

**Presentation to the U.S. Treasury
and the Treasury Borrowing
Advisory Committee**

May 3, 2005

Question

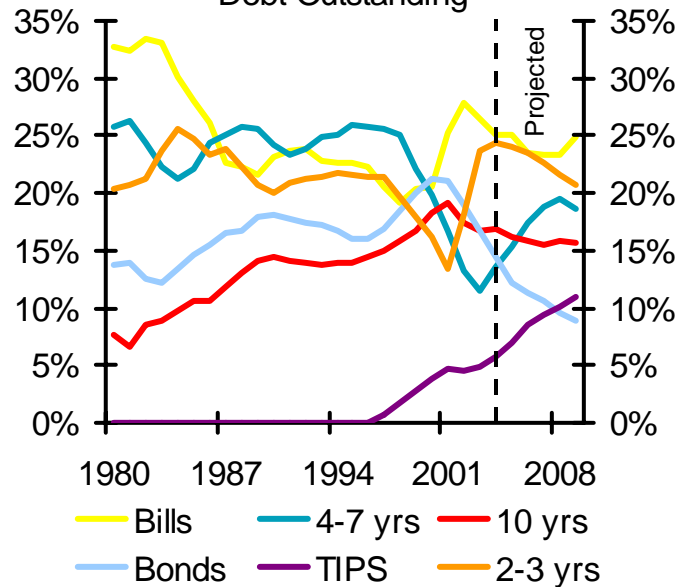
- Please discuss the characteristics of Treasury liability portfolio including average maturity of debt, steady state issuance and rollover. Do these metrics adequately capture the Treasury's policy concerns? Are there other metrics that we should be using to develop debt management policy?

What Does Treasury Liability Look Like?

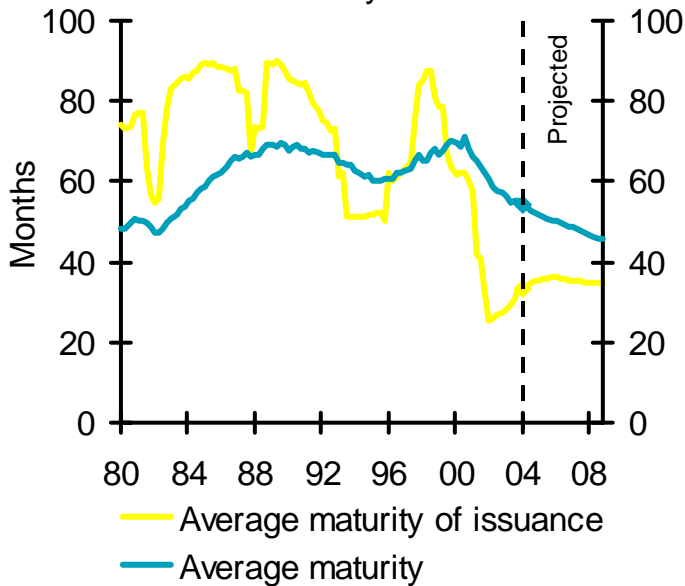
Debt Portfolio

- Average maturity of issuance has stabilized at roughly 3 years
- Maturity of total outstanding drops from 4.6 years to less than 4 years over the next 5 years
- Composition of nominal issuance is within historical ranges
- Current issuance patterns lead to a growing proportion of 5-year notes and TIPS in the portfolio
- The percent of debt maturing with 3 years or less to maturity is projected to remain stable at slightly more than 60%

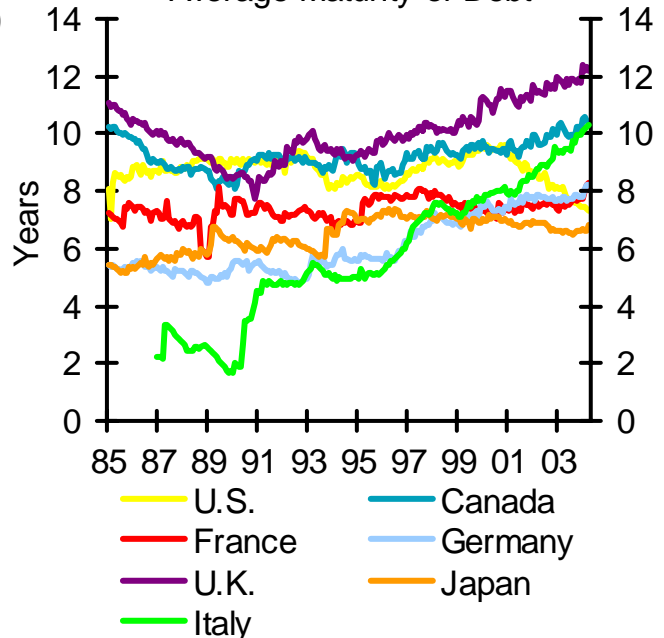
Distribution of Marketable Debt Outstanding



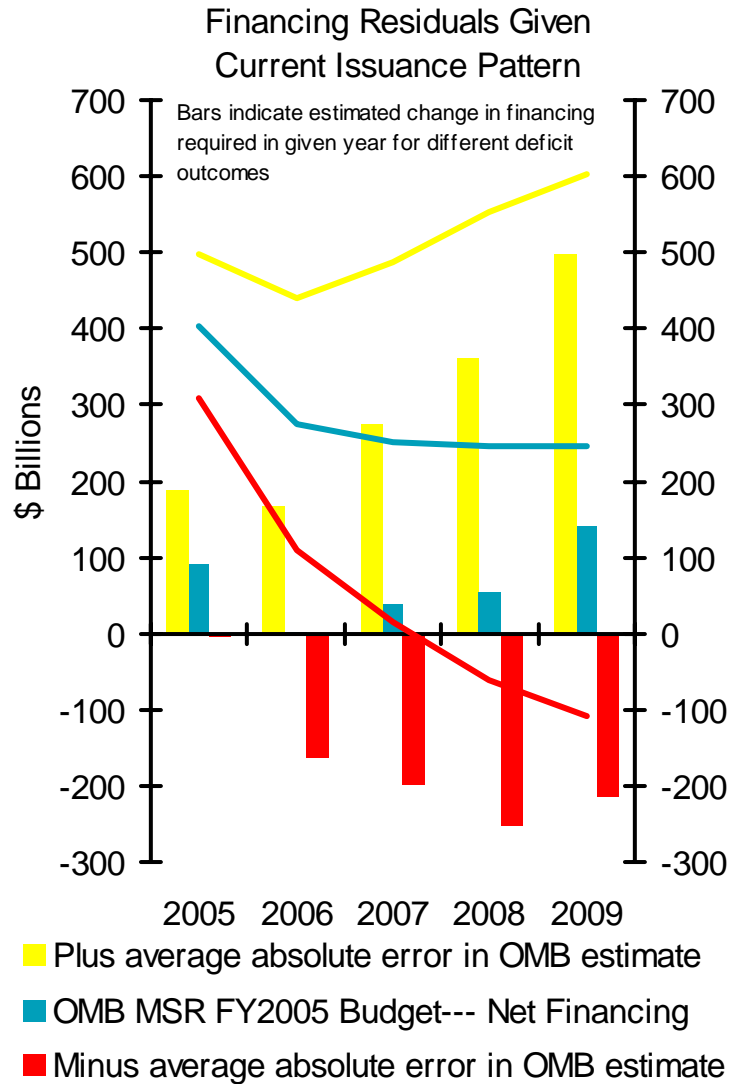
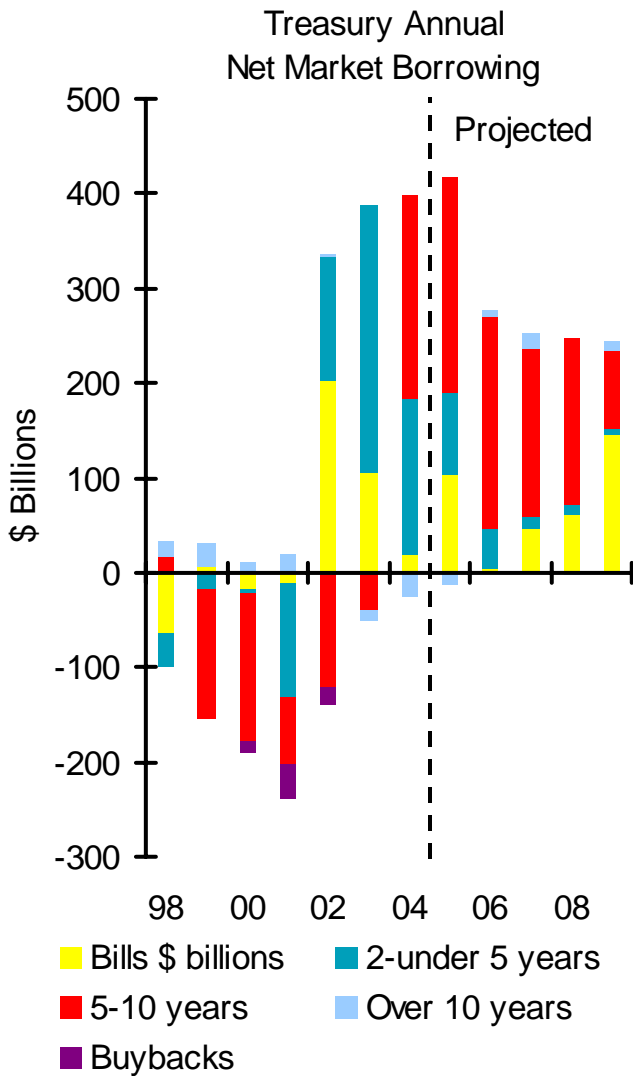
Debt Maturity Measures



Average Maturity of Debt

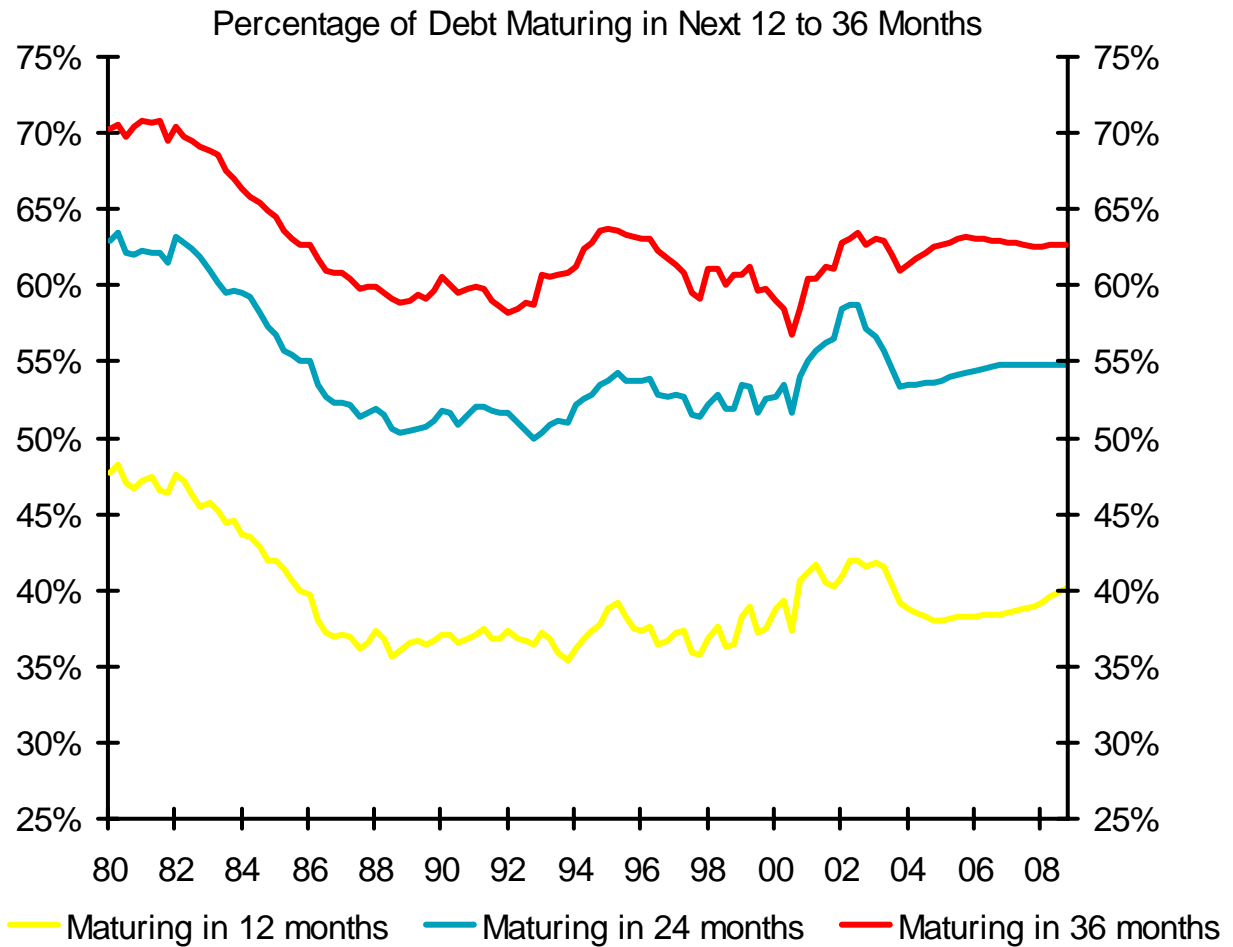


Steady State



- Bills, acting as residual borrowing device, start to increase in 2008. Need to decide if more permanent, longer-term issuance is warranted

Rollover Risk

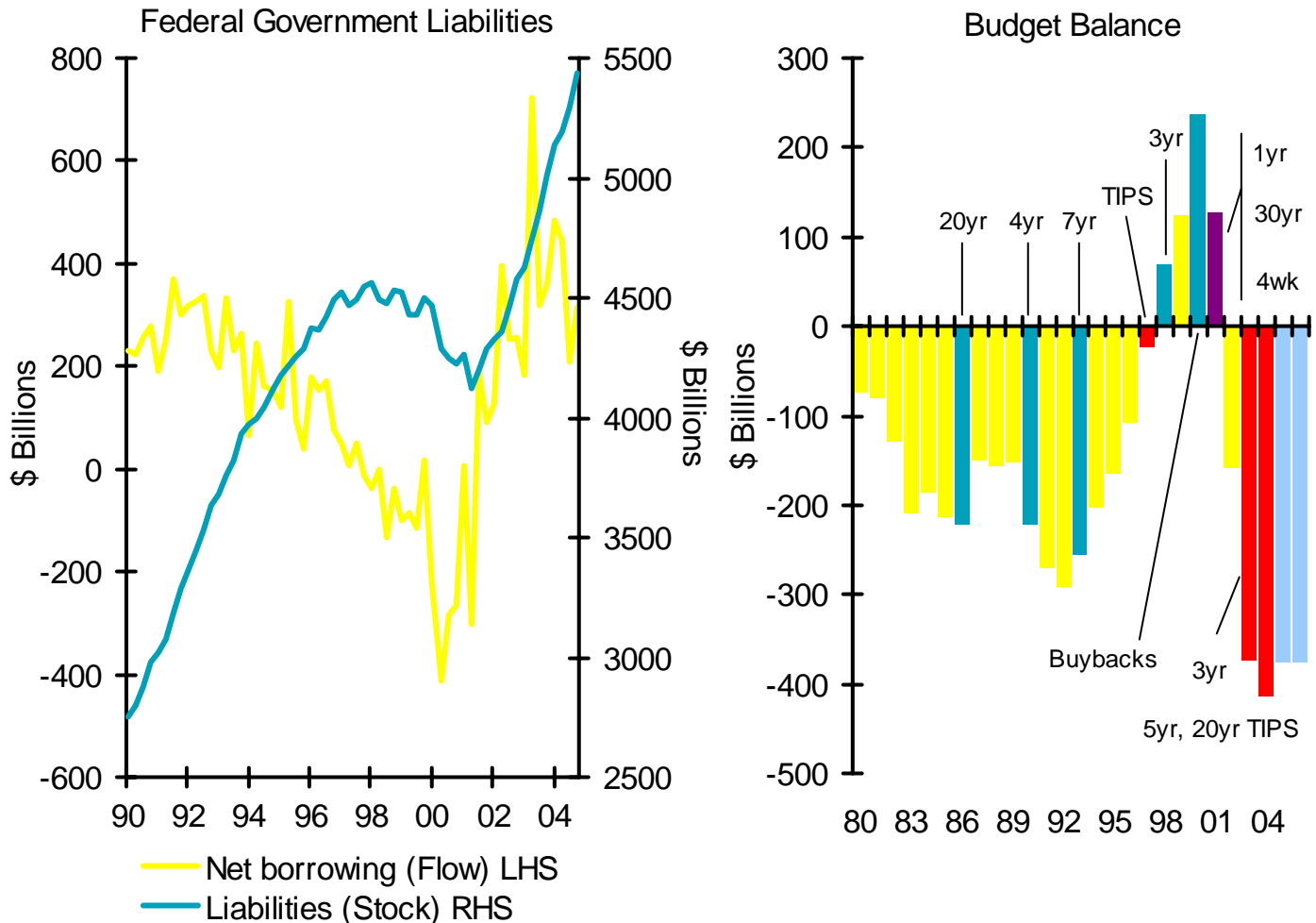


- Rollover risk not high by historic standards
- Ill-defined, not comparable to HY / EMG world

Objective Defined

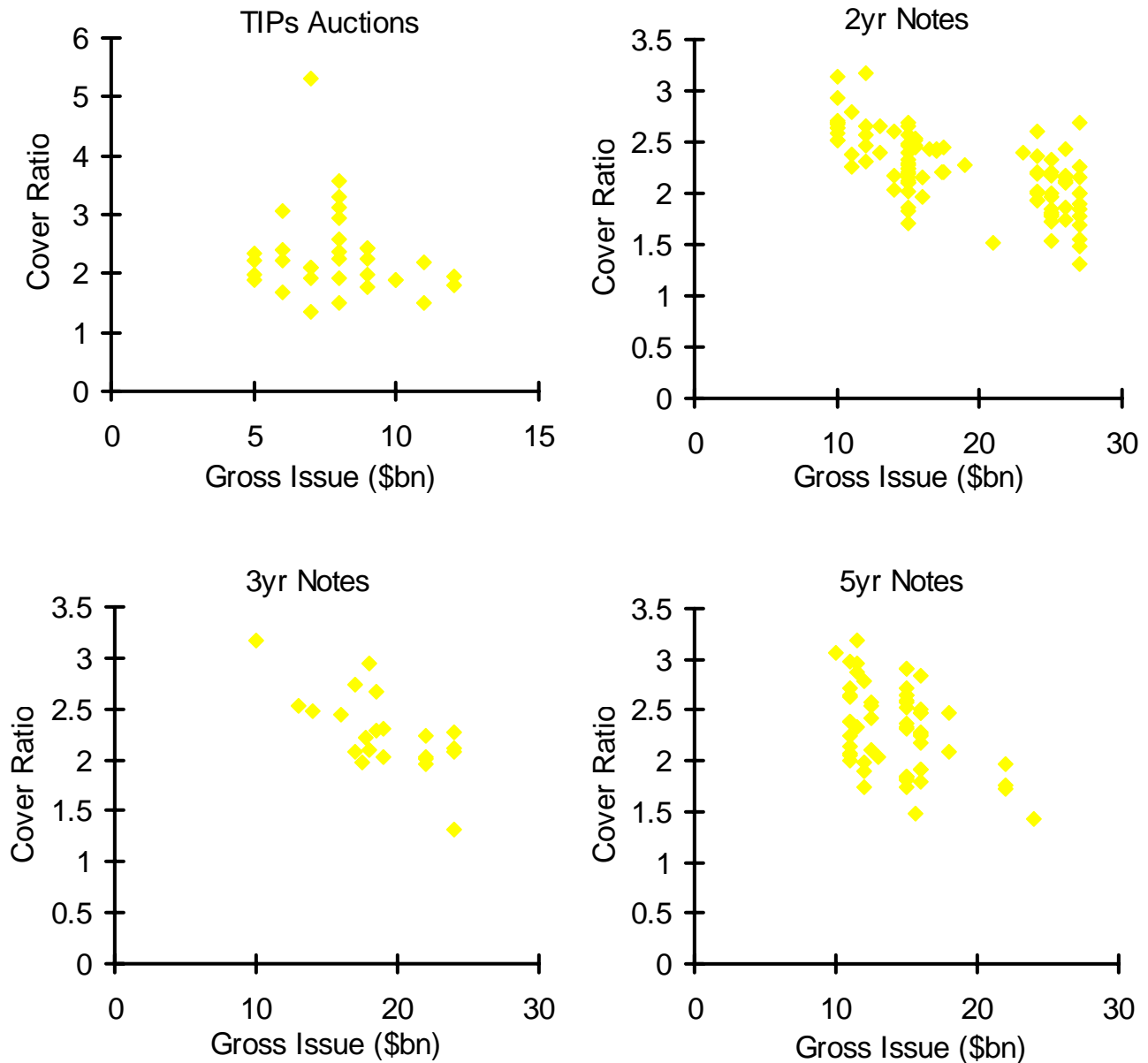
- Primary goal: Finance the government borrowing needs at the lowest cost over time
- Issue debt in a regular and predictable manner, provide transparency..., seek continuous improvements in the auction process
- Fisher “Treasury does not try to outsmart the market at any one moment, or (try) to be a “market timer” with respect to any particular shape of the yield curve”

Commentary, How Well Do They Capture Policy Concerns



- On balance, Treasury portfolio appears to be well balanced. Designed to meet the Treasuries objectives and provide flexibility for most possible outcomes
- Assymmetric risk profile, higher than expected borrowing needs will force Treasury action well before lower needs

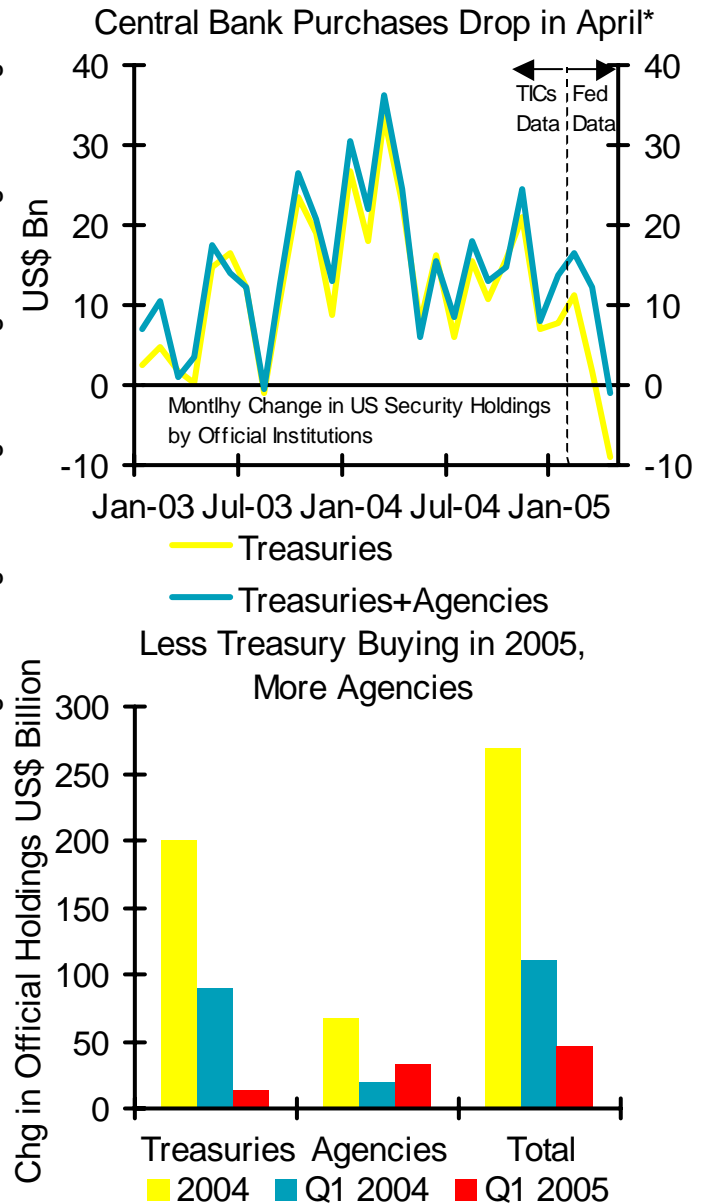
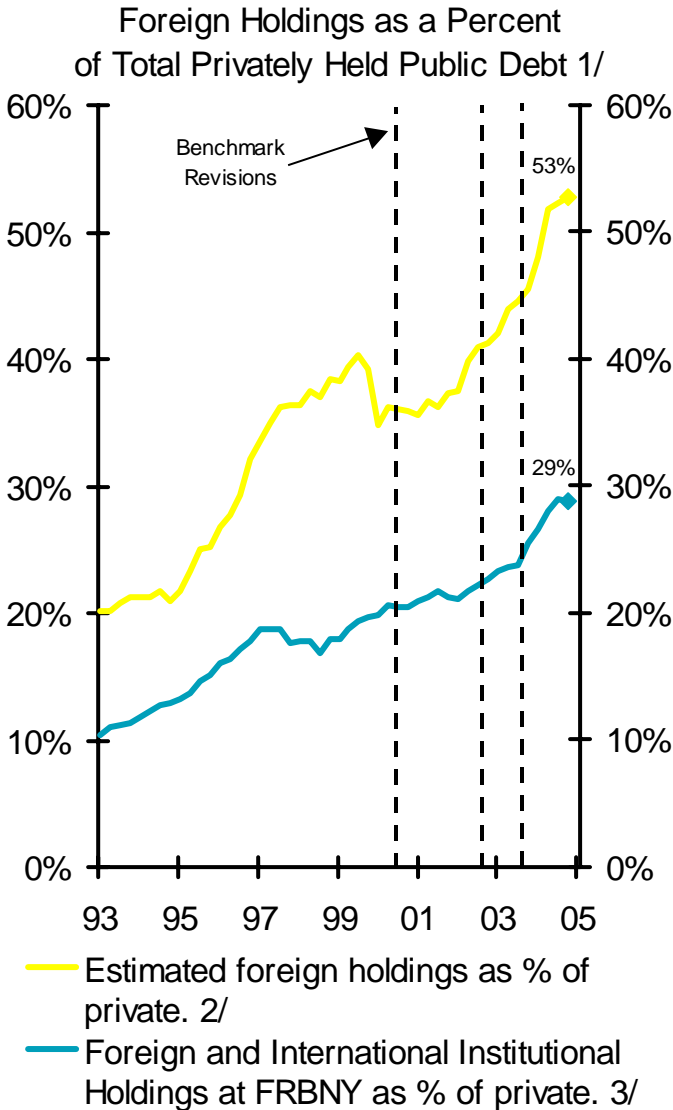
Demand and Traditional Auction Statistics



- Traditional auction statistics (bid / cover ratio and tail) don't help capture the demand function
- Only very low correlations with auction sizes
- Demand function unfortunately does not lend itself to precise calculations

Source: Wrightson

Demand and Foreign Participation



- Foreign participation in Primary and Secondary markets can be unpredictable
- Recommend better data collection, focus on long-term changes in their lending preferences

Source: Treasury Chart Book, Goldman Sachs

1/ Privately held debt excludes holdings of the Federal Reserve

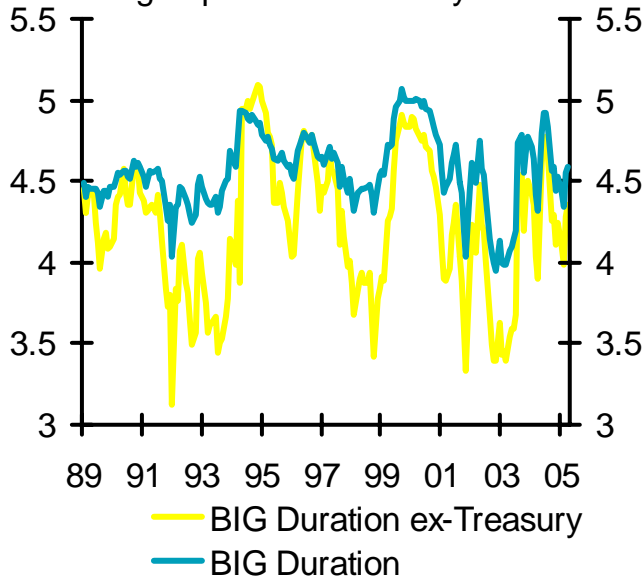
2/ Series for estimated foreign holdings. See www.treas.gov/tic/index.html for source data

3/ Source: Federal Reserve Bank of New York statistical release H4.1

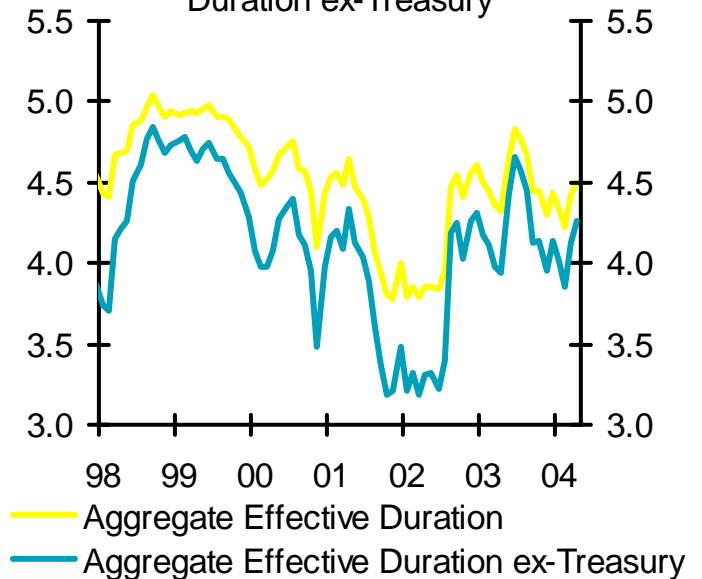
* Note: April 05 reading is the month to April 15

Demand and the Rest of the Fixed Income Universe

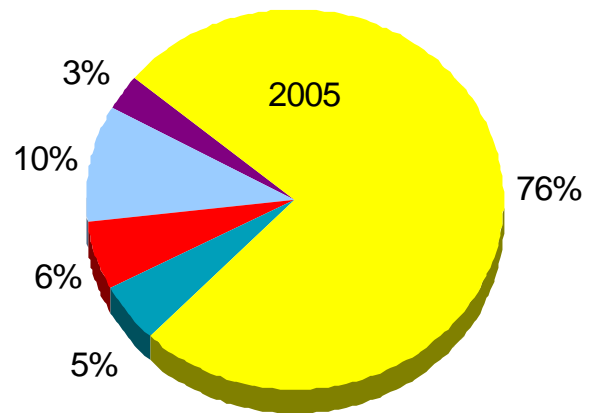
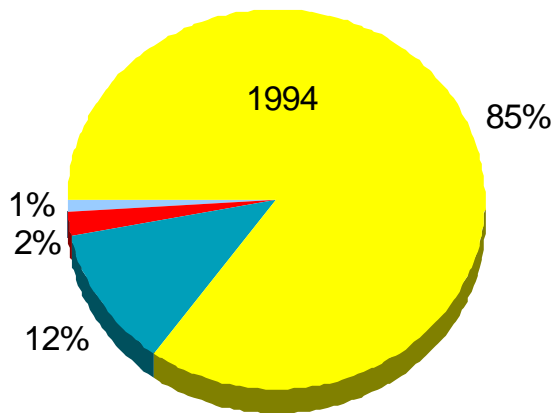
Citigroup BIG Index vs. Citigroup BIG ex-Treasury Index



Effective Duration vs. Effective Duration ex-Treasury



ARMs as Percentage of Overall MBS Universe

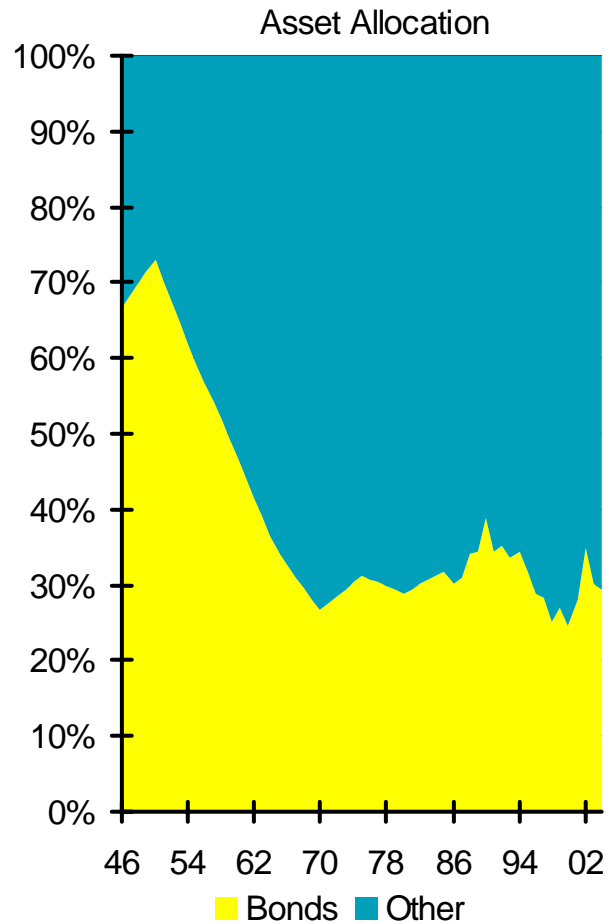
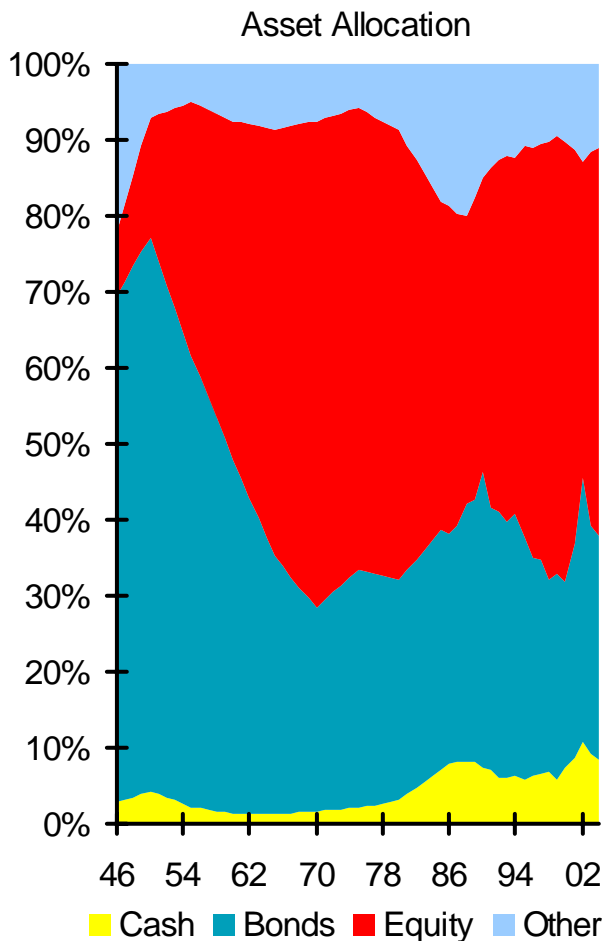


■ Fixed Rate ■ 1/1 Arm
■ 3/1 Arm ■ 5/1 Arm

■ Fixed Rate ■ 1/1 Arm
■ 3/1 Arm ■ 5/1 Arm
■ 7/1 Arm

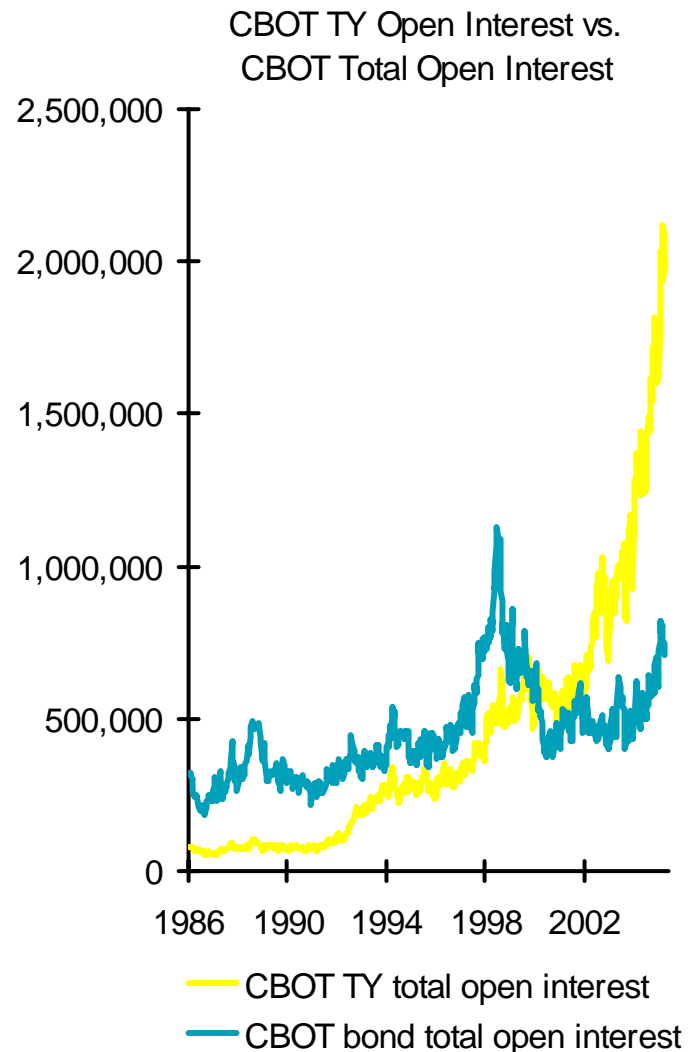
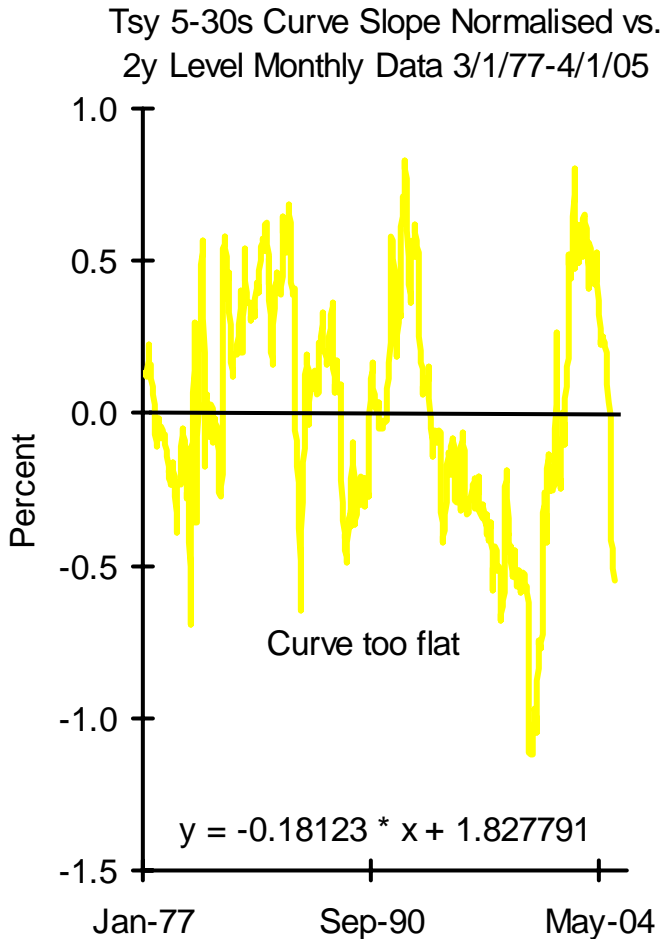
- Demand for Treasuries can be effected by the alternative Fixed Income Universe Space
- Example: A secular shift in the mortgage market could increase the demand for Treasuries relative to all other assets if demand for duration stays constant

Demand and Asset Allocation



- Shifts in asset allocation can have a dramatic impact on the demand for Treasuries
- Current pension fund dynamics strongly argue for better asset-liability management, perhaps increasing demand for long-term securities

Demand and the Yield Curve



- Yield curve should give Treasury a sense of the changing maturity preferences
- Simple regression of yield curve implies demand for longer maturities has increased, but will it persist?
- Liquidity for 30yr futures still far below intermediate maturities

Reality Check and the 30 Year Bond

	Market Value	% Market Value	% Duration
LBAG	\$ 8,188,057.00	100.0%	100%
Treasury	\$ 2,078,841.00	25.4%	30.4%
Long Treasury	\$ 516,270.00	6.3%	15.5%

Annual 30 Year Issuance	\$ 30,000.00	0.4%	1.3%
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- Focus on 30yr Bond issuance disproportionate to potential impact

**Presentation to the Treasury
Borrowing Advisory Committee**

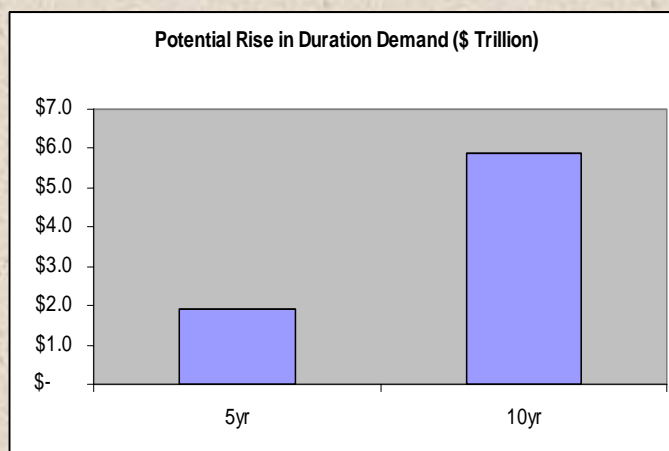
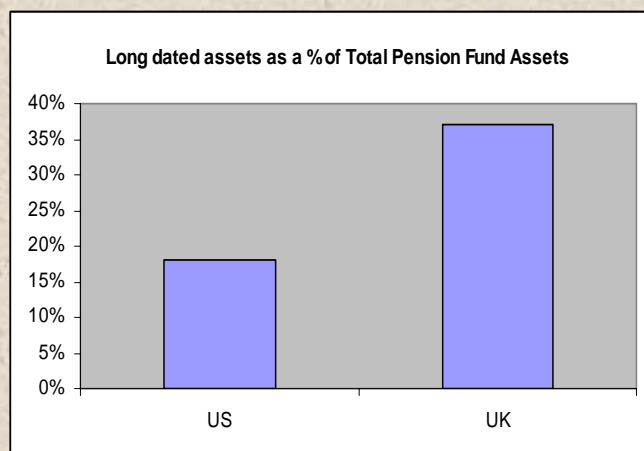
May, 2005

Question:

Please describe any trends in the Treasury market that you believe are significant to the Treasury as an issuer.

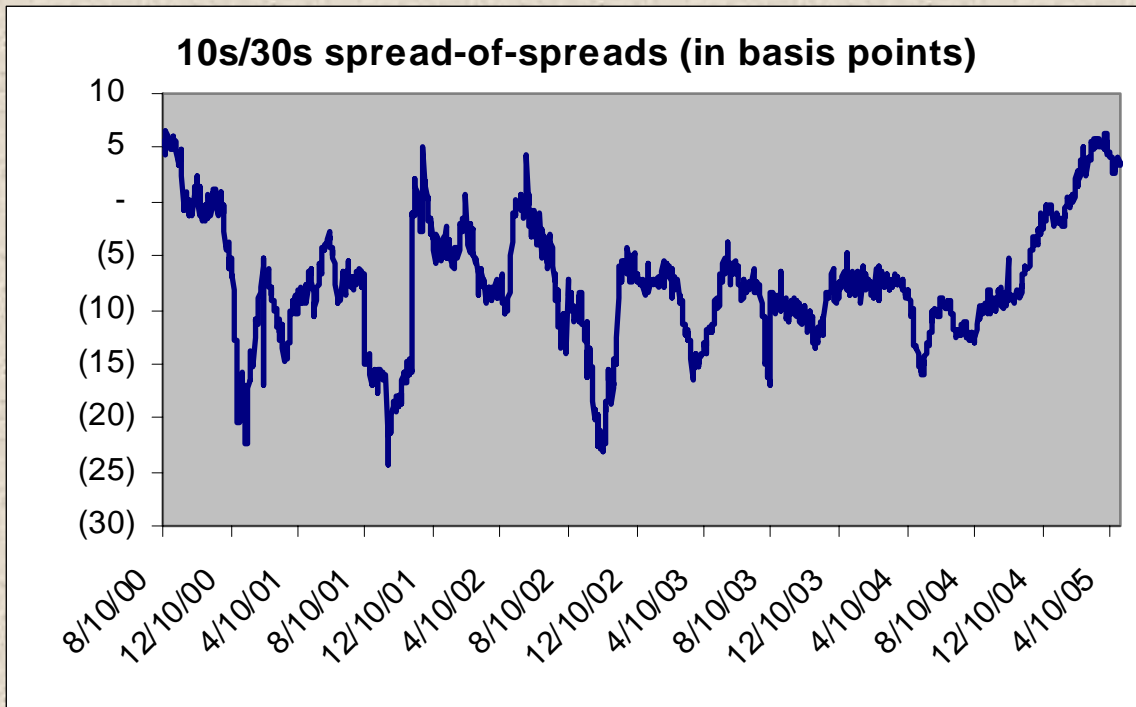
Long Duration Supply/Demand Imbalance

Pension Fund Reform: Well Understood Basics



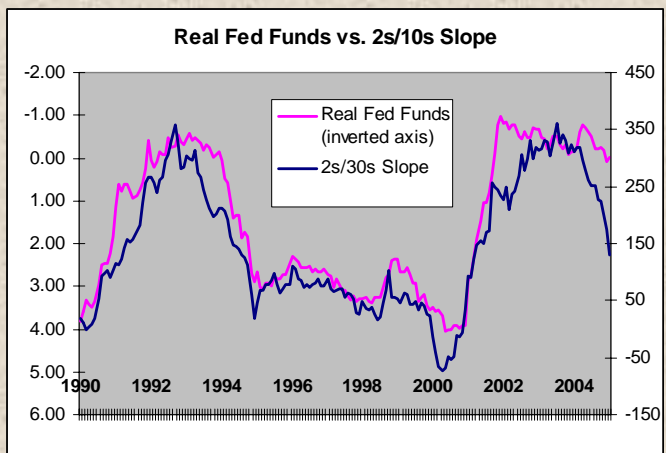
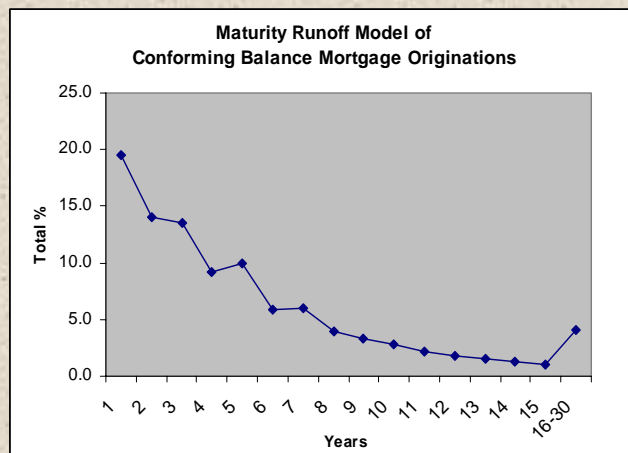
- At the end of 2004 the median asset allocation of Defined Benefit Plans was 60% equities and only 28% bonds.
- The PBGC indicated that pension plans are under funded by \$450b, a sharp contrast to an over funded position as recently as 2000.
- Pension plans have large duration mismatches between liabilities which average 12-16 years and assets which average approximately five years. Addressing this mismatch will create demand for long duration fixed income instruments, the availability of which is low relative to other countries such as the UK.
- Theoretically, the extra demand for dollar duration from the reform proposal could be as high as \$2 trillion assuming a 5-year duration mismatch, and over \$6 trillion assuming a 10-year duration mismatch. Key point is that pension reform could, to a greater or lesser degree, create demand for longer duration assets.
- Under-funded liabilities in pension funds is likely to create long duration demand even in the absence of reform given the implicit guarantee provided by the PBGC, backed by the treasury
- Supply/Demand imbalance further compounds curve flattening, creating a possible curve inversion between 10-year and 30-year maturities.

Demand for long-dated cash 10s/30s Spread-of-Spreads



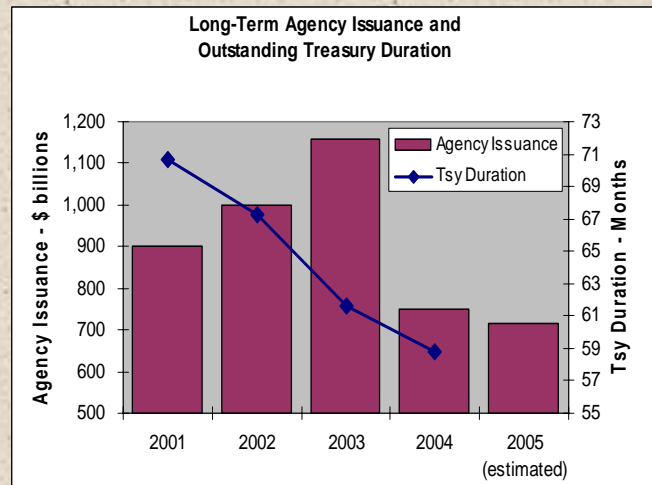
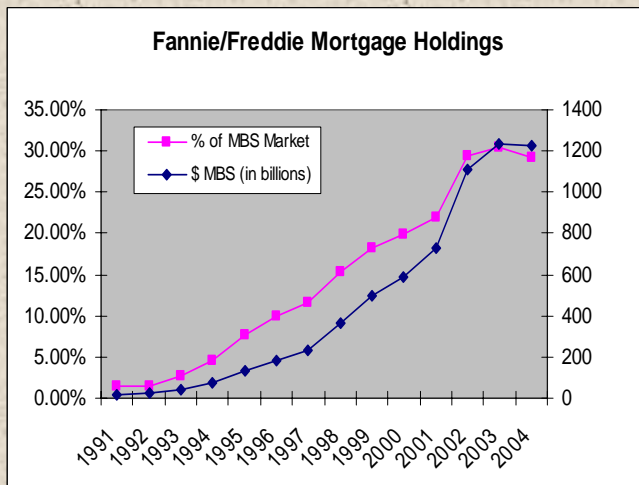
- Since the Department of Labor released its proposal for pension reform on January 10, 2005, the demand for long-dated cash securities outpaced the demand for intermediate-dated cash instruments, and outpaced the demand for longer duration derivative assets.
- Undoubtedly, the majority of this buying originated from speculative players anticipating a future pension bid.
- Regardless, while swaps can be traded limitlessly, this does not suggest they serve as a perfect substitute for cash securities.

Outstanding Mortgage Durations Already Short are Shortening Further.



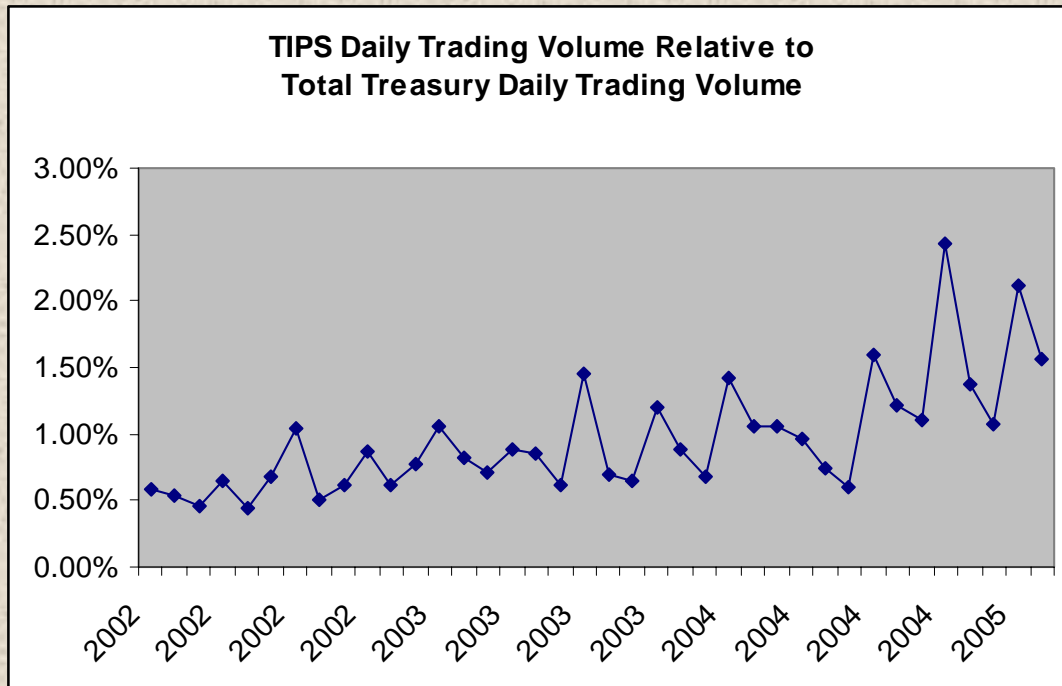
- Adjustable rate mortgages share of new mortgage origination has surged from 20% to 60% over the past 2 years. High home prices and rising interest rates could keep demand for ARM products high relative to the total portfolio mix.
- A maturity runoff model of conforming balance mortgage originations shows the asset liability match frontloaded.
- Net shortening of mortgage assets effectively reduce the total supply of longer duration debt.
- Increased supply at the short end of the curve is yet another contributing factor to the flattening trend that has developed in the current tightening cycle.

Pool of Longer Dated Instruments Diminishing in Treasury and Agency Market



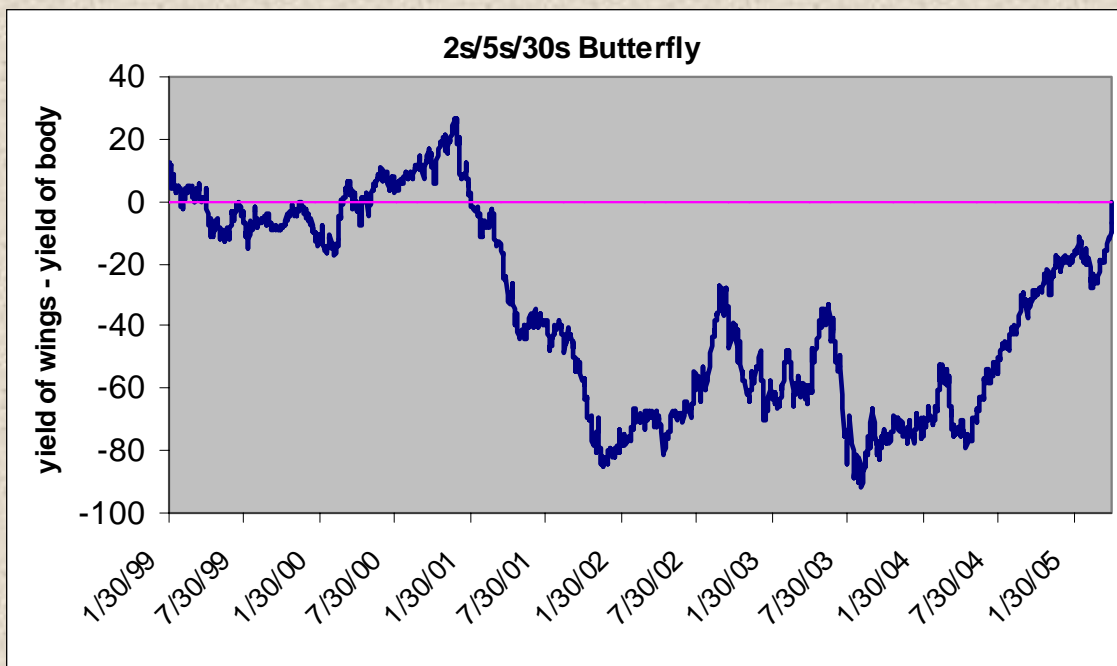
- Average maturity of outstanding treasury debt has steadily diminished over the last several years. Assuming current issuance patterns of an average 3-year maturity are maintained, maturity of outstanding treasury debt could diminish to four years by the end of 2010.
- Over the past several years long term agency issuance filled a need for longer dated instruments. Average issuance of long term debt has been approximately 4 1/2 years.
- Trend decline in GSE balance sheets lessens supply of that closely comparable debt, creating less low-risk, non-call debt in the world; more callable and somewhat messy MBS to absorb along with their estimation risk.
- If you accept the notion that the market thought of GSE debt as essentially “governments”, then one could envision a widening of swap and corporate spreads as fewer bond portfolios find MBS as suitable investments (either because the bonds are callable or because they are unwilling to accept the associated estimation risk) and choose to reach for the lowest-risk debt class.

Why Not Longer Duration TIPS?



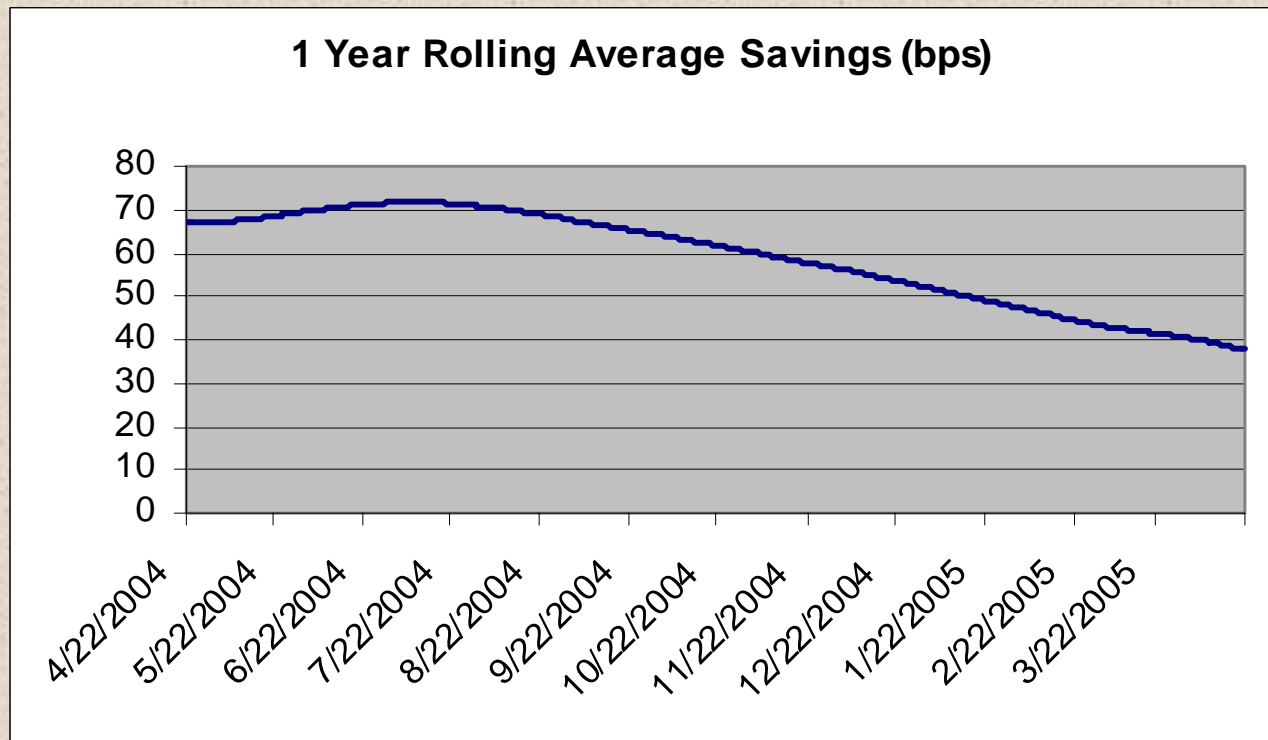
- Despite the expansion of TIPS issuance and the introduction last year of both 5-year and 20-year issues, the market remains illiquid relative to nominal bonds.
- The lack of liquidity is a result of several factors: Low primary dealership participation; a lack of hedging instruments that provide accurate protection for risk; thin secondary trading in the inter-dealer market and high investor concentration.
- The TIPS market needs further maturation before it can be a viable alternative for nominal securities. In addition, the concentration of ownership among a small group of money managers implies any meaningful portfolio adjustment could lead to market dislocations.

The Curve and Financing Costs



- A simplified look at reducing financing costs by reducing 5-year issuance, and substituting with a mix of short and long-term issues illustrates that since 2001, the treasury would have benefited from lower funding costs by including 30-yr bonds in the mix of assets issued for funding.
- The chart uses a duration weighted combination of 2-yr and 30-yr bonds to replace reduced 5-year issuance ($\$100\text{mm } 5\text{s} = \$20\text{mm } 5\text{s} + \$80\text{mm } 2\text{s}$).
- Negative numbers show the extra cost, in basis points, incurred by issuing 5-year notes instead of a combination of 2-year notes and 30-year bonds.

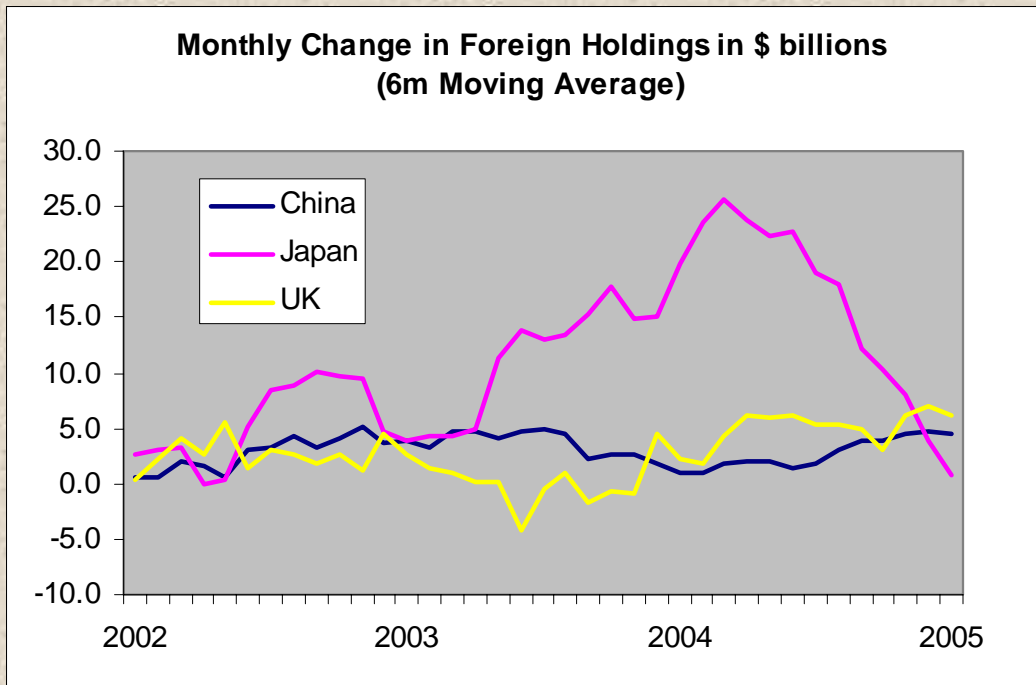
Rolling Average of 2s/5s/30s Butterfly



- Using a one year rolling average of the 2s/5s/30s butterfly, the Treasury's current savings would amount to roughly 37 basis points.
- Predicting when a change in issuing patterns is necessary to maintain low borrowing costs is a difficult challenge. The decision to eliminate the 30-year bond in October 2001, made sense in light of budget surplus estimates, as did the elimination of the 4-year, 7-year and 20-year given the expensive funding levels incurred relative to other maturities.
- The 5-year and 10-year sectors of the curve are expensive funding points compared to various mixes that include a 30-year, and current supply/demand dynamics argue that demand for long duration assets far exceeds the supply and the possible savings for a reintroduction of the bond would be sustainable.

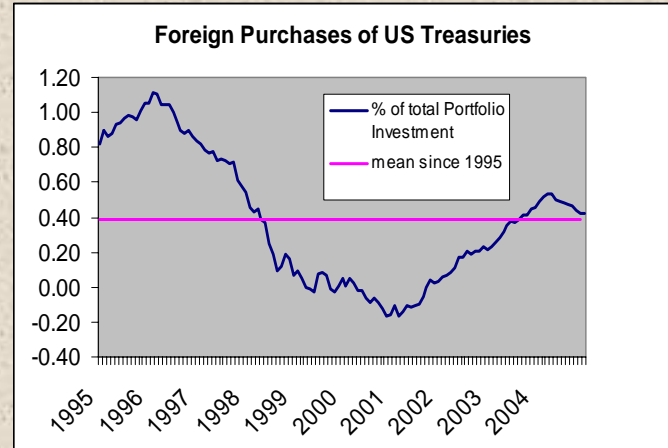
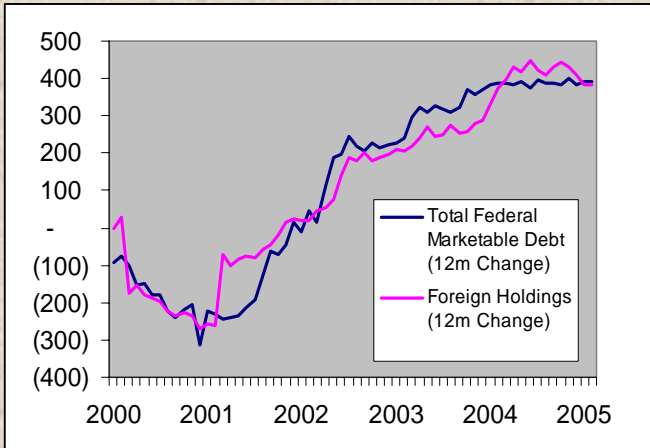
Foreign Purchases of U.S. Treasuries

Chinese Buying: Steady, but Facing Some New Questions.



- Asian central bank purchases represent 75% of total foreign official purchases. China is the second largest holder of Treasury securities.
- Revaluation of China's currency (RMB) would reduce USD weighting in portfolio from 80% toward 65%, which would imply a continued deceleration in purchases of USD assets, including treasuries.
- Net purchases from Asian accounts over past twelve months have decelerated to approximately \$140b, half the sum in the previous 12 month period.
- Revaluation could have knock-on effects on other Asian portfolios that also manage currency to the Yuan peg.
- The treasury market could absorb a deceleration in both purchases from China (approximately \$50b a year), and Asian buyers more broadly, should there be a shift in exchange rate policy, albeit at higher rates.
- Reduced buying would exert upside pressure on rates, which could be magnified by a weaker USD, at least over the short term, raising borrowing costs for the Treasury.

Japanese Purchases Declining, but Overall Foreign Buying Remains Robust.

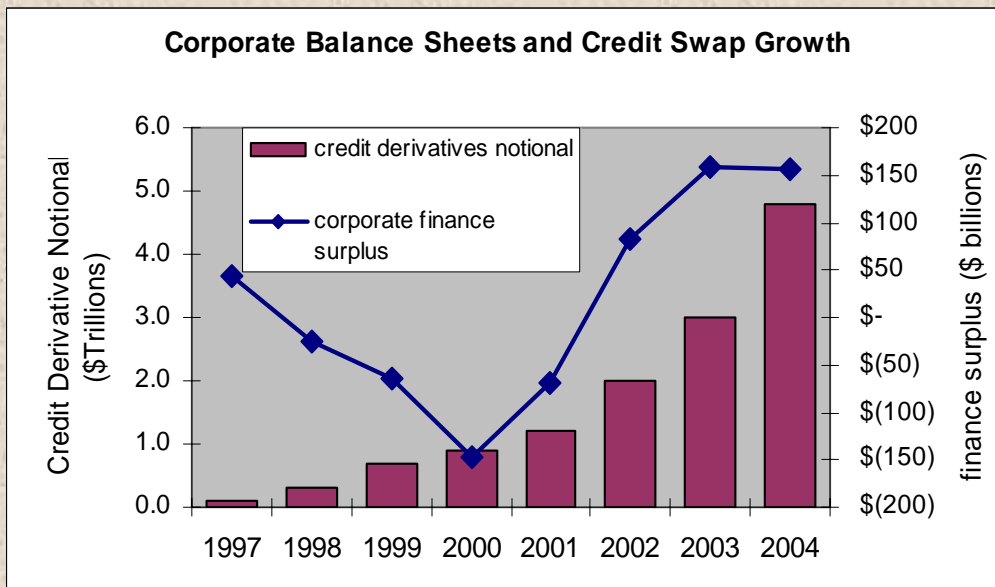


- Weak buying from Japan reflects portfolio reallocation into Agency securities. Share of Agency market has risen from 10% to 18% over the past year.
- Foreign purchases have more than kept pace with the incremental borrowing needs in the post surplus Treasury environment. Net purchases have averaged almost \$30b a month over the past year.
- Foreign central banks still account for half of those purchases despite outright selling from Japan over the last six months.

Source: EcoWin

Worth Watching

Growth in Credit Derivatives



- The trading and notional outstanding volumes of credit derivatives market has more than doubled over the past two years.
- Credit default swaps represent approximately 50% of the outstanding notional, collateralized loan Obligations 22%, with asset swaps, credit linked notes, and total return swaps make up the remainder.
- At Present, most corporate balance sheets contain sufficient liquidity to mitigate against major credit events. The financing surplus, the difference between internal funds and investment holdings, are near record highs.
- Compression of that financing surplus in coming quarters, in context of slowing economy and rising interest rates suggest credit quality may slowly deteriorate.
- It is difficult to assess whether credit derivative markets, as well as the underlying credit market, will continue to operate smoothly in the event of a major credit event.
- For some reference names, some market participants perceive that the amount of protection bought or sold exceeds the value of the underlying assets. Therefore, if a credit event occurs, there may not be enough deliverable assets for all the claimants

Source: British Bankers' Association, US Federal Reserve, and IMF Global Financial Stability Report

Should Treasury Consider
Reintroduction of the 30-Year
Bond?

Starting Point: Low cost borrowing over time requires issuance diversification

- Widens investor base
- Provides financing flexibility
- Lowers operational, event, interest risks
- Facilitates efficient cash management

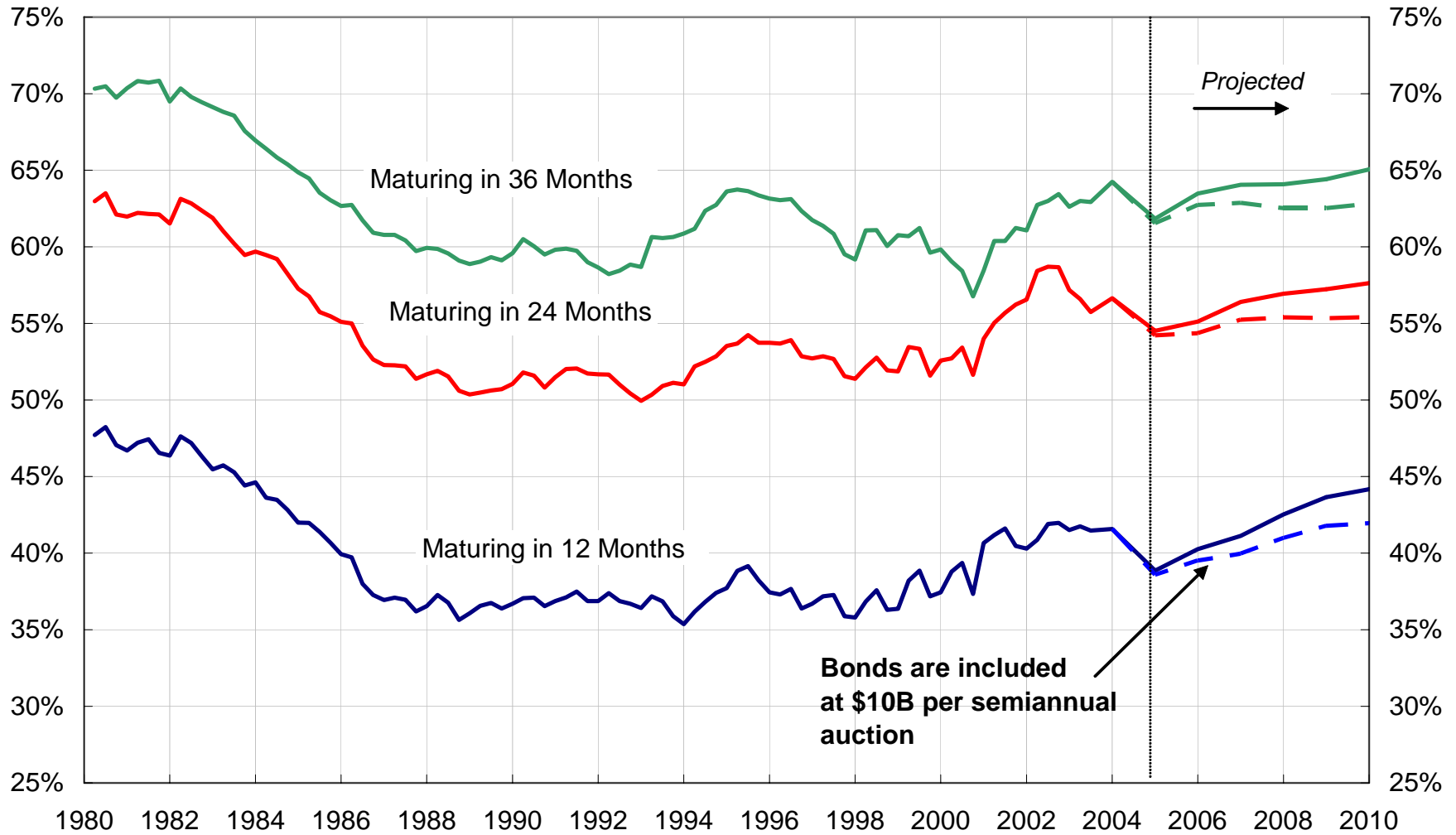
Questions when considering long-dated issuance

- What is optimal level of diversification?
- Can we simultaneously maintain liquid bond issuance and a short-dated bias?
- Do current as well as future financing needs and market conditions provide rationale for bond issuance?

Considerations

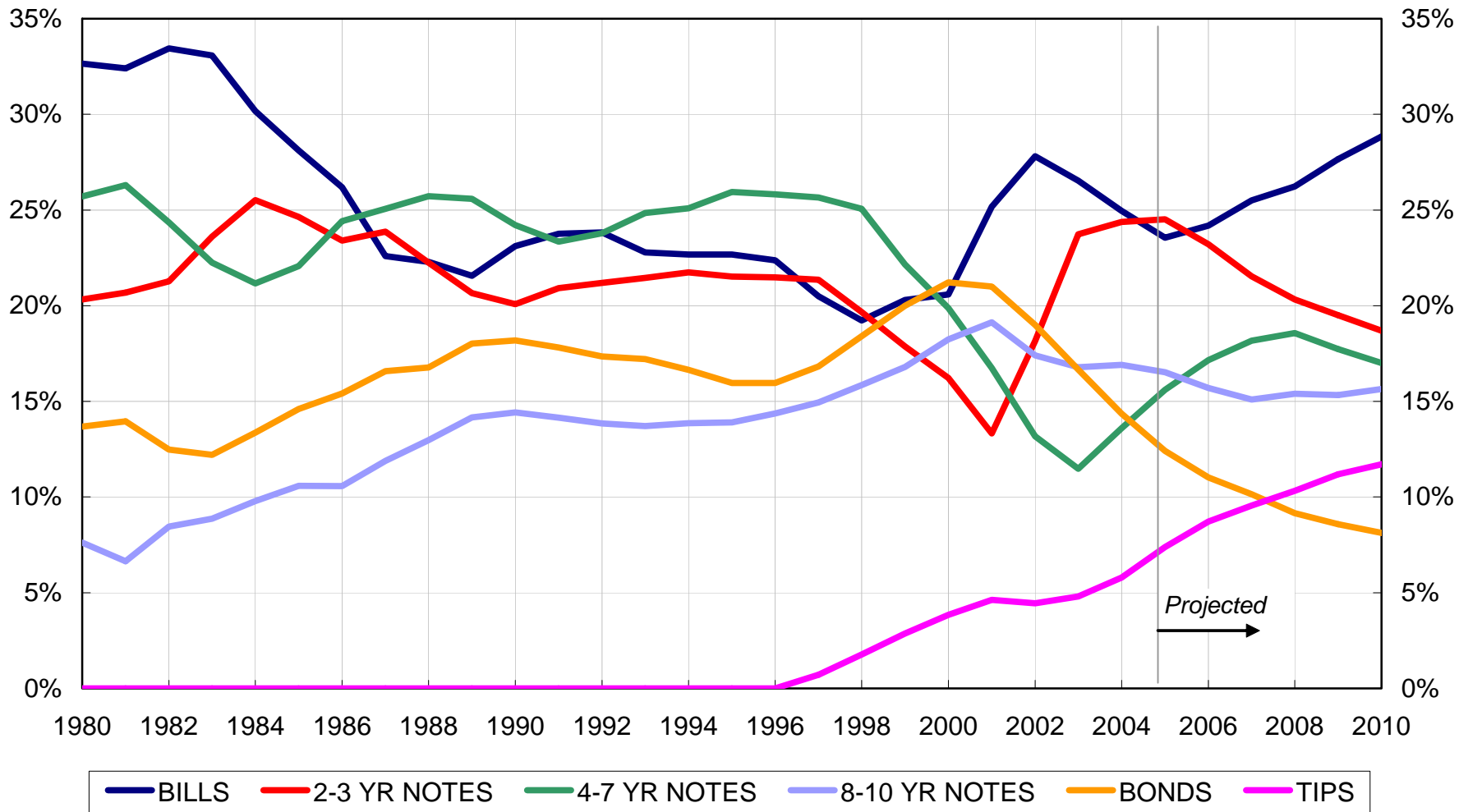
- Effects on Portfolio Characteristics
- Effects on Issuance Sizes of Existing Securities
- Effects on Costs
- Effects on Refunding Needs

Percentage of Debt Maturing in Next 12 to 36 Months



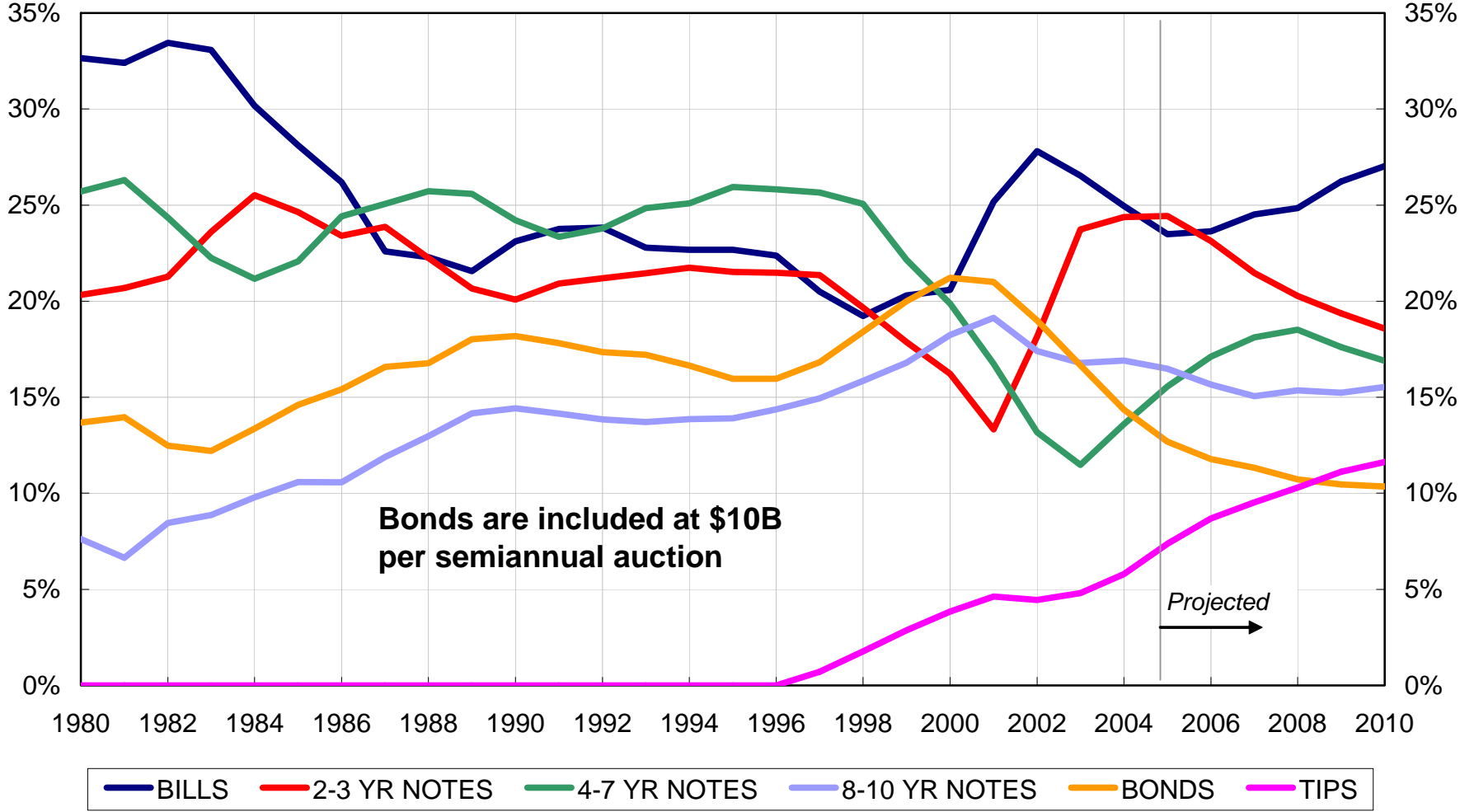
Projections based on OMB's FY06 Budget (except internal Treasury estimate used for FY05) and assumes coupon auction sizes remain at most recently announced amounts. Residual amounts financed with bills.

Distribution of Marketable Debt Outstanding by Security



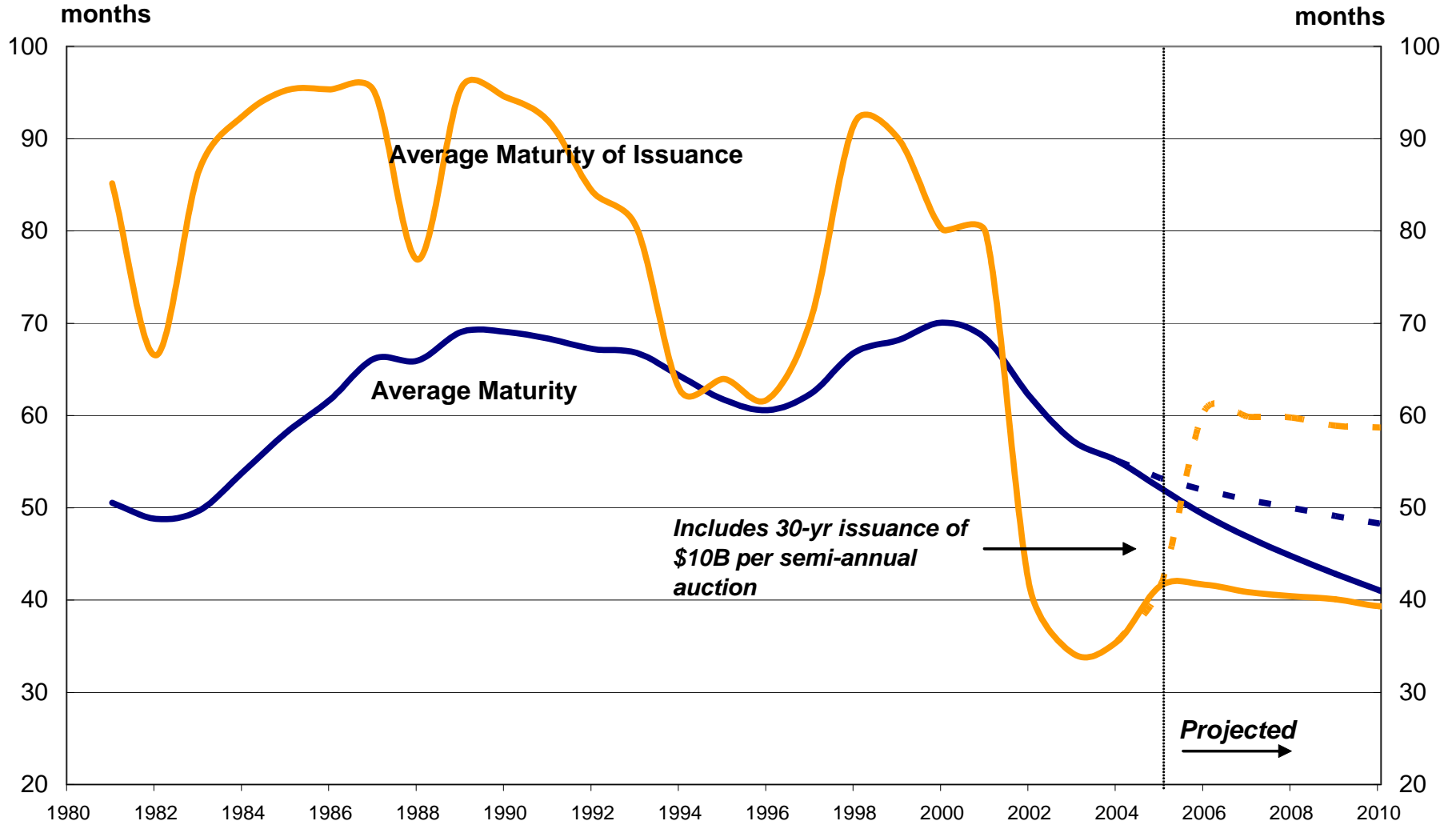
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Distribution of Marketable Debt Outstanding by Security



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DEBT MATURITY MEASURES**



Projections based on OMB's FY06 Budget (except internal Treasury estimate used for FY05) and assumes coupon auction sizes remain at most recently announced amounts. Residual amounts financed with bills. **Based on end-of-fiscal-year data.

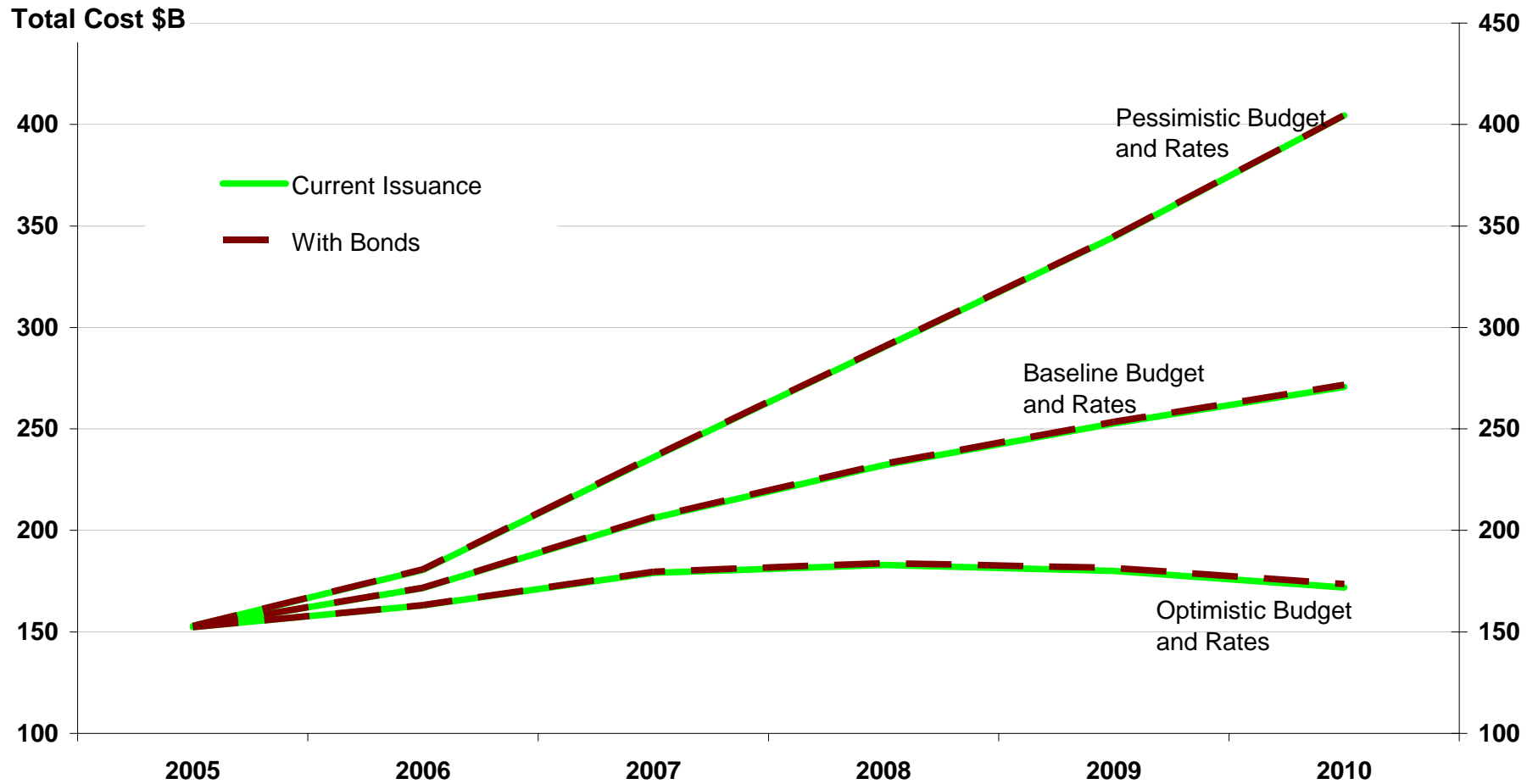
Implications of the Bond for Gross Financing Needs

Average change in auction size needed to meet gross marketable borrowing needs

Deficit Forecast		2006	2010
Optimistic	Without	1%	-21%
	With Bond	0%	-24%
Central	Without	7%	24%
	With Bond	6%	20%
Pessimistic	Without	12%	68%
	With Bond	12%	63%

Central Forecast based on OMB FY06 Budget (except internal Treasury estimate used for FY05), Optimistic and Pessimistic Forecasts based on OMB's forecast errors from 1984-2004. Distribution of issuance held constant in percentage terms at FY05 level. W/ bond scenario assumes reduced bill issuance to allow for bond issuance.

Interest Cost Comparison between Current Issuance versus Bonds Included Issuance



Projections based on OMB's FY06 Budget (except internal Treasury estimate used for FY05) . Assumes auction size as percent remains at the most current level. Bonds are included at \$10B per semiannual auction starting in FY05. The baseline rate spread between the 30-year to the 10-year during 2005-2010 averages to about 35bps. Optimistic and pessimistic budget numbers are derived from OMB's forecast errors. Optimistic and pessimistic rates are distributions around OMB's forecasts, derived from 1962-2004 data.