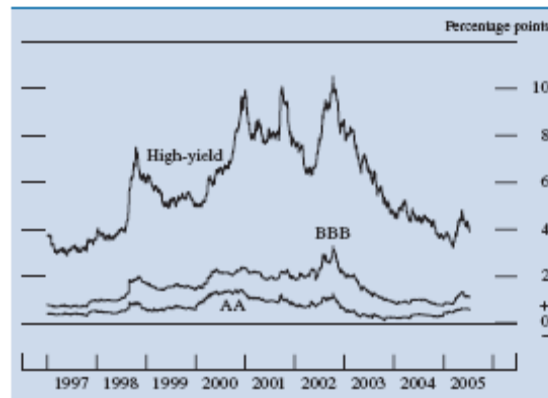
Basically, the higher trading volume of a bond, the higher the liquidity and therefore, the narrower is the bid/ask spread. Moreover, the higher quality of bond, the higher liquidity. However, investors hold fixed income securities to maturity, liquidity is not a major concern.



## 2. Yield spreads between treasury securities and corporate bonds

*Yield spread between corporate bonds and treasury securities* .Yield spread between investment-grade corporate bond and comparable maturity treasury securities fell down during 2005. In the chart 1, the high yield is compared with the five-year treasury yield, and the BBB and AA corporate bonds are compared with ten year treasury securities. Yields on high yield index had been going down sharply from 2003, whereas those on BBB and AA indexes fell down slightly during 2003 and 2005, and recovered slightly in 2005.

*Chart 1.The spread of corporate bond yields over comparable off-the run treasury yields*



*Note: The data are daily and extend through July 13, 2005. The high yield index is compared with the five year treasury yield, and the BBB and AA indexes are compared with the ten year treasury yield*

*Source: Merrill Lynch AA and BBB indexes and Merrill Lynch Master II high-yield index*

## 3. Comparison between yield to maturities of sample portfolio of treasury securities and corporate bonds.

We compare yield to maturity of two portfolios: the portfolio of treasury securities and portfolio of corporate bonds rating AAA. The two portfolios which are surveyed are Laddered with weight of 20%. The first portfolio is a set of the-off-run treasury securities with the number of year left: 1, 2, 3, 4, 5, respectively. The second portfolio is a set of the-off-run corporate bonds with the same number of year left to maturity. As a result, it is likely that YTM of the portfolio of corporate bonds (average of **4.956%**) is higher than that of the security securities (average of **4.848%**))

*Table 2. The sample portfolio of treasuries securities*

<b>T-note Portfolio*</b>	<b>Weight</b>	<b>Mod Duration.</b>	<b>Mod Dur*weight</b>	<b>YTM</b>	<b>YTM*weight</b>
T-note(1yr maturity)	20%	0.969	0.194	4.882%	0.976%
T-note(2yr maturity)	20%	1.899	0.380	4.833%	0.967%
T-note(3yr maturity)	20%	2.791	0.558	4.833%	0.967%
T-note(4yr maturity)	20%	3.650	0.730	4.847%	0.969%
T-note(5yr maturity)	20%	4.220	0.844	4.847%	0.969%
<b>Portfolio Totals</b>	<b>100%</b>		<b>2.706</b>		<b>4.848%</b>

*Table 3. The sample portfolio of corporate bond AAA*

<b>Corp. Bond Portfolio*</b>	<b>Weight</b>	<b>Mod Duration</b>	<b>Mod Dur*weight</b>	<b>YTM</b>	<b>YTM*weight</b>
<i>GE CAP</i>	20%	0.969	0.194	4.601%	0.920%
<i>US Central Credit Union</i>	20%	1.925	0.385	4.960%	0.992%
<i>GE CAP</i>	20%	2.844	0.569	5.043%	1.009%
<i>Orange &amp; Rockland Util</i>	20%	3.435	0.687	4.945%	0.989%
<i>GE CAP</i>	20%	4.063	0.813	5.231%	1.046%
<b>Portfolio Totals</b>	<b>100%</b>		<b>2.647</b>		<b>4.956%</b>

Although the YTM of corporate bond portfolio is higher than that of treasury bond portfolio by 10.8 basis point. For an investment of \$50,000, the difference in annual return is by only \$54. We cannot recommend the corporate bond portfolio because the different return cannot compensate risk of corporate bond (as analyzing default rate in table 1). And also, the policy of the endowment fund limits the total investment in one security to 3% of total assets.

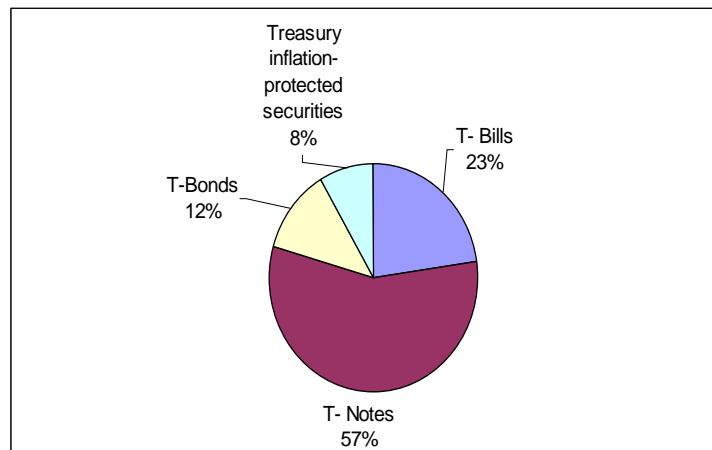
From analyzing risk in the bond market, yield spread, comparison between YTM of portfolio of treasury securities and corporate bonds and to meet the target of investment of endowment fund, we recommend that treasury securities be chosen for the portfolio.

### III.TREASURY SECURITES

#### 1. Types treasury securities

U.S treasury securities are government debt issued by Department of the Treasury. Government securities include treasury bills, treasury notes, treasury bonds, inflation-indexed securities, treasury STRIPS, saving bond (series EF), saving bonds (series I). The chart below shows the proportions of each type of outstanding treasury security.

*Chart 2.The Proportion of Outstanding Marketable Securities*



Source: chart prepared from treasury securities data on January 28, 2006 from website:<ftp://ftp.publicdebt.treas.gov/opd/opds022006.pdf>

#### **Treasury bills (T-bills)**

Treasury bills are short term securities with maturities of no more than one year. Maturities of T-bills are 1 month, 3 months, 6 months, and 1 year. The T-bills are the most highly liquid instrument in financial market. They can be converted into cash by through brokers or banks. The T-bills are discount securities. Normally, interest of T-bill is the lowest, slightly higher than U.S Fed Fund rate. For instance, US Fed rate is 4.5% on March 13, 2006, whereas, T bill discount rate is 4.48% for maturity of 3 months (06/08/2006), and 4.6% for maturity of 6 months (09/07/2006).

#### **Treasury notes (T-notes)**

Treasury notes are intermediate to long-term securities, typically issued in maturities of two, five,

and ten years. Interest is paid semi-annually. T- Note is a main dept instrument of government. From a chart built from data on January, 28, 2006, T-note accounts for 57% of the outstanding marketable treasury securities.

### **Treasury bonds (T-bonds)**

Treasury bonds have maturity of more than 10 years (30 years). Interest is paid semi-annually. Bonds accounted for 15% of the outstanding marketable treasury securities on March 31, 2004, and 12% of those securities on January, 28, 2006

### **Treasury inflation- indexed securities (TIPS)**

In 1997, the U.S Treasury introduced new forms of notes and bonds to protect the investors from the effect of inflation. Consumer price index is used to adjust the value of principal. At maturity, if inflation increases the value of the principal, the investor will receive the higher value. If deflation decreases the value of the principal, the investor only receives the original face value of the security. Maturities of TIPS are 5 years, 10 years, 20 years, or 30 years. TIPS accounted for 5% and 8% of the outstanding marketable treasuries securities on March 31, 2004 and January 28, 2006, respectively.

### **U.S saving bonds**

U.S saving bonds includes Series EE and Series I saving bond. Series EE accumulates interest according to a floating rate, 90 percentage of the average market yield on 5 year Treasury securities. Interest is adjusted twice a year. The holders do not receive interest until the bonds are cashed in. Series I saving bonds are adjusted by inflation. Interest of Series I saving bonds is paid partly a fixed rated of return and partly adjusted for inflation.

## **2. Analyzing some features of treasury securities**

### **Coupon rate**

We have data of treasury notes and bonds on April 13, 2006 as follows:

*Table 4. Treasury securities market (As of April 13, 2006)*

<b>Bills</b>		Maturity date	Discount/ yield
3-month		07/13/2006	4.58/4.69
6 month		10/12/2006	4.74/4.92
<b>Notes/bonds</b>	Coupon	Maturity date	Current price/ yield
2 year	4.625	03/31/2008	99-12+/4.95
3 year	4.500	02/15/2009	98-25+/4.95
5 year	4.750	03/31/2011	99-01¾/4.97
10 year	4.500	02/15/2016	95-24+/5.05
30 year	4.500	02/15/2036	90-20½/5.11

Source: <http://www.bloomberg.com/markets/rates/index.html>

From the table 4, coupon of T-note 2 year (4.625%) is higher than other securities (4.5%), except T-note 5 year (4.75%). This is an inverse relation. Normally, the longer-term securities have higher return due to inflation risk, the term structure of interest rate, and opportunities cost.

Comparing with the data in the treasury securities market on March 3<sup>rd</sup>, 2006, the coupon of T-note 5 years increase by 0.25%, the other coupon remain the same levels. It states that T-note 2, 3, 5 years also remain higher coupon compared with 10 and 30 years

### **Yield to Maturity**

From the data in table 1, we use financial calculator (BA II Plus), results are shown below:

Treasury securities	YTM
2- years	4.95%
3 years	4.95%
5- years	4.97%
10-years	5.04%
30-years	5.11%

With results calculated, we conclude that the longer maturity, the higher yield to maturity. Oppositely, from data collected in March 3<sup>rd</sup> 2006, the longer maturity, the lower yield to maturity.

#### **Valuation of T-notes and bonds.**

We use the Present Value Model to value T-notes and Bond. The value of a note (bond) equals to the present value of its expected cash flows. The cash flows are the periodic interest payments to the bond holders and the repayment of principal at the maturity of the bond. From data in the table 4, valuation of T-notes, and bonds as following:

Treasury securities	Valuation
2- years	99.39
3 years	98.75
5- years	99.03
10-years	95.80
30-years	90.87

*Note: using financial calculator (BA II Plus) to calculate NPV (valuation)*

Through valuation of bonds, market prices of bonds reflex the true value of bond

## Modified Duration

*Table 5. Modified Duration of the-on-run treasury securities*

Treasury Securities	Annual Coupon	Coupons /year	Maturity Date	Settlement Date	Annual YTM	Modified Duration
2 years	4.63%	2	29-Feb-08	5/15/2006	4.69%	1.6871
3 years	4.50%	2	15-Feb-09	5/15/2006	4.69%	2.5340
5 years	4.50%	2	28-Feb-11	5/15/2006	4.65%	4.2262
10 years	4.50%	2	15-Feb-16	5/15/2006	4.65%	7.7234
30 years	4.50%	2	15-Feb-36	5/15/2006	4.61%	16.0108

*Table 6. Modified Duration of the-off-run treasury securities*

First coupon Date	Annual Coupon	Coupons /year	Maturity Date	Settlement Date	Annual YTM	M Duration
15-Nov-98	5.63%	2	15-May-08	5/15/2006	4.69%	1.8762
15-Nov-99	5.50%	2	15-May-09	5/15/2006	4.69%	2.7445
15-Nov-81	13.88%	2	15-May-11	5/15/2006	4.65%	3.8888
15-Nov-86	7.25%	2	15-May-16	5/15/2006	4.65%	7.3847

*\*Assumption: The date to buy notes is 5/15/2006. The prices of notes on 5/15/2006 will be the same as those on 2/27/2006.*

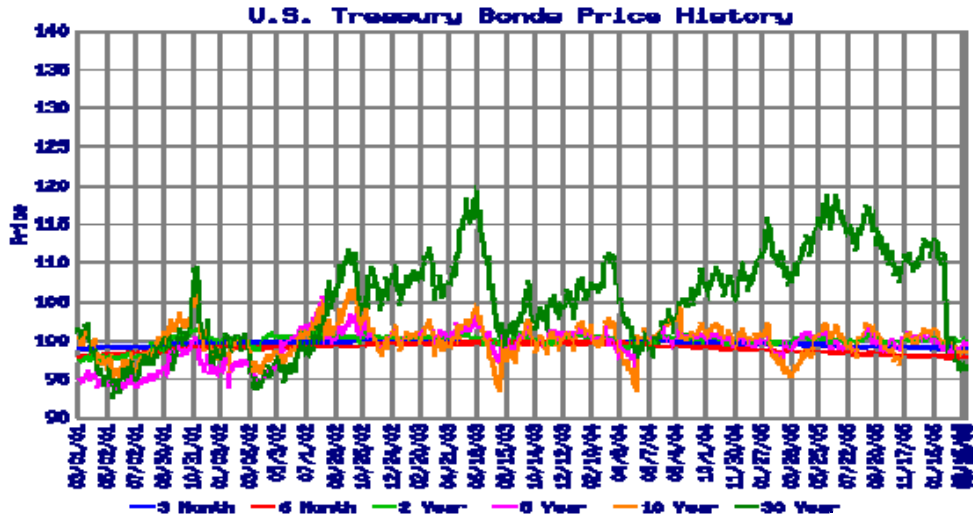
Modified Duration is used to measure change of price due to change of interest rate. From modified duration calculated, the shorter maturity, the lower duration; and duration of the-on-run securities with 2 and 3 years is higher than that of the-off-run securities. The-on-run securities are more sensitive to price higher than the off-run securities. To meet criteria of avoiding risk (inflation risk, interest risk, and opportunity cost risk), it is necessary to invest in securities with shorter term.

## Price volatility of treasury securities with different maturities

From the chart 3, price of volatility of 3 months, 6 months, and 2 years have been really stable, whereas the price of note 5 years and 10 year have fluctuated around the curve of 3 months . It reflexes that the more maturity, the more price volatility. Specially, price volatility of bond 30 years has changed differently. In the beginning of 2006, the price fallen down suddenly, and

currently is lower than the price of the others

*Chart 3 - The history of price of U.S treasury securities*



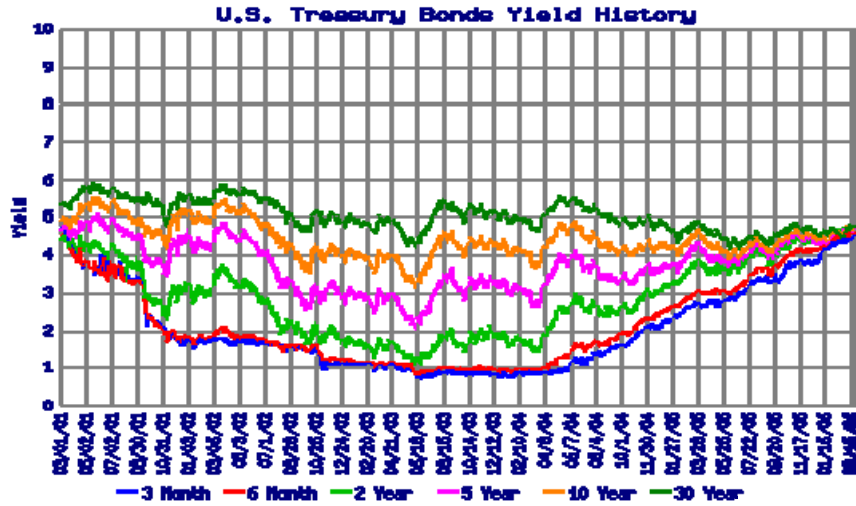
Source: [http://www.bondtalk.com/global.cfm?S=charts&SS=treasury\\_yield\\_curve](http://www.bondtalk.com/global.cfm?S=charts&SS=treasury_yield_curve)

### **Yield volatility of treasuries securities**

The yields of the treasury securities have historically moved in the same directions. There are spread yields between T-bills, T-notes, and T bond. The spread had big gap during 2002 and 2003. Begin 2005, the spread became smaller, especially, it was the smallest during beginning of the year 2006. Of the securities yields, the yield of the 30 year bond has remained the most stable level.



*Chart 4 - The history of yield of U.S treasury securities*



Source: [http://www.bondtalk.com/global.cfm?S=charts&SS=treasury\\_yield\\_curve](http://www.bondtalk.com/global.cfm?S=charts&SS=treasury_yield_curve)

### 3. Analyzing yield spreads and yield curves

We analyze yield spreads among three-month, two-year, and ten-year treasury securities. Yields of two-year nominal treasury securities have risen so far, reflecting monetary policy tightening. However, ten-year treasury yields have gone down during 2005. Generally, spread of yields on long term treasury securities over those on short term securities have tendency to edge down. In the chart 5, yield spreads between ten-years and two-years has been smaller.

*Chart 5. Interest rate on selected treasury securities.*



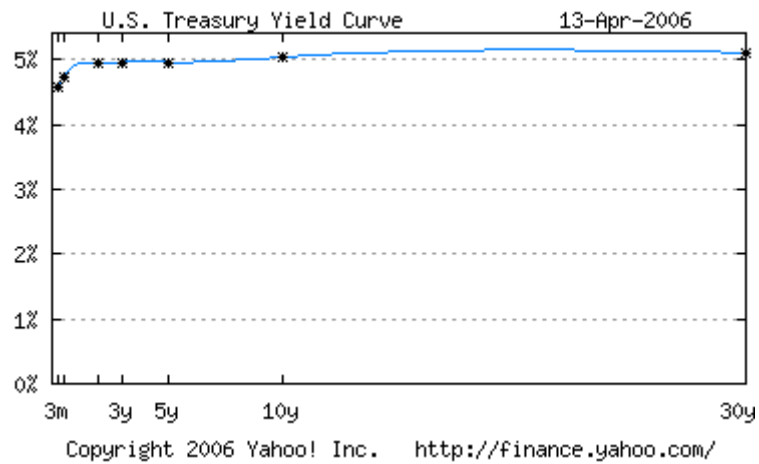
Note: The data are daily and extend through July 13, 2005

Source: Department of the Treasury

## Yield curve

The term structure of interest rate (or the yield curve) is a function that expresses relationship between the term to maturity and the yield to maturity

*Chart 6. Treasury Yield Curve*



Source: [http://finance.yahoo.com/bonds/composite\\_bond\\_rates](http://finance.yahoo.com/bonds/composite_bond_rates)

From the chart, the current yield curve becomes flat, compared with the previous (2005). The reason is that Federal Reserve increased short term rate. The current yield curve is flat shape which mean that there is approximately equal yield on short term and long term securities.

In conclusion, from analyzing the yield spreads and the term of structure of interest rate, price and yield of shorter treasury securities has been more stable than longer securities.

## **IV. BOND PORTFOLIO MANAGEMENT**

### ***A. Passive Portfolio Management***

#### **1. Conformance with investment objectives**

In selecting an appropriate portfolio strategy, it is essential that it be in line with the objectives and policy guidelines of the St John University Endowment Investment Fund, which are to minimize non-systematic risk, preserve principal value of assets, smooth portfolio volatility, and generate sufficient cash flow to satisfy scholarship or other operational expenses. Furthermore, the investment fund does not permit frequent or excessive trading of assets.

#### **2. Selecting a portfolio strategy**

As mentioned in Section I, portfolio strategies can be classified as either active management or passive management. Because trades in St. John's investment fund are made only after a lengthy review over several months time, it is impractical to implement active management strategies for bonds. Actively-managed bond funds typically buy and sell assets instantaneously based on highly volatile market movements in interest rates. Another key reason active portfolio management is impractical for St. John's investment fund is that the value of available investment funds is too low. Assuming that very good active management can provide an increased yield of 10 basis points over an index benchmark, then for a \$50,000 investment the additional gain is only  $0.1\% * \$50,000 = \$50$ . The trading costs must also be factored in. With trading costs included, active management of a bond portfolio will likely under-perform a passively-managed portfolio by a wide margin. Active management is only feasible when the total value of managed assets is very high, in which case trading costs are relatively smaller. Therefore, we recommend using the passive management style for the bond portfolio.

Since some passive strategies involve minimal portfolio rebalancing, it is consistent with our objectives and policy guidelines of a long-term investment strategy. The indexed portfolio strategy attempts to replicate the performance of some broad-based bond index. This type of portfolio requires frequent and periodic re-balancing. Since changes to the composition of assets in St. John's endowment fund are infrequent, the indexed bond portfolio strategy is not suitable. Another type of passive strategy is the buy and hold to maturity type of bond portfolio. This type of portfolio strategy does not require frequent adjustments, except when assets mature and new

assets are considered as replacements. Thus, we recommend buying and holding assets in the portfolio over the life of the notes to receive investment returns in the form of interest income.

### **3. Risks to portfolio**

#### **Reinvestment Risk**

When a bond matures, it is not likely to be able to maintain the yield to maturity at the time of purchase of a replacement bond since market rates fluctuate over time. For example, the current yield to maturity on a 2-year treasury note is approximately 4.8%. When this note matures two years later, the interest rates will likely be different. If the interest rates two years later fall to say 3%, then we cannot achieve the high 4.8% yield that we expected earlier. This is known as *reinvestment risk*. In addition to reinvestment risk of a maturing note, the coupons also face reinvestment risk. It is extremely unlikely that all coupons can be reinvested at the same interest rate as the original yield-to-maturity. Two characteristics of a bond determine the degree of reinvestment risk of the coupons, namely, the maturity and the coupon rate. For a given yield to maturity and a given coupon rate, the longer the maturity the greater the reinvestment risk. For a given maturity and a given yield to maturity, the higher the coupon rate the greater the reinvestment risk. A zero-coupon bond has no reinvestment risk if held to maturity because no coupon is paid and therefore no reinvestment of the coupon is required during the life of a zero-coupon bond.

To deal with reinvestment rate risk when bonds mature, we can divide the bond portfolio so that only a portion of it matures at any one time. For example, if the bond assets are equally invested in 1-year, 2-year, 3-year, 4-year, and 5-year maturities, then only 20% of the assets mature each year. Therefore, only 20% of the portfolio is exposed to reinvestment risk. Furthermore, since reinvestment is executed every year, the probability of large changes in interest rates over a one year time period is reduced. The coupons are not reinvested in new bonds because the value is too small to do so. Instead the coupons can be invested in a high-yield money market account.

#### **Interest Rate Risk**

Interest rate risk is the risk that bond prices will fall if market interest rates rise, and is the main form of market risk. The traditional measures of interest rate risk are *modified duration* and

*convexity*. In a flat yield curve environment, analysts usually have different explanations for its existence. Some analysts of yield curve shapes point out that the interest rate will end up rising due to the effects of Federal Reserve Committee in curbing inflation. On the other hand, other analysts claim that interest rates may increase further if there is less capital inflow into the United States in the future. This might occur when foreign central banks ease their monetary policies and reduce capital outflows if the United States enters into a low-interest rate environment.

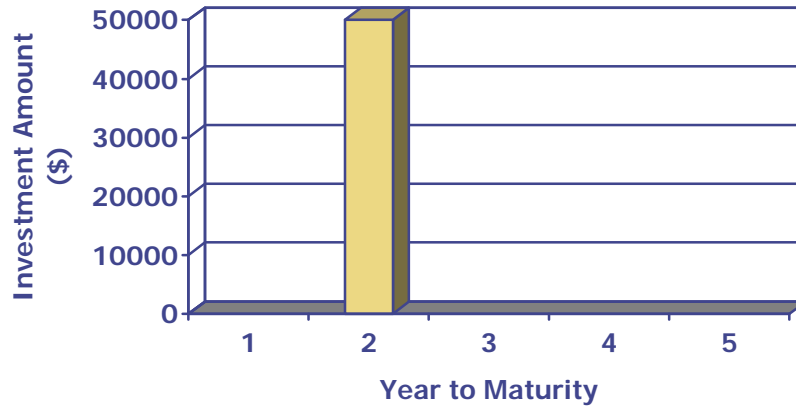
Accurate forecasting of the trends in interest rates is difficult. However, we can reduce the exposure to the interest rate risk by constructing a laddered portfolio. By investing in notes with different maturities, we spread the overall interest risk over a long horizon. The value of shorter-term notes, because the duration is shorter will not be highly affected by increases in interest rates. The longer-term notes, although having higher durations and therefore more exposure to interest rate risk, do provide higher yields. But since we decide on adopting a buy-and hold strategy, the interest rate risk is not really an important factor, because the bonds are held to maturity. We don't intend to sell the bonds before they mature; therefore we don't incur any capital losses even if changes in market interest rates affect the value of the bonds.

## ***B. Construction of Portfolio***

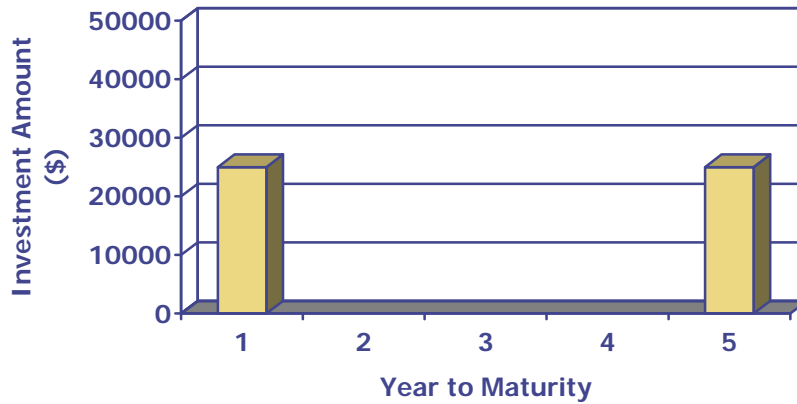
### **1. Selecting a portfolio structure**

There are three commonly used structured portfolio strategies, including the *Bullet*, *Barbell* and *Laddered* strategies. In a bullet structure, the maturity of the bonds in the portfolio is highly concentrated at one point on the yield curve which could satisfy a single liability as shown below. In a barbell structure, the maturity of the bonds is concentrated at two extreme maturities as shown below, enabling it to only address two liabilities with differing maturities.

*Figure 1 - Bullet Structure*

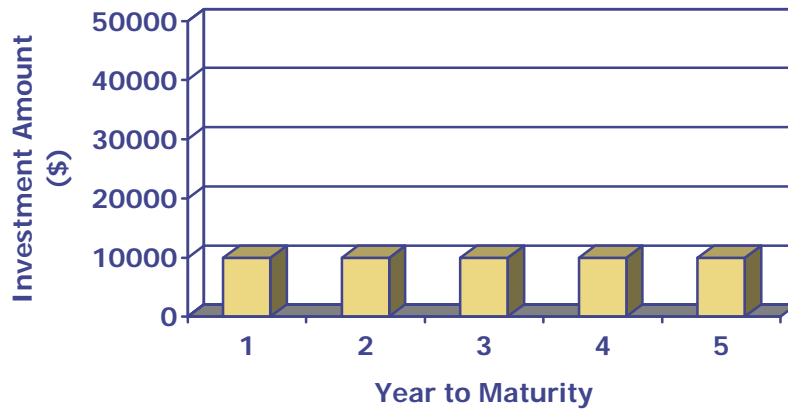


*Figure 2 - Barbell Structure*



We have selected the Laddered structure as the preferred strategy as compared with the Bullet and the Barbell, because it spreads reinvestment risk over a long time horizon and the effects of overall interest rate changes to bond pricing will be averaged. In addition, constructing a laddered portfolio meets the requirements of the endowment fund for generating a stream of income. In a laddered structure, bonds have equally spaced maturities. For example, as shown in the diagram below, a portfolio might have equal amounts invested in bonds with one year to maturity, two years to maturity, and so forth.

*Figure 3 - Laddered Portfolio*



## **2. Selecting portfolio assets**

Fixed-income securities have a predictable stream of payments and repayment of principal. The diversity of fixed-income securities presents investors with flexible choices to tailor investments to meet their obligations or expenses. Fixed-income securities inherently have less volatility and risks than stocks. Therefore, the school's investment fund should consist of fixed-income securities in order to diversify portfolio holdings and reduce overall risk.

Treasury securities are the optimal choice for the fund. Compared to treasury notes, corporate bonds have some default risk and callable risk. Municipal bonds have lower returns on investment and their tax advantages do not apply to St. John's fund.

Treasury securities includes Treasury notes and treasury STRIPS. Since stripped securities are available only through proprietary programs of a few firms, they are less liquid than Treasury notes. Therefore, we do not consider STRIPS.

Treasury notes can be classified as on-the-run and off-the-run notes. On-the-run notes are the most recently issued treasury securities while off-the-run notes were issued at previous auctions with nearly identical terms to maturity. On-the-run notes are more liquid than notes from prior

issuances. Also on-the-run Treasury securities trade at higher prices relative to off-the-run Treasury securities due to higher liquidity, resulting in lower yield. There are limited types of treasury securities available at auction (see table of U.S. Treasuries) and only brokers or dealers can buy treasuries at auction. On the other hand, many off-the-run notes are available in the secondary bond market. It makes no difference whether to purchase on-the-run or off-the-run securities since our strategy is buy-and-hold. The return on investment of on-the-run and off-the-run notes is compared below.

### ***C. Performance Comparison of Sample Portfolios***

#### **1. Comparison of T-notes and AAA-rated corporate bond portfolios**

We chose 1-year, 2-year, 3-year, 4-year, and 5-year maturity treasury notes and corporate bonds from the secondary bond market. The portfolios are constructed based on the assumption that the prices of notes will be constant with those at the time of purchase. We also assume the investment date is May 15 2006 in order to calculate the modified duration. The following two tables show data for the bonds used in constructing the sample portfolios.

***Table 7 - Sample Treasury Notes***

Assets	Annual Coupon	Coupon Frequency/year	Maturity Date	Settlement Date	Annual YTM	Modified Duration
T-note (1yr maturity)	3.13%	2	15-May-07	5/15/2006	4.882%	0.9686
T-note (2yr maturity)	3.75%	2	15-May-08	5/15/2006	4.883%	1.8984
T-note (3yr maturity)	3.88%	2	15-May-09	5/15/2006	4.883%	2.7905
T-note (4yr maturity)	3.88%	2	15-May-10	5/15/2006	4.847%	3.6497
T-note (5yr maturity)	4.50%	2	28-Feb-11	5/15/2006	4.847%	4.2197

Source: [www.yahoo.com](http://www.yahoo.com)



**Table 8- Sample Corporate Bonds**

Assets	Annual Coupon	Coupon Frequency/year	Rating	Maturity Date	Settlement Date	Annual YTM	Modified Duration
GE (1yr maturity)	3.375%	2	AAA	15-May-07	5/15/2006	4.601%	0.969
US Central Credit Union (2yr maturity)	2.750%	2	AAA	30-May-08	5/15/2006	4.960%	1.925
GE (3yr maturity)	3.250%	2	AAA	15-Jun-09	5/15/2006	5.043%	2.844
Orange&Rockland (4yr maturity)	7.500%	2	AAA	15-Jun-10	5/15/2006	4.945%	3.435
GE (5yr maturity)	6.125%	2	AAA	22-Feb-11	5/15/2006	5.231%	4.063

*Source: Charles Schwab. All corporate bonds are non-callable.*

The calculation of weighted-average modified duration and weighted-average annual YTM is shown in the two tables below. The difference between the two portfolios is only 9 basis points. For an investment of \$50,000, the difference in annual return is only \$45. Therefore, investing in the sample corporate bond portfolio instead of a treasury notes portfolio will provide a gain of only \$45 at the cost of the default premium on the corporate bonds.

At the present time, the yield spread between treasury and corporate bonds is about 30 basis points, which is at a historically low level. If we are able to find corporate bonds with yields-to-maturity of 30 basis points higher than treasury notes, then the added return on a \$50,000 investment in corporate bonds is about  $0.3\% * \$50,000 = \$150$ . Even though the default risk on AAA-corporate bonds is miniscule, the extra return of \$150 is not worth it to take on the default risk, especially for a fund with a conservative investment policy such as St. John's.

If we decide to purchase corporate bonds, we must take into account that the fund's guidelines limit investment in a single asset to no more than 3% of total assets. We would then have to buy 5 different corporate bonds. In deciding which corporate bonds to buy, we would have to do our due diligence and perform an extensive credit analysis of each of the companies. This is fine for educational purposes, but not feasible considering that \$30 extra in return for each company's

bonds is all we gain. However, if the spread between corporate bonds and treasuries increases, then it might be worthwhile to consider the higher yields on corporate bonds. In sum, a portfolio consisting of treasury notes is recommended.

**Table 9 - YTM and Modified Duration of Treasury Notes Portfolio**

Assets	Maturity	Modified Duration	weights	Modified Duration*weights	Annual YTM	Annual YTM*weights
T-note (1yr maturity)	7/31/2007	0.9686	20%	0.1937	4.88%	0.9764%
T-note (2yr maturity)	8/15/2008	1.8984	20%	0.3797	4.88%	0.9766%
T-note (3yr maturity)	5/15/2008	2.7905	20%	0.5581	4.88%	0.9766%
T-note (4yr maturity)	7/15/2009	3.6497	20%	0.7299	4.85%	0.9694%
T-note (5yr maturity)	2/15/2010	4.2197	20%	0.8439	4.85%	0.9694%
			100%	2.7054		4.8684%

**Table 10- YTM and Modified Duration of Corporate Bonds Portfolio**

Assets	Maturity	Modified Duration	weights	Modified Duration*weights	Annual YTM	Annual YTM*weights
GE (1yr maturity)	15-May-07	0.969	20%	0.194	4.601%	0.920%
US Central Credit Union (2yr maturity)	30-May-08	1.925	20%	0.385	4.960%	0.992%
GE (3yr maturity)	15-Jun-09	2.844	20%	0.569	5.043%	1.009%
Orange&Rockland (4yr maturity)	15-Jun-10	3.435	20%	0.687	4.945%	0.989%
GE (5yr maturity)	22-Feb-11	4.063	20%	0.813	5.231%	1.046%
			100%	2.647		4.956%

## 2. Comparison of on-the-run with off-the-run notes

We chose a 2-year maturity, 3-year maturity and 5-year maturity notes from the secondary bond market. The off-the-run notes portfolio is constructed based on the assumption that the prices of notes will be constant with those at the time of purchase. We also assume the investment date is on May 15 2006 in order to calculate the modified duration. The calculation of weighted-average modified duration and weighted-average annual YTM is shown in the tables below. The difference between the performance characteristics is negligible.

*Table 11 - YTM and Modified Duration of Off-the-Run Treasury Notes Portfolio*

Assets	Maturity	Modified Duration	weights	Modified Duration* weights	Annual YTM	Annual YTM* weights
2-Year	8/15/2008	1.9003	33%	0.6334	4.69%	1.5630%
3-year	5/15/2008	2.7942	33%	0.9314	4.65%	1.5497%
5-year	2/15/2010	4.2276	<u>33%</u>	1.4092	4.61%	1.5353%
			100%	2.9741		4.6480%

*Table 12 - YTM and Modified Duration of On-the-Run Treasury Notes Portfolio*

Assets	Maturity	Modified Duration	weights	Modified Duration* weights	Annual YTM	Annual YTM* weights
2-Year	2/29/2008	1.687436304	33%	0.56247877	4.65%	1.550000%
3-year	2/15/2009	2.534693784	33%	0.84489793	4.64%	1.546667%
5-year	2/28/2011	4.227172345	<u>33%</u>	<u>1.40905745</u>	4.62%	<u>1.540000%</u>
			100%	2.81643414		4.636667%

The yield spread between the on-the-run versus off-the-run portfolio is only 1 basis point. For a \$60,000 investment, this means the difference in annual return is only \$6. Modified Duration of

2.9741 for off-the-run portfolio means that a 100 basis point parallel shift of the yield curve will cause the market value of the bond portfolio to change by 2.9741%. The difference between the weighted-average modified duration for the off-the-run portfolio and on-the-run portfolio is 0.1577%. This means that these two portfolio have little difference in exposure to price volatility. Therefore, the treasury notes should be purchased without regard to its status as on-the-run or off-the-run. The determining factor should be selecting the higher yield-to-maturity based on the ask price.

### 3. Comparison of portfolio structures

We use 1-year notes to construct a bullet portfolio, the 1-year and 5-year treasury notes to construct a bullet portfolio, and the 1-year, 2-year, 3-year, 4-year, and 5-year notes to construct a ladder portfolio. The table below shows the characteristics of the three different portfolio structures.

*Table 13 - YTM and Modified Duration for Different Portfolio Structures*

Portfolio	Weighted-Average YTM	Weighted-Average Modified Duration
Bullet Portfolio (1-year note)	4.693%	0.969
Barbell Portfolio (1 and 5 yr notes)	4.650%	2.599
Laddered Portfolio (1,2,3,4,5 yr notes)	4.656%	2.709

We can see the differences among the returns of the three portfolio structures are negligible. Based on the advantages of the ladder portfolio, namely that it reduces exposure to interest rate risk and reinvestment risk, we propose adopting this type of portfolio structure.

## **V. RECOMMENDED STRATEGY**

### ***A. Buy-and-Hold Portfolio***

As a risk-free asset, treasury securities are the optimal choice for diversification of the endowment fund in which the equity is the only risky investment asset. We choose the passive portfolio strategy based on these conditions: (1) low risk tolerance; (2) no taxation effect; (3) an infinite time horizon. The active management of bond portfolio is impractical because of the lack of a regular portfolio management for monitoring the changes in the interest rate and deciding to sell and buy accordingly. Investing in different maturity notes can help spread various risks over a longer horizon. Therefore, we recommend investing \$10,000 each 1-year, 2-year, 3-year, 4-year, and 5-year notes. At time of writing, there was just over \$63,000 investment amount. If no more than \$10,000 is invested per bond, then the investment guideline that no more than 3% of assets will be invested in any one security is still satisfied. (Actually, with \$10,000 in each bond, it is about 3.03% of total assets) The overall strategy is summarized below:

- Invest total of \$50,000 in U.S. Treasury Notes.
- Set-up a laddered portfolio of notes, dividing investment equally in notes with 1-year, 2-year, 3-year, 4-year, and 5-year maturities.
- Upon maturity of each note, re-invest in another 5-year note.
- Invest remaining cash balance in broker's money market account.

### ***B. Management of Cash Assets***

The broker, e\*Trade, provides a money market account that earns different annual percentage yields based on the account balance. Therefore, we propose to invest any remaining cash in a money market fund. However, the minimum amount invested should be \$5000 in order to receive a reasonable yield (2.75%). If less than that amount is invested in the money market fund, then the yield is only 0.30%, which is less than the yield on the broker's cash sweep account. Furthermore, any stock dividends and coupons received can and should be deposited into a money market fund. If these funds are left in the cash sweep account, the earnings will be too low. The current yields on the broker's money market account are shown below.

**Table 14 - E\*Trade Money Market Rates (as of March 16, 2006)**

Account Balance	APY
\$100,000.00+	3.60%
\$50,000.00-\$99,999.99	3.60%
\$5,000.00-\$49,999.99	2.75%
\$0.00-\$4,999.99	0.30%

### ***C. Maintenance of Laddered Bond Portfolio***

After the initial implementation of the bond portfolio, students in future classes should periodically evaluate the weight of the equity holdings in the investment fund versus the weight of the fixed-income allocation and adjust the weights according to economic conditions. For example, if yields on bonds become sufficiently high, then it might be reasonable to sell equity holdings and invest the proceeds in bonds.

Upon the maturity of each note, students should recommend a replacement bond. And if the spread between high quality corporate bonds and treasuries increases, then it might be worthwhile to replace with corporate bonds, in which case detailed credit analyses must be performed. One final consideration is that if the shape of the yield curve becomes steeper, then longer term bonds such as 10-year bonds might be worthwhile to include in the bond portfolio.

# APPENDICES

Tentative Auction Schedule of U.S. Treasury Securities  
E\*Trade Cash Sweep Account

A-1  
A-2

# Tentative Auction Schedule of U.S. Treasury Securities

Tentative Auction Schedule of U.S. Treasury Securities			
Security Type	Announcement Date	Auction Date	Settlement Date
3-year note	Wednesday, February 1, 2006	Tuesday, February 7, 2006	Wednesday, February 15, 2006
10-year note	Wednesday, February 1, 2006	Wednesday, February 8, 2006	Wednesday, February 15, 2006
30-year bond	Wednesday, February 1, 2006	Thursday, February 9, 2006	Wednesday, February 15, 2006
13- & 26-week bill	Thursday, February 2, 2006	Monday, February 6, 2006	Thursday, February 9, 2006
4-week bill	Monday, February 6, 2006	Tuesday, February 7, 2006	Thursday, February 9, 2006
13- & 26-week bill	Thursday, February 9, 2006	Monday, February 13, 2006	Thursday, February 16, 2006
4-week bill	Monday, February 13, 2006	Tuesday, February 14, 2006	Thursday, February 16, 2006
13- & 26-week bill	Thursday, February 16, 2006	Tuesday, February 21, 2006	Thursday, February 23, 2006
2-year note	Thursday, February 16, 2006	Wednesday, February 22, 2006	Tuesday, February 28, 2006
5-year note	Thursday, February 16, 2006	Thursday, February 23, 2006	Tuesday, February 28, 2006
Holiday—Monday, February 20, 2006—President's Day			
4-week bill	Tuesday, February 21, 2006	Wednesday, February 22, 2006	Thursday, February 23, 2006
13- & 26-week bill	Thursday, February 23, 2006	Monday, February 27, 2006	Thursday, March 2, 2006
4-week bill	Monday, February 27, 2006	Tuesday, February 28, 2006	Thursday, March 2, 2006
13- & 26-week bill	Thursday, March 2, 2006	Monday, March 6, 2006	Thursday, March 9, 2006
4-week bill	Monday, March 6, 2006	Tuesday, March 7, 2006	Thursday, March 9, 2006
10-year note (r)	Monday, March 6, 2006	Thursday, March 9, 2006	Wednesday, March 15, 2006
13- & 26-week bill	Thursday, March 9, 2006	Monday, March 13, 2006	Thursday, March 16, 2006
4-week bill	Monday, March 13, 2006	Tuesday, March 14, 2006	Thursday, March 16, 2006
13- & 26-week bill	Thursday, March 16, 2006	Monday, March 20, 2006	Thursday, March 23, 2006
4-week bill	Monday, March 20, 2006	Tuesday, March 21, 2006	Thursday, March 23, 2006
13- & 26-week bill	Thursday, March 23, 2006	Monday, March 27, 2006	Thursday, March 30, 2006
2-year note	Thursday, March 23, 2006	Monday, March 27, 2006	Friday, March 31, 2006
5-year note	Thursday, March 23, 2006	Wednesday, March 29, 2006	Friday, March 31, 2006
4-week bill	Monday, March 27, 2006	Tuesday, March 28, 2006	Thursday, March 30, 2006
13- & 26-week bill	Thursday, March 30, 2006	Monday, April 3, 2006	Thursday, April 6, 2006
4-week bill	Monday, April 3, 2006	Tuesday, April 4, 2006	Thursday, April 6, 2006
13- & 26-week bill	Thursday, April 6, 2006	Monday, April 10, 2006	Thursday, April 13, 2006
4-week bill	Monday, April 10, 2006	Tuesday, April 11, 2006	Thursday, April 13, 2006
10-year TIPS (r)	Monday, April 10, 2006	Wednesday, April 12, 2006	Monday, April 17, 2006
13- & 26-week bill	Thursday, April 13, 2006	Monday, April 17, 2006	Thursday, April 20, 2006
4-week bill	Monday, April 17, 2006	Tuesday, April 18, 2006	Thursday, April 20, 2006
13- & 26-week bill	Thursday, April 20, 2006	Monday, April 24, 2006	Thursday, April 27, 2006
5-year TIPS	Thursday, April 20, 2006	Tuesday, April 25, 2006	Friday, April 28, 2006
4-week bill	Monday, April 24, 2006	Tuesday, April 25, 2006	Thursday, April 27, 2006
2-year note	Monday, April 24, 2006	Wednesday, April 26, 2006	Monday, May 1, 2006
5-year note	Monday, April 24, 2006	Thursday, April 27, 2006	Monday, May 1, 2006
13- & 26-week bill	Thursday, April 27, 2006	Monday, May 1, 2006	Thursday, May 4, 2006
4-week bill	Monday, May 1, 2006	Tuesday, May 2, 2006	Thursday, May 4, 2006
3-year note	Wednesday, May 3, 2006	Tuesday, May 9, 2006	Monday, May 15, 2006
10-year note	Wednesday, May 3, 2006	Thursday, May 11, 2006	Monday, May 15, 2006
13- & 26-week bill	Thursday, May 4, 2006	Monday, May 8, 2006	Thursday, May 11, 2006
4-week bill	Monday, May 8, 2006	Tuesday, May 9, 2006	Thursday, May 11, 2006
13- & 26-week bill	Thursday, May 11, 2006	Monday, May 15, 2006	Thursday, May 18, 2006
4-week bill	Monday, May 15, 2006	Tuesday, May 16, 2006	Thursday, May 18, 2006
13- & 26-week bill	Thursday, May 18, 2006	Monday, May 22, 2006	Thursday, May 25, 2006
4-week bill	Monday, May 22, 2006	Tuesday, May 23, 2006	Thursday, May 25, 2006
2-year note	Monday, May 22, 2006	Wednesday, May 24, 2006	Wednesday, May 31, 2006
5-year note	Monday, May 22, 2006	Thursday, May 25, 2006	Wednesday, May 31, 2006
13- & 26-week bill	Thursday, May 25, 2006	Tuesday, May 30, 2006	Thursday, June 1, 2006
Holiday—Monday, May 29, 2006—Memorial Day			
4-week bill	Tuesday, May 30, 2006	Wednesday, May 31, 2006	Thursday, June 1, 2006
13- & 26-week bill	Thursday, June 1, 2006	Monday, June 5, 2006	Thursday, June 8, 2006
4-week bill	Monday, June 5, 2006	Tuesday, June 6, 2006	Thursday, June 8, 2006
10-year note (r)	Monday, June 5, 2006	Thursday, June 8, 2006	Thursday, June 15, 2006
13- & 26-week bill	Thursday, June 8, 2006	Monday, June 12, 2006	Thursday, June 15, 2006
4-week bill	Monday, June 12, 2006	Tuesday, June 13, 2006	Thursday, June 15, 2006
13- & 26-week bill	Thursday, June 15, 2006	Monday, June 19, 2006	Thursday, June 22, 2006
4-week bill	Monday, June 19, 2006	Tuesday, June 20, 2006	Thursday, June 22, 2006
13- & 26-week bill	Thursday, June 22, 2006	Monday, June 26, 2006	Thursday, June 29, 2006
4-week bill	Monday, June 26, 2006	Tuesday, June 27, 2006	Thursday, June 29, 2006
2-year note	Thursday, June 22, 2006	Tuesday, June 27, 2006	Friday, June 30, 2006
5-year note	Thursday, June 22, 2006	Wednesday, June 28, 2006	Friday, June 30, 2006
13- & 26-week bill	Thursday, June 29, 2006	Monday, July 3, 2006	Thursday, July 6, 2006
4-week bill	Monday, July 3, 2006	Wednesday, July 5, 2006	Thursday, July 6, 2006
Holiday—Tuesday, July 4, 2006—Independence Day			
13- & 26-week bill	Thursday, July 6, 2006	Monday, July 10, 2006	Thursday, July 13, 2006
4-week bill	Monday, July 10, 2006	Tuesday, July 11, 2006	Thursday, July 13, 2006
10-year TIPS	Monday, July 10, 2006	Thursday, July 13, 2006	Monday, July 17, 2006
13- & 26-week bill	Thursday, July 13, 2006	Monday, July 17, 2006	Thursday, July 20, 2006
4-week bill	Monday, July 17, 2006	Tuesday, July 18, 2006	Thursday, July 20, 2006
13- & 26-week bill	Thursday, July 20, 2006	Monday, July 24, 2006	Thursday, July 27, 2006
20-year TIPS (r)	Thursday, July 20, 2006	Tuesday, July 25, 2006	Monday, July 31, 2006
4-week bill	Monday, July 24, 2006	Tuesday, July 25, 2006	Thursday, July 27, 2006
2-year note	Monday, July 24, 2006	Wednesday, July 26, 2006	Monday, July 31, 2006
5-year note	Monday, July 24, 2006	Thursday, July 27, 2006	Monday, July 31, 2006
13- & 26-week bill	Thursday, July 27, 2006	Monday, July 31, 2006	Thursday, August 3, 2006
4-week bill	Monday, July 31, 2006	Tuesday, August 1, 2006	Thursday, August 3, 2006



## E\*Trade Cash Sweep Account

### CASH & CASH EQUIVALENTS (19.47% of Holdings)

DESCRIPTION	QUANTITY	PRICE	OPENING BALANCE
CASH BALANCE			41.71
SWEEP DEPOSIT ACCOUNT			60,932.35
Sweep Deposit account is a bank deposit account with E*TRADE Bank, a Federal savings bank, Member FDIC. Sweep Deposit Accounts			
<b>TOTAL CASH &amp; CASH EQUIVALENTS</b>			<b>\$60,974.06</b>

### SWEEP DEPOSIT ACCOUNT ACTIVITY ( 0.6976% APY as of 01/31/06)

Sweep Deposit account is a bank deposit account with E\*TRADE Bank, a Federal savings bank, Member FDIC.

DATE	TRANSACTION TYPE	DESCRIPTION
01/01/06		OPENING BALANCE
01/03/06	Deposit	E TRADE FINANCIAL SWEEP DEPOSIT ACCT (FDIC-INS)
01/04/06	Deposit	E TRADE FINANCIAL SWEEP DEPOSIT ACCT (FDIC-INS)
01/26/06	Deposit	E TRADE FINANCIAL SWEEP DEPOSIT ACCT (FDIC-INS)
01/31/06		CLOSING BALANCE

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