

NZSA Conference

Risk Free Discount Rates

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Agenda/Contents

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IFRS and Risk Free Rates

Recent trends in the NZ Debt Market

Discount Rate Theory

Trends over the last few years

Estimating the components of discount rates

Background

IFRS Requires that the value of liability cash-flows is discounted at a risk free discount rate

There are a variety of interpretations of what this means in practice.

Australasian Market Practice for risk free rates is;

- General insurers use Government Bonds
- Life insurers use either Government Bonds or Bank Swap rates

The NZ market for Government stock has become increasingly thin

IFRS and risk free rates

IFRS4 Appendix D

6.1 The outstanding claims liability shall be discounted for the time value of money using risk-free discount rates that are based on current observable, objective rates that relate to the nature, structure and term of the future obligations

6.1.2 Typically, government bond rates may be appropriate discount rates for the purposes of this Appendix, or they may be an appropriate starting point in determining such discount rates

IFRS and risk free rates – actuarial standards

NZSA PS4 – General Insurance Business

4.14 The risk free rate of return, which is the rate of return on a portfolio of assets matched to the liabilities, must be the starting point for determining the appropriate discount rates. The Actuary should explain the reasons for adopting rates that differ from the risk free rate.

NZSA PS3 – Life Insurance Business

9.2.3 Where the benefits are not contractually linked to the performance of the assets, the Best Estimate Assumptions for investment earnings must reflect a risk free discount rate (or rates) based on the current observable, objective rates that relate to the nature, structure and term of the future liability cash flows.

Recent trends in the NZ Debt Market

Lack of trading in NZ Government Stock

- Significant proportion is tightly held offshore (Japan)
- There is a negative scarcity margin on the yield, rates are low
- Margin between Bank swap rates and NZGS is growing
- 2017 is the longest stock (9 year)

Growing market for NZ dollar debt issued by foreign governments and “supranational” organisations like the European Investment Bank

- This debt is all AAA as is the NZ Government
- \$3.6bn on issue compared to \$25bn of Government stock
- More actively traded

Market Observations

Bank Swaps

- The most heavily traded market
- Have a default margin in the yield

Supranationals

- New issues so limited history of trading in NZ
- Internationally have traded at a fairly constant margin below bank swaps of (0.20%-0.30%)

Government Stock

- Limited trading volumes
- Only a few market makers
- Majority is tightly held offshore
- Buyers pay a “scarcity premium” i.e. a lower yield
- No plans for new longer stock – we now have a 10 year stock, next year it will be a 9

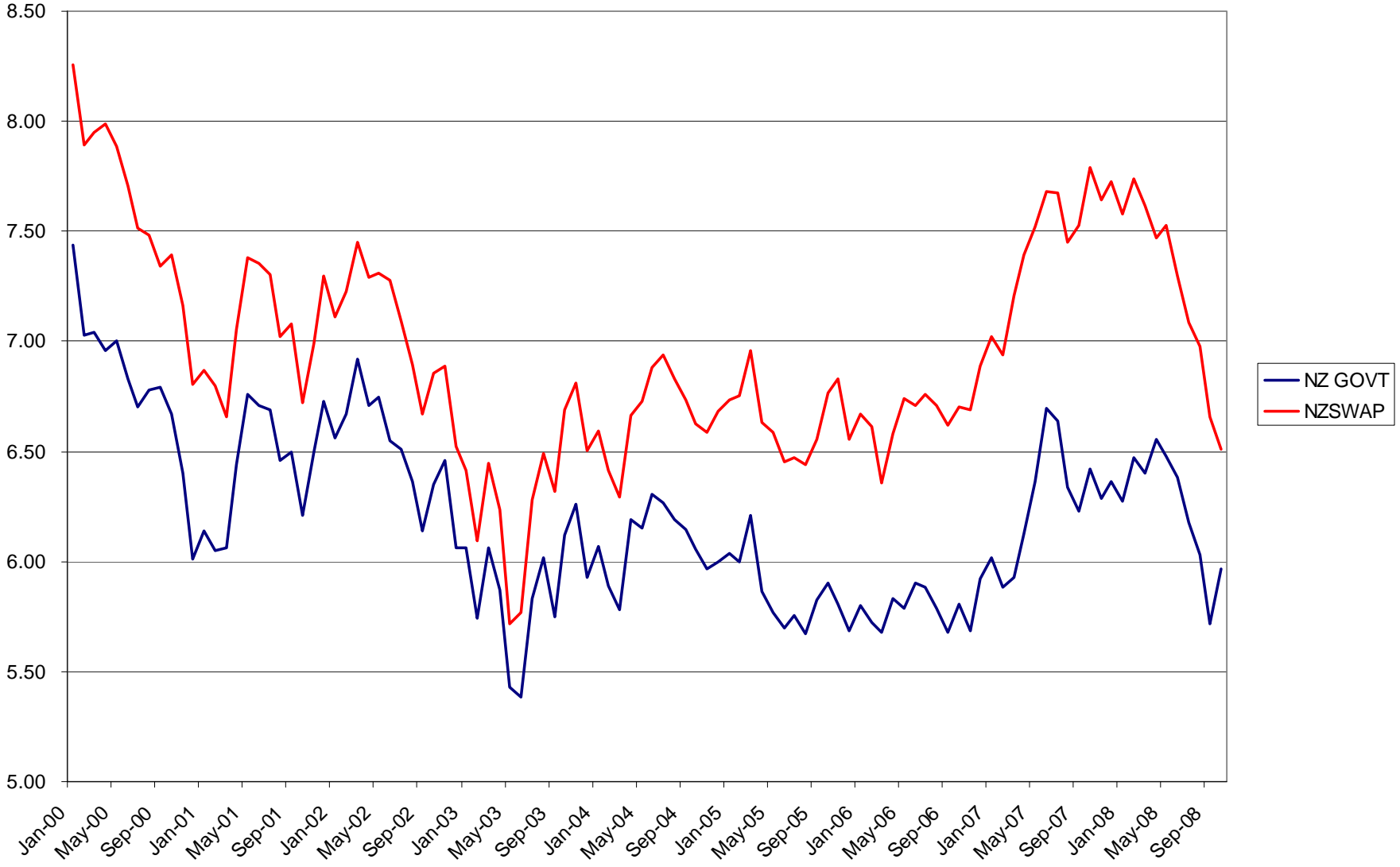
Theory of Stocks and Bonds

Interest Rate Yield =

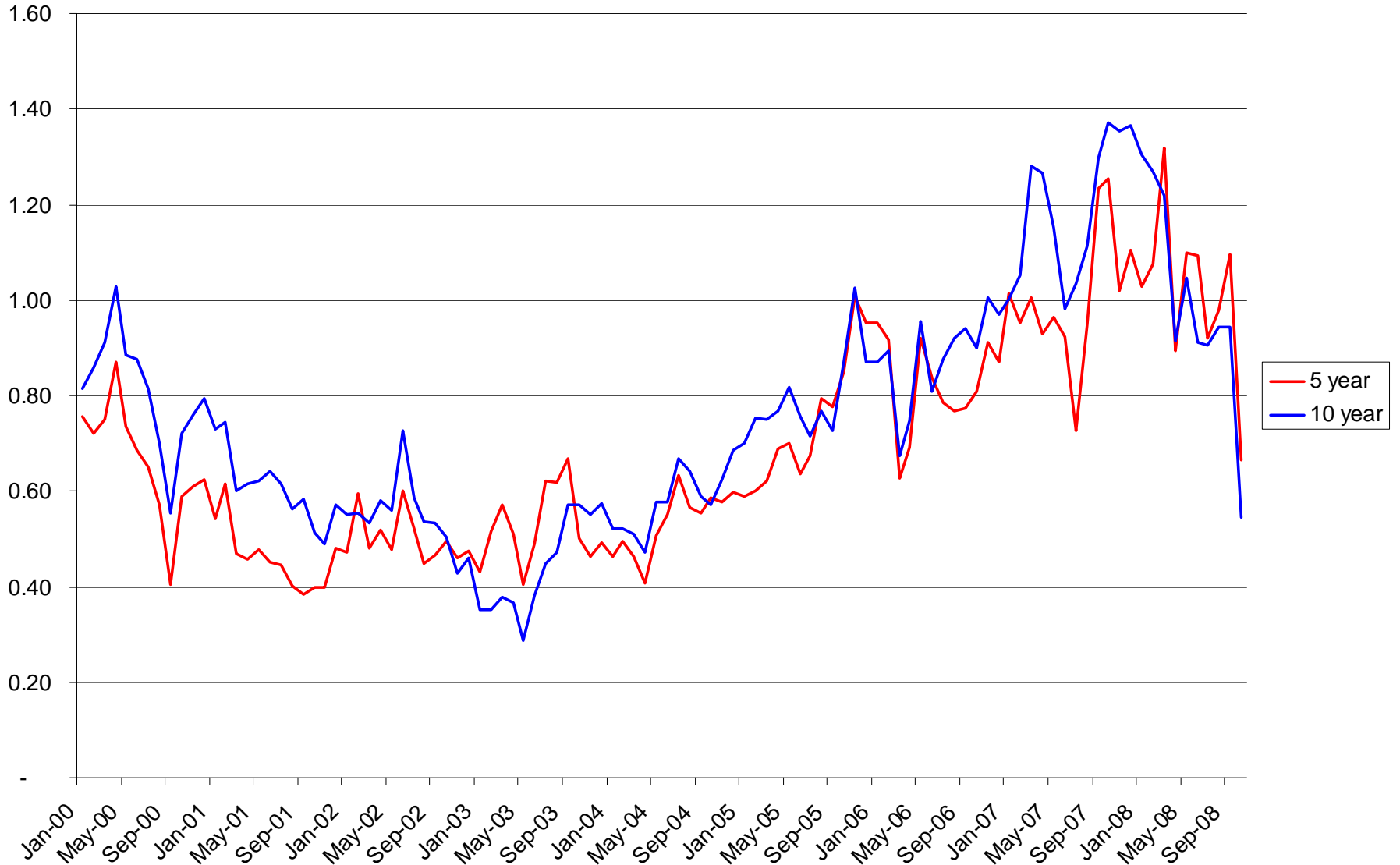
- Risk Free Rate
- + Risk Margin
- + Liquidity Margin
- - Scarcity Adjustment

- Risk Margin is extra reward for the default risk
- Liquidity Margin is the extra reward for the risk of being unable to sell
- Scarcity Adjustment is a reduction in the yield because the bond price is artificially high

10 year yields



SWAP to NZGS Margin



What does this gap mean?

There are a number of possible causes for a widening gap between Government Stock and Bank Swap rates;

- Significant global events affecting the NZ economy: e.g.
 - Credit crunch Oct 2007
 - Global Financial Crisis
- Other structural changes
 - Government guarantees on bank deposits

These effects are not enough to explain the gap between Government Stock and Bank Swaps;

- Risk margin
- Specific NZ Government scarcity

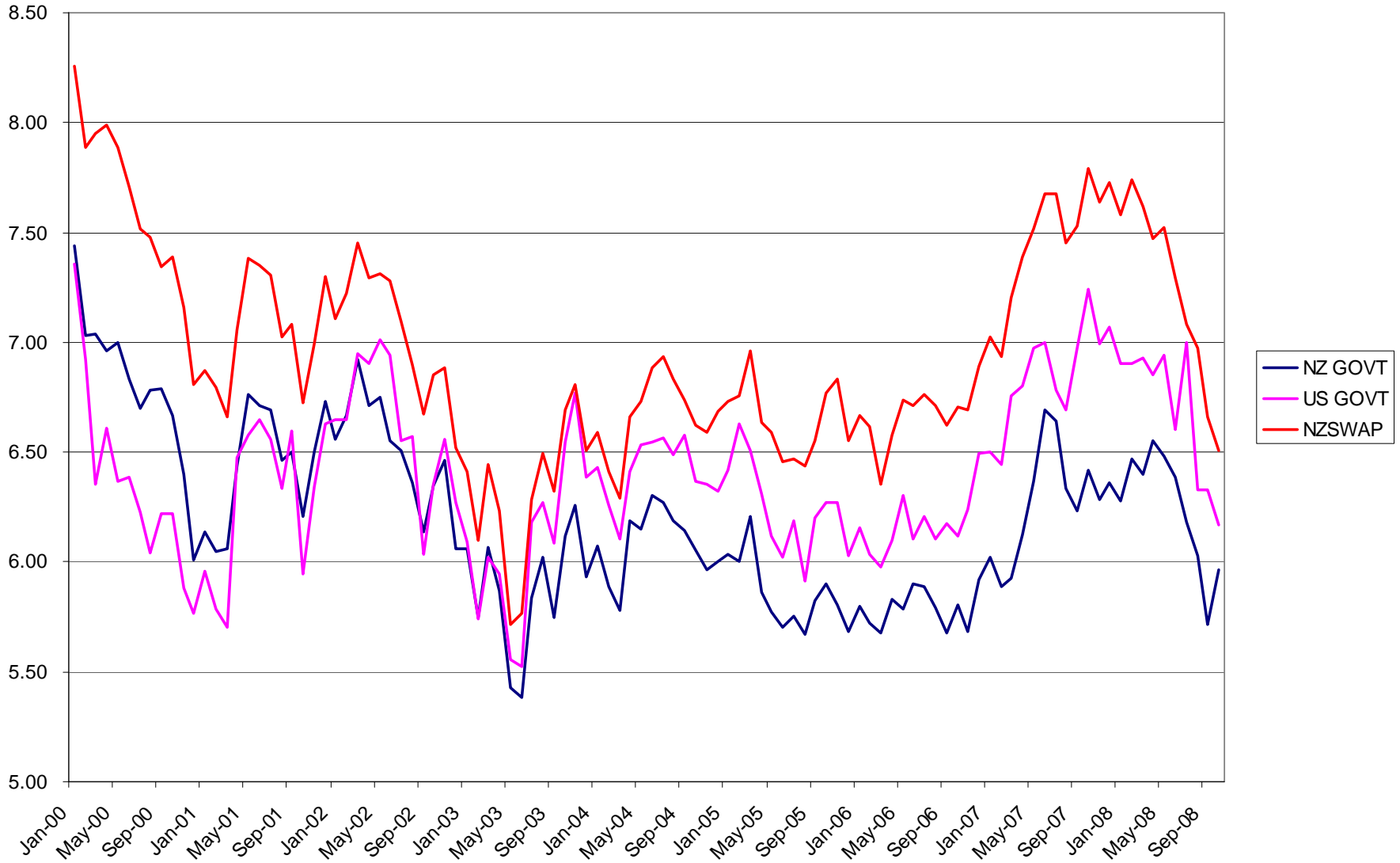
Differences between NZGS and Bank Swaps

- The long run spread between NZGS and bank swaps is around 60 to 70 basis points
- Supranational stocks (also Sovereign AAA rated) trade about 25 to 30 bps below bank swaps
- Both bank swaps and supranational stocks have a much more reliable market than NZ Government Stock
- Spread expanded to 120 to 130 bps prior to the financial crisis
- An estimate of the risk free rate can be made if we can determine either
 - Risk margin of Bank Swaps
 - Scarcity deduction for NZ Government stock

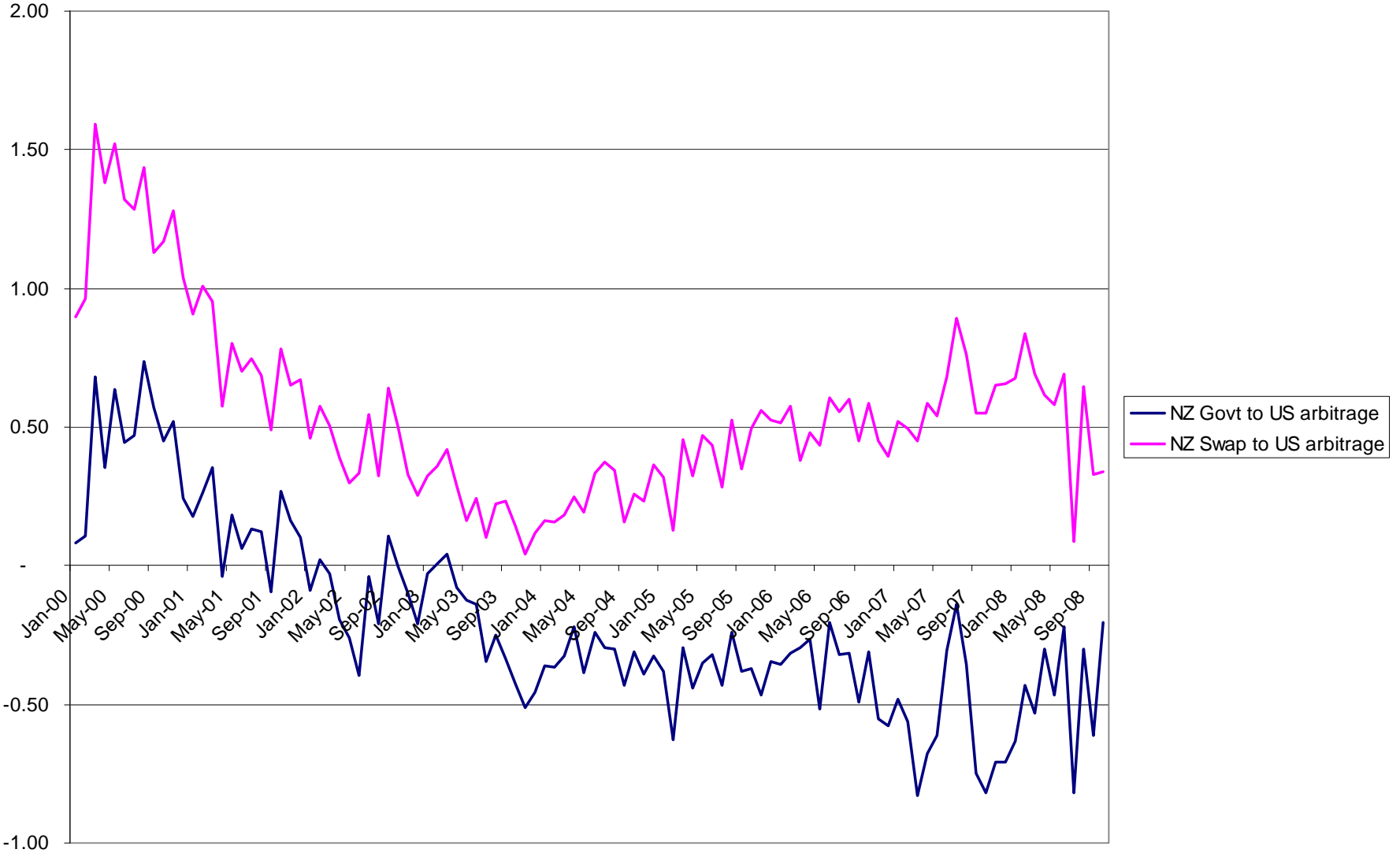
US Treasury as the risk free benchmark

- In theory US Treasury stock should be lower risk than NZ Government
- Convert US Treasury into NZ Dollars using forward currency instruments (this is essentially exactly what the bank swap market does constantly) to create a US Treasury Arbitrage curve
- Look at the differences between;
 - Swaps and US Treasury Arbitrage
 - NZ Govt and US Treasury Arbitrage

10 year yields



10 year yields



Conclusions

- Analysis supports the need for a scarcity adjustment to NZ Govt stock
- Risk free rate is currently between bank swap rates and NZ Government stock rates
- The adjustment required has narrowed as a result of the financial crisis
- Global markets currently extremely volatile

Other Issues

- Discount rate should be determined from zero coupon rates and using forward rates
- Forward rate beyond 9 years (longest NZ stock) is still extremely volatile and sensitive to the two longest dated stocks
- A traditional actuarial solution of using a long term gap between discount rate and inflation rate for inflation dependent liabilities is acceptable under IFRS
- Adjusting Government stock for scarcity is acceptable, but must be supported by robust analysis

Yield Curve 30 June 2008

