



Institute of Actuaries of India

Discount Rate Implications on Pension Obligation

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*Indian Actuarial Profession
Serving the Cause of Public Interest*



OBJECTIVES



- To understand the effect of discount rate on valuation of obligation for employee benefits as prescribed in Indian Accounting Framework.
- To see various movements in discount rate trends (Government Securities & Corporate Bonds in India).
- To make comparative analyses of discount rates with that of International Financial Reporting Framework and US Accounting Principles.

FINANCIAL REPORTING FRAMEWORK

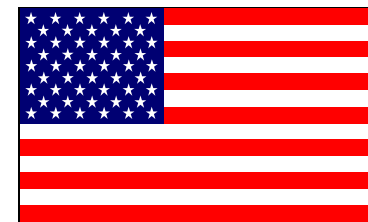


India (IGAAP)
*AS - 15 Employee
Benefits*

All frameworks prescribe Actuarial valuation of the Defined Benefit Obligation (DBO) using Discount Rate and require disclosure of all assumptions.



European (IFRS / UKGAAP)
IAS - 19R / FRS - 17
Employee Benefits



US (USGAAP)
ASC - 715 *Compensation
Retirement Benefits*

ASSUMPTIONS



DEMOGRAPHIC

- Mortality
- Retirement Age
- Attrition rate / Withdrawal rate

FINANCIAL

- Discount Rate
- Expected Rate of Return on Plan Assets
- Future Escalation (if any)



DISCOUNT RATE



It should be determined by reference to **market yields on Government Bonds**. The **term** of the government bonds should be consistent with the estimated term of the obligation.



Current yields on **high quality Corporate Bonds** with maturities consistent with duration of obligation; in countries with **no deep market** in such bonds, yields on **government bonds** are used.



Rate at which obligation could be effectively settled (amount & currency of payment); In making those estimates, we **may** also look to rates of return on **high-quality fixed-income investments** currently available and **expected to be available** during the period to maturity of obligation. It also allows weighted average discount rate depending on duration of investment portfolio of plan.

ILLUSTRATION & EXPLANATION



- The higher discount rates will have a beneficial effect on obligations. This in turn will affect both the year-end funded status as well as the expense calculations.
- Many plans had strong investment returns during FY 2013-14. Depending on the starting funded status, the change in obligations and assets can have a leveraging effect on the reported net balance sheet asset / liability.
- Below is a simplified illustration for a plan that was 75% funded on 31-03-2013 and we assume a reduction of 10% in the obligation during the year because of a change in the discount rate.
- We then compare the funded status as on 31-03-2014 under two asset scenarios:
 1. Assets 5% higher than 31-03-2013*.
 2. Assets 15% higher than 31-03-2013*.

*Above assets are considered higher only assuming company has a policy to contribute x% of annual salary every year and pay-outs are directly settled by employer as a management decision & for tax purpose.

ILLUSTRATION



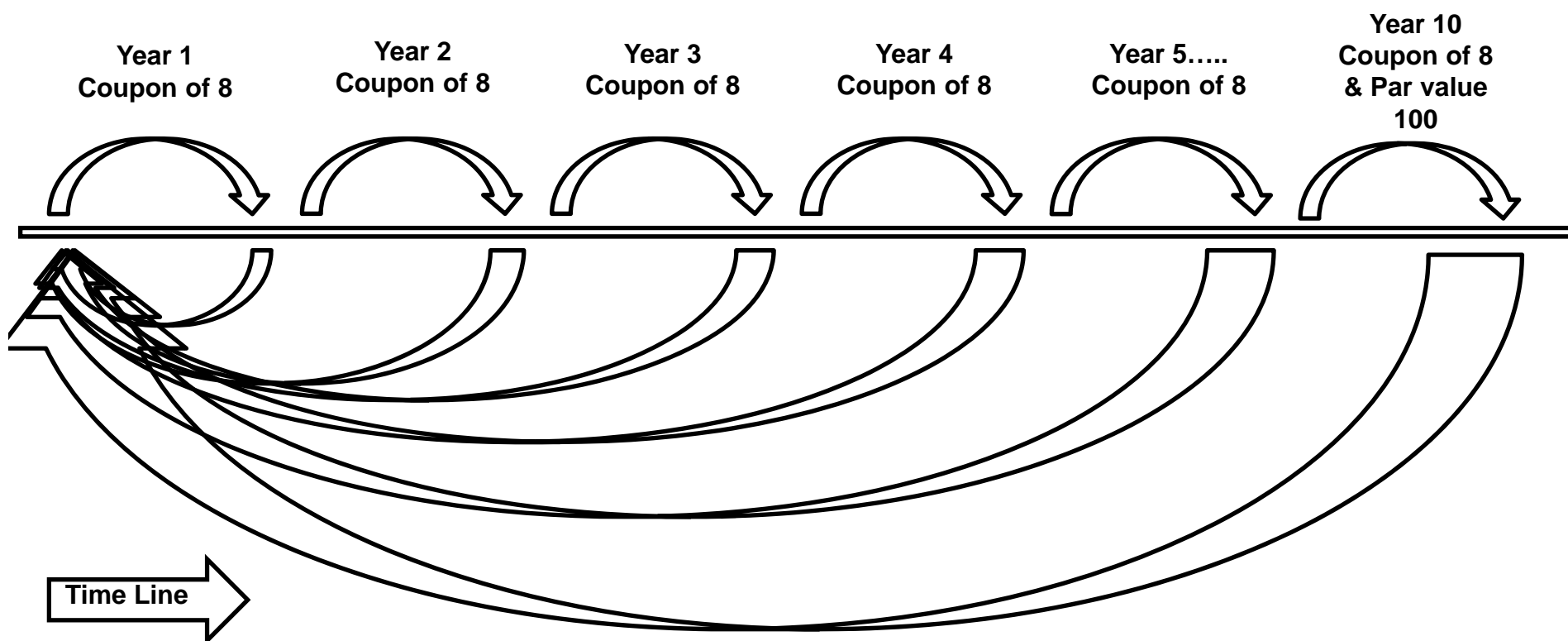
Figures in INR Million		DBO Lower by 10%	
		Asset Higher by 5%	Asset Higher by 15%
	31/03/2013	31/03/2014	31/03/2014
DBO	15.00	13.50	13.50
Asset	11.25	11.81	12.94
Net Liability / (Asset)	3.75	1.69	0.56
Funded Status	75.00%	87.50%	95.83%
% Change in Net Value		-55.00%	-85.00%

In both cases, the funded status improved measurably. There is also a significant decrease in the unfunded balance sheet liability because it is such a leveraged result. The funded status decreased by 55% and 85% for the asset value higher by 5% and 15% respectively in two sample scenarios.

EXPECTED FAIR VALUE OF PLAN ASSETS



Step 1 : Expected CashFlow of Coupons assuming Asset of 8% Coupon maturing at par in 10 years.



Step 2 : Taking Present value of all future CashFlows
Value we get is fair value / market value (i.e. 91.71 @ 9.31% ROD) against the book value of 100.

CASE STUDY



	Figures in INR Million (as on 31 st March)				
	2014	2013	2012	2011	2010
Rate of Discounting	9.31%	8.00%	8.50%	8.25%	7.75%
Defined Benefit Obligation	266.90	275.21	210.09	146.04	106.99
Book Value of Assets	213.40	179.70	147.02	109.86	75.08
Net Liability / (Asset)	53.50	95.51	63.07	36.18	31.91
Fair Value of Assets (Revalued)	205.66	183.95	144.47	108.76	75.68
Net Liability / (Asset)	61.24	91.26	65.62	37.28	31.31

Note: It is assumed that any pay-outs are directly settled by the Employer not out of the asset. New investment / contribution are invested in securities at face value.

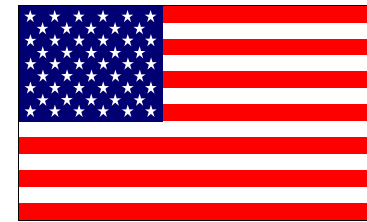
SUMMARISED IMPACT OF DISCOUNT RATE



AS 15	INCREASE	DECREASE
On Actuarial Gain / Loss	Results in Actuarial Gain	Results in Actuarial Loss
On Statement of Profit & Loss	Reduction in Expenses	Higher Expenses
On DBO	DBO Would Decrease	DBO Would Increase
On Balance Sheet	Funded status will improve	Funded status will worsen

In case of IAS 19 (R) or ASC 715, the Actuarial Gain or Loss is recognised through the Balance Sheet and hence does not have any impact on the Income Statement though the impact on DBO is the same as mentioned in the table above.

DEFINED BENEFIT PLAN - FINANCIAL STATEMENTS



EFFECT ON INCOME STATEMENT



As actuarial gain or loss is recognized in income statement, we might see current results are inconsistent with past results.



As actuarial gain or loss is recognized in other comprehensive income, we can see the consistencies in income statement, as current results are comparable to past results.



As actuarial gain or loss is recognized through the Corridor Approach i.e. deferment through other comprehensive income and then amortisation through income (10% corridor approach), again we can see the consistencies in income statement, as current results are comparable to past results.

EFFECT ON BALANCE SHEET



Reconciliation of Defined Benefit Obligation and Fair Value of Plan Assets. The asset or liability resulting from applying the standard i.e. DBO minus Fair Value of Plan Assets.

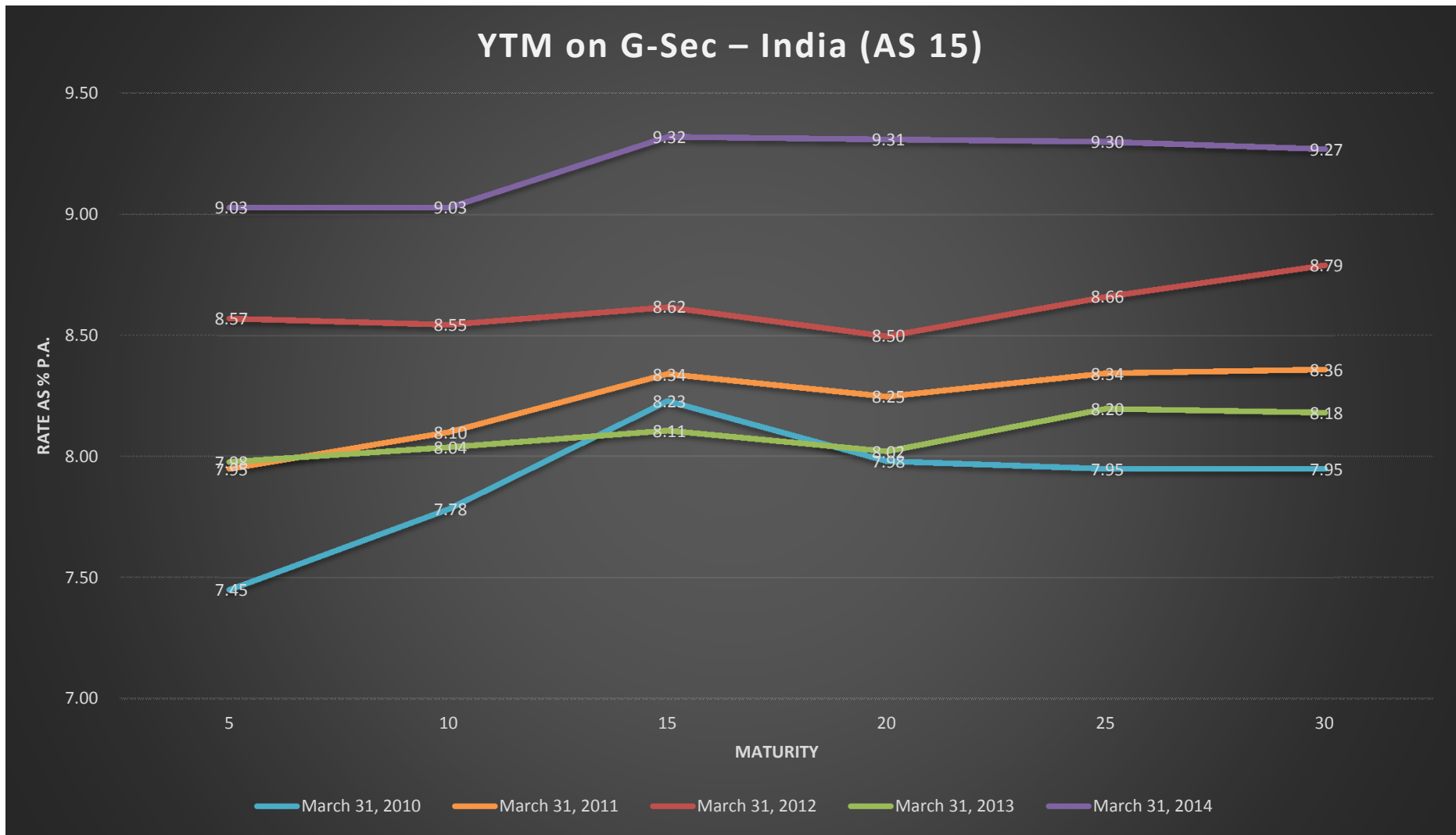


Same as above.

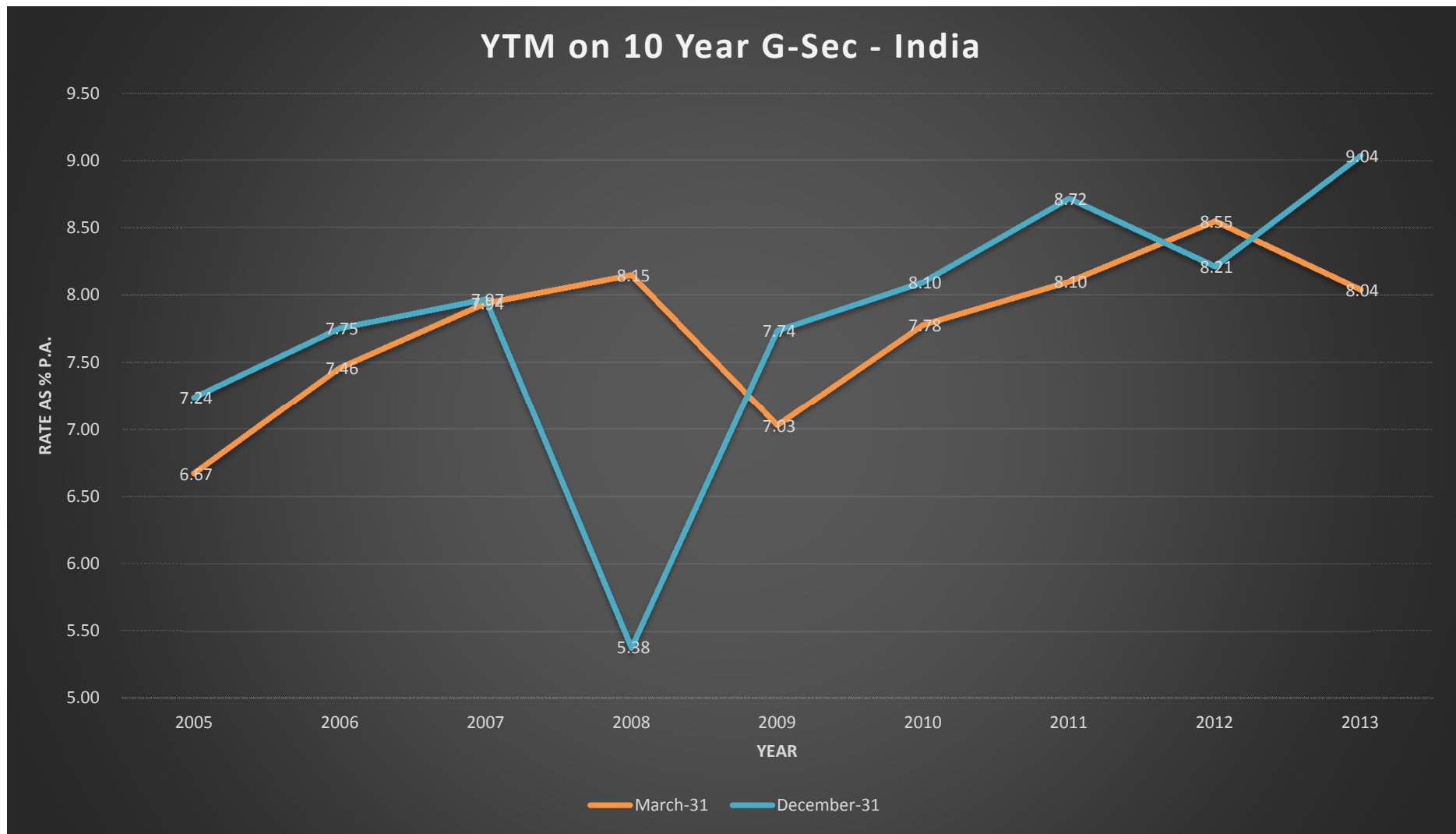


Balance Sheet reflects asset equal to surplus of overfunded plans (i.e., Fair Value of Plan Assets minus Defined Benefit Obligation).

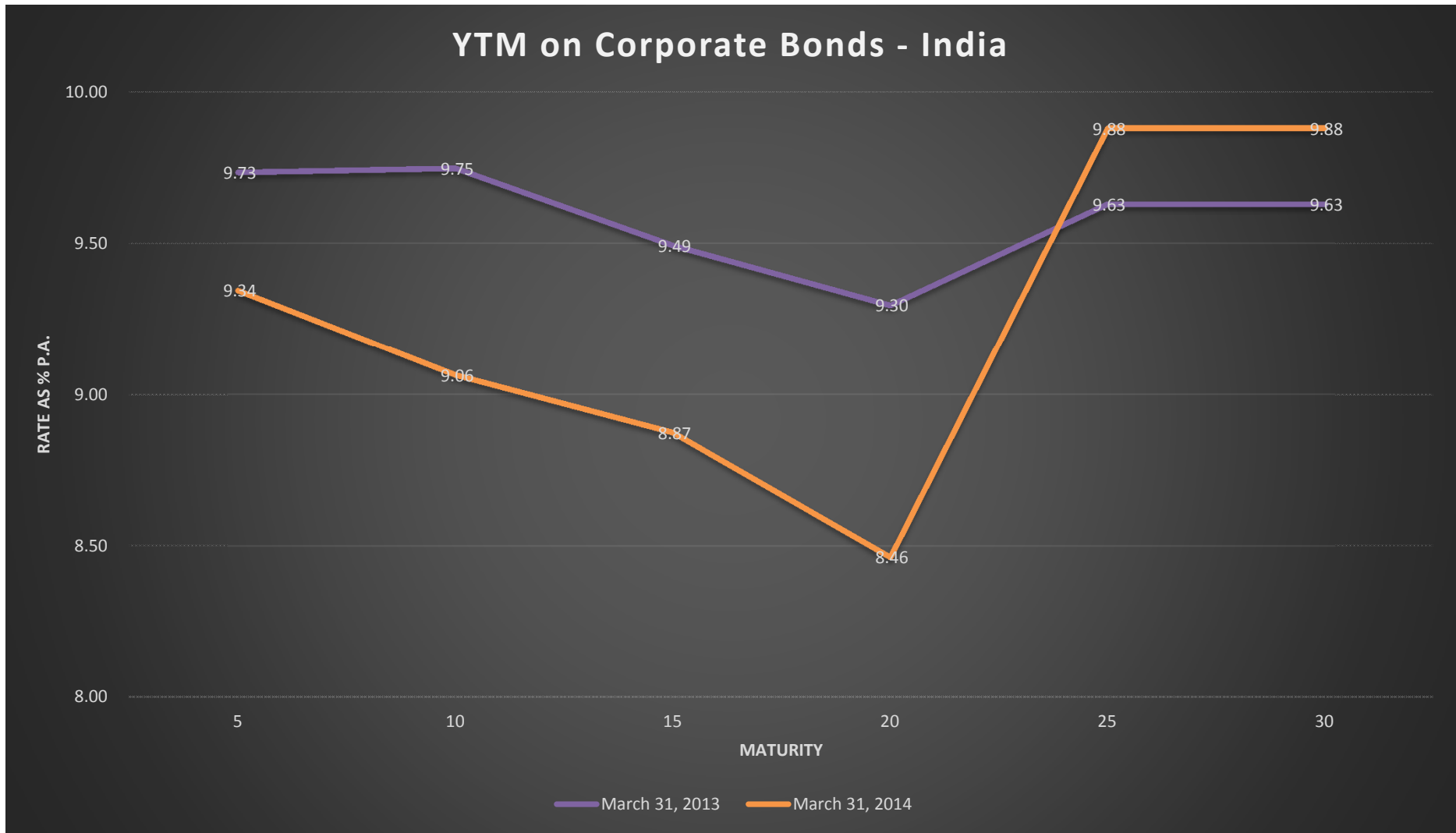
SOME TRENDS IN G-SEC INDIA



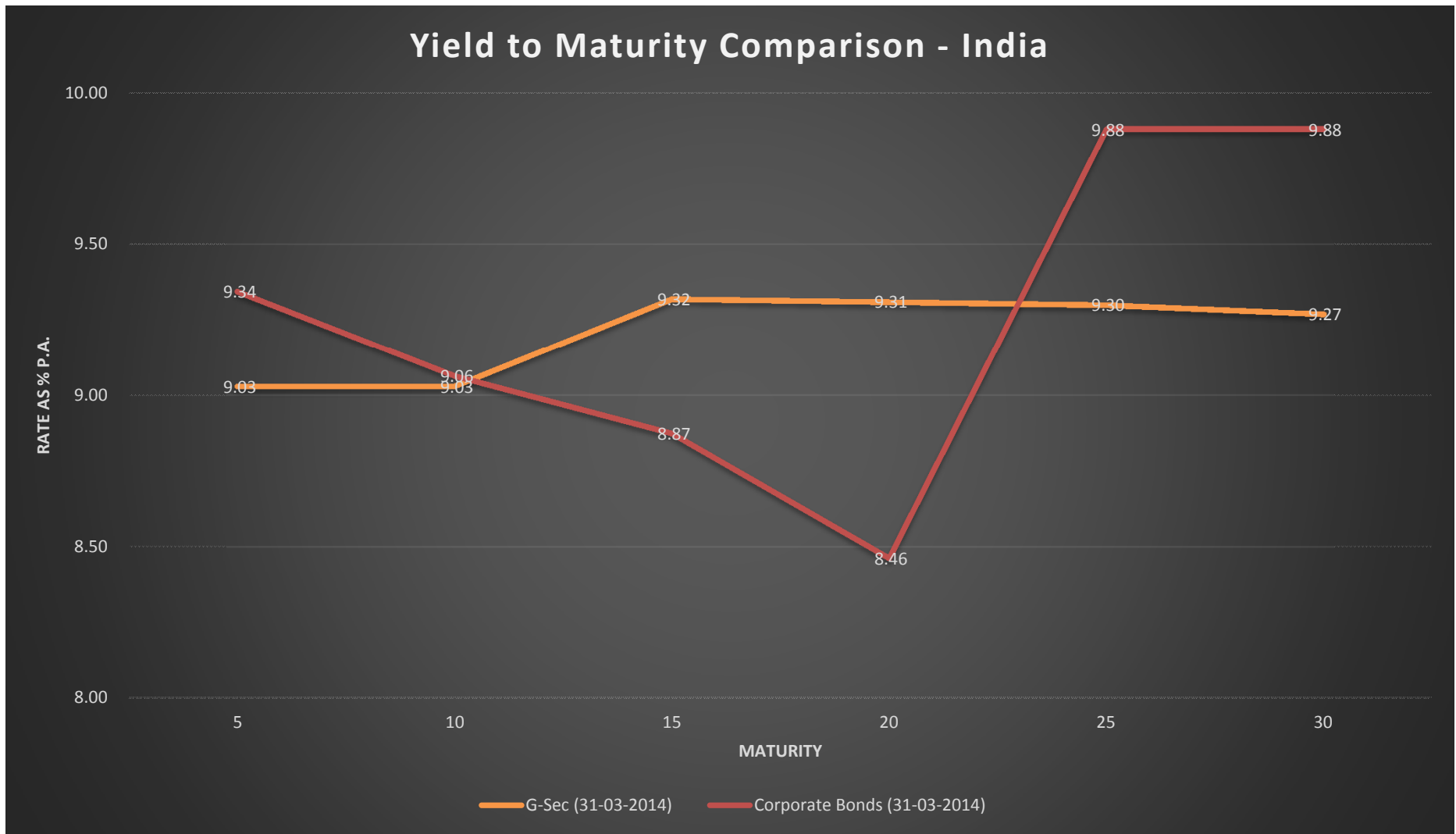
SOME TRENDS IN INDIA CONT....



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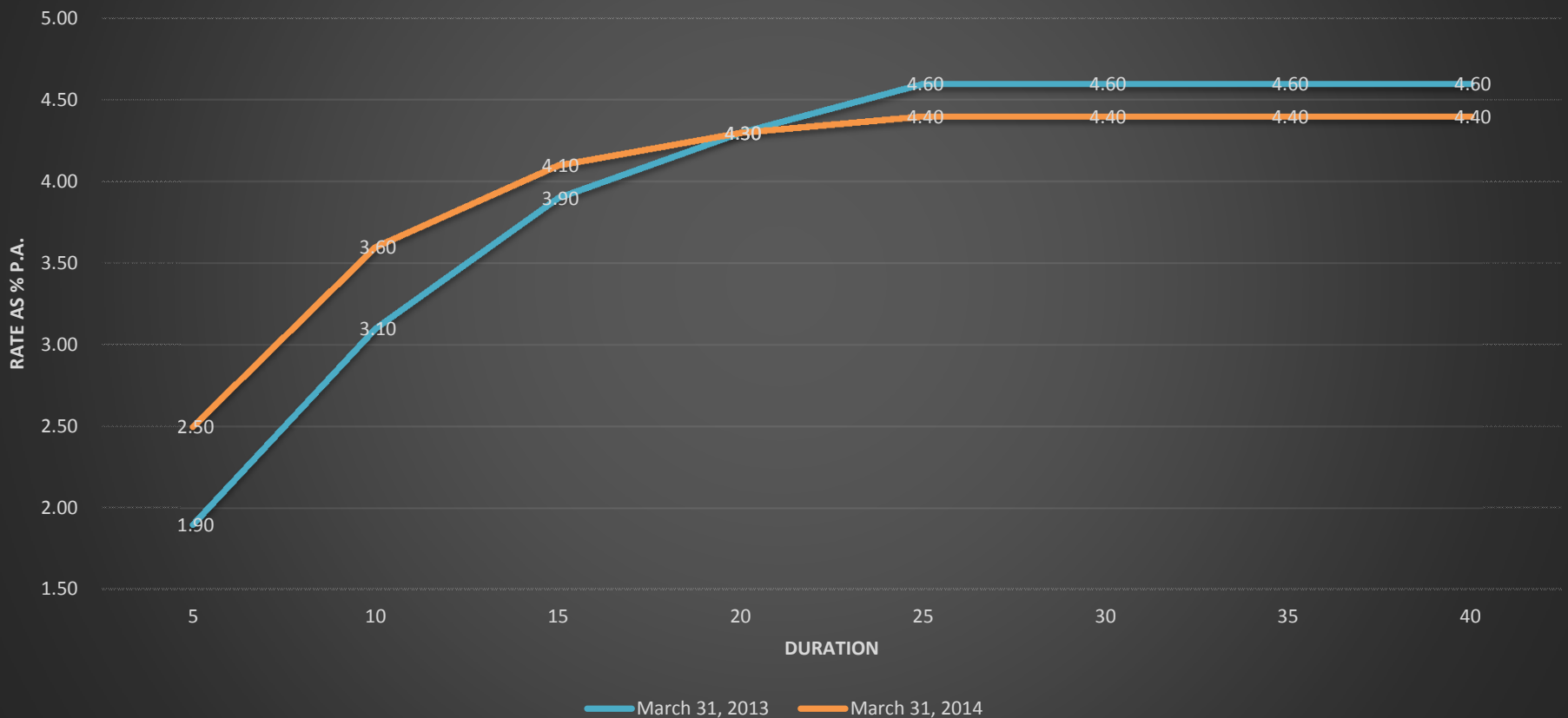
SOME TRENDS IN INDIA CONT....



SOME TRENDS EUROPE



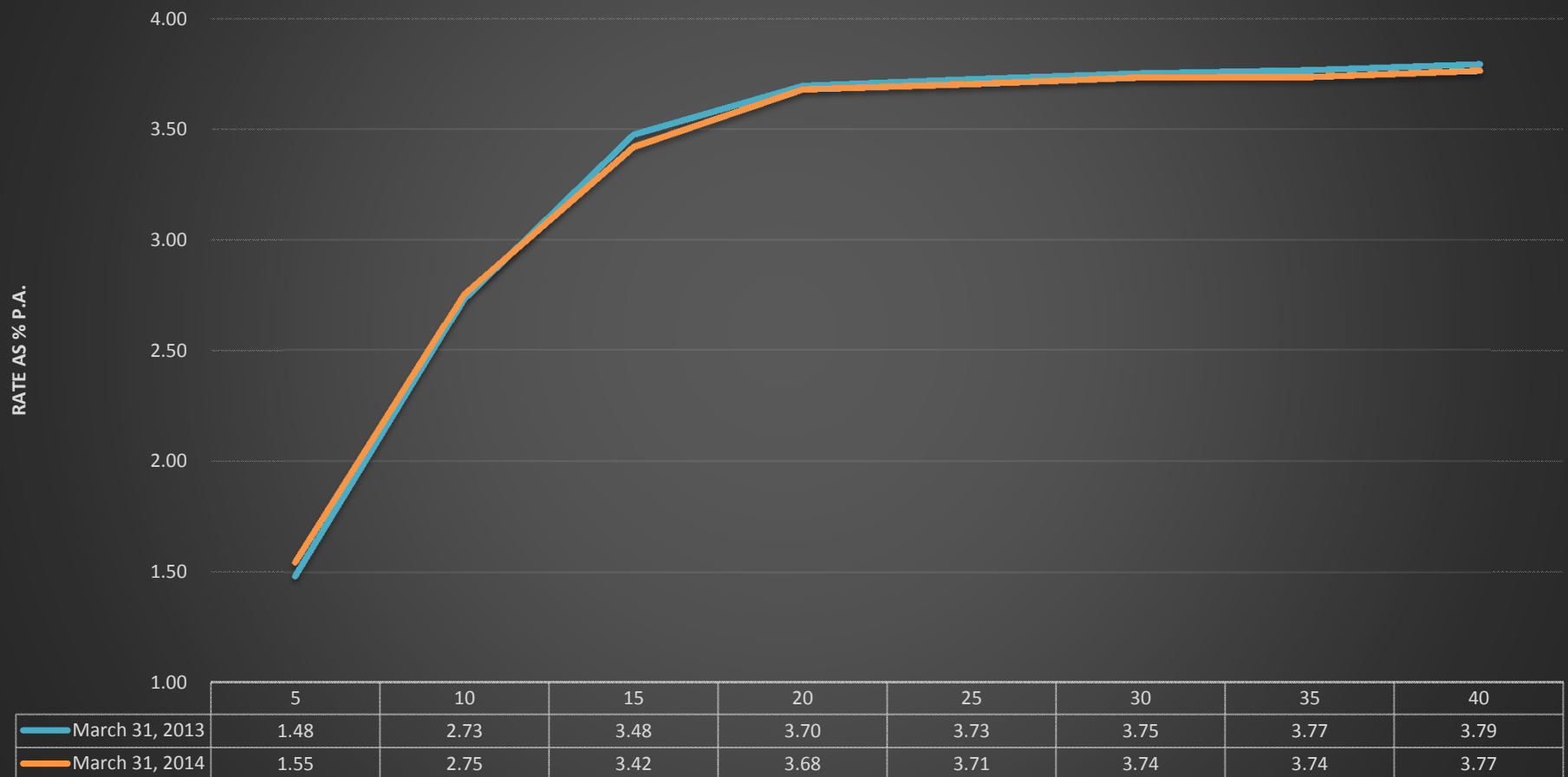
Yield constructed curve based on high rate AA corporate bonds
with a fixed redemption rate -
UK (FRS 17)



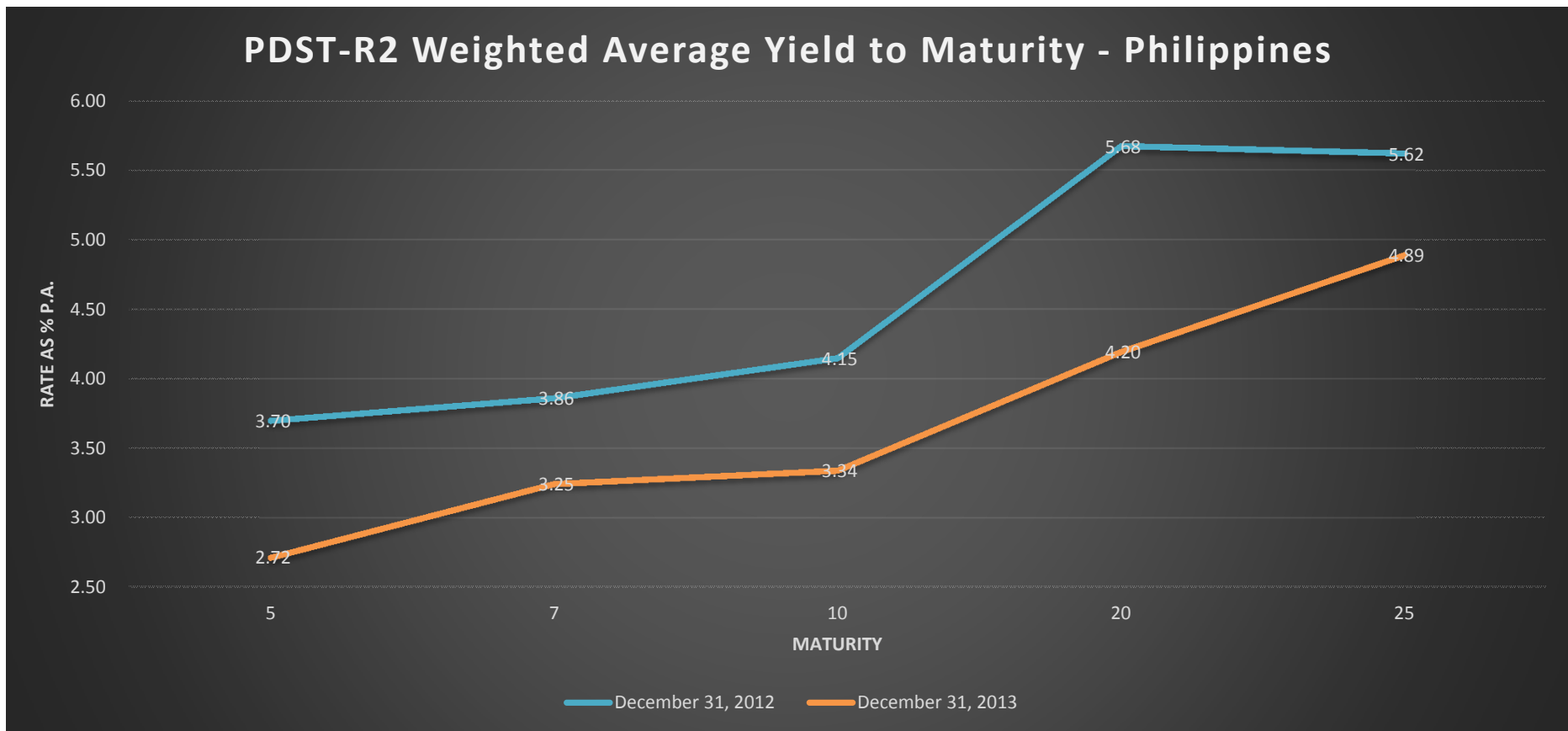
SOME TRENDS IN EUROPE CONT...



YTM on AA corporate bonds in the euro-zone –
Netherlands (IAS 19R)

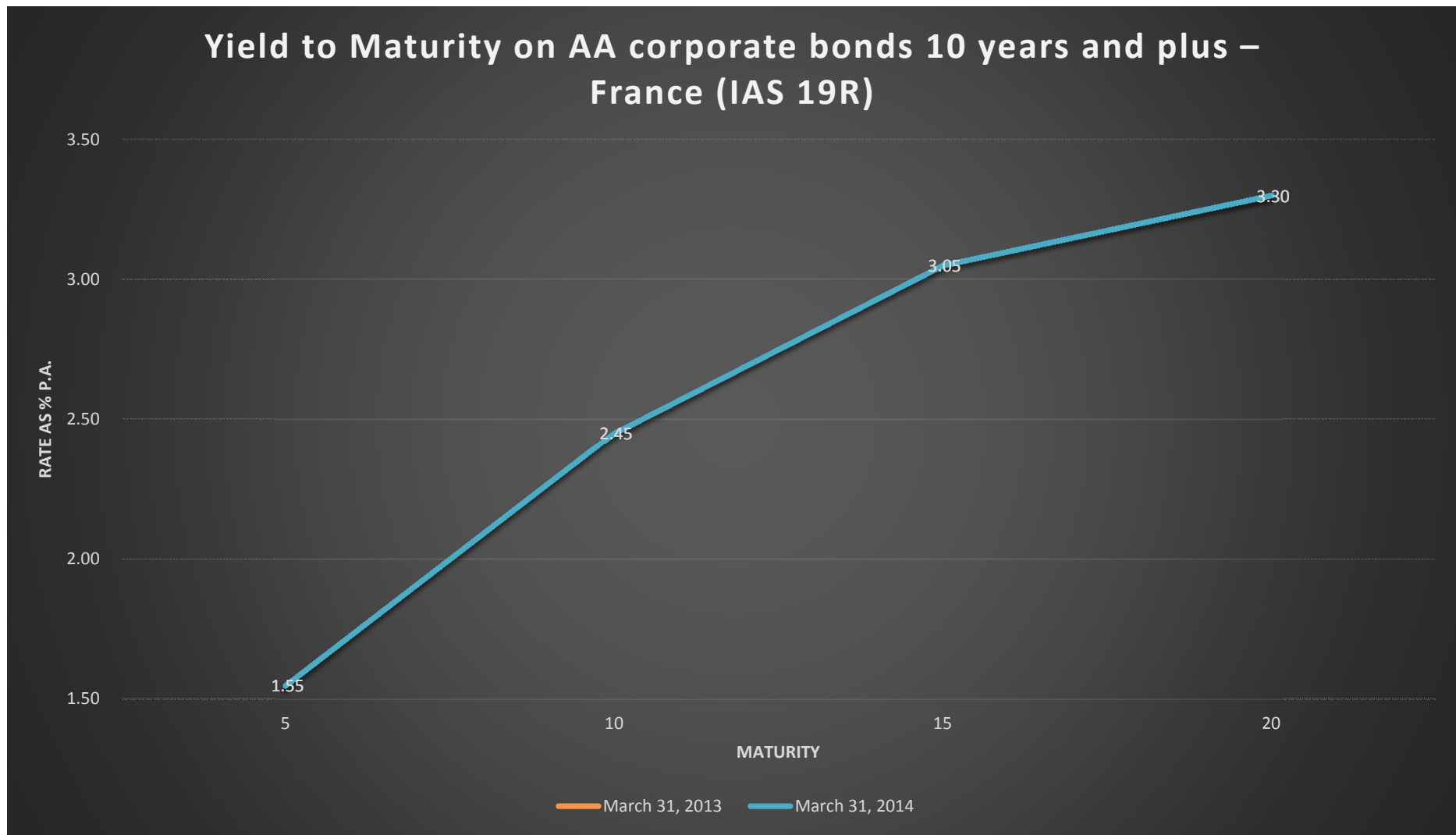


SOME TRENDS IN EUROPE CONT...



- PDST-R2 Benchmarks are calculated from the weighted average yields of done transactions or best firm bid rates as the case may be
- Government Securities price and trade data form the default risk-free benchmark reference rates.

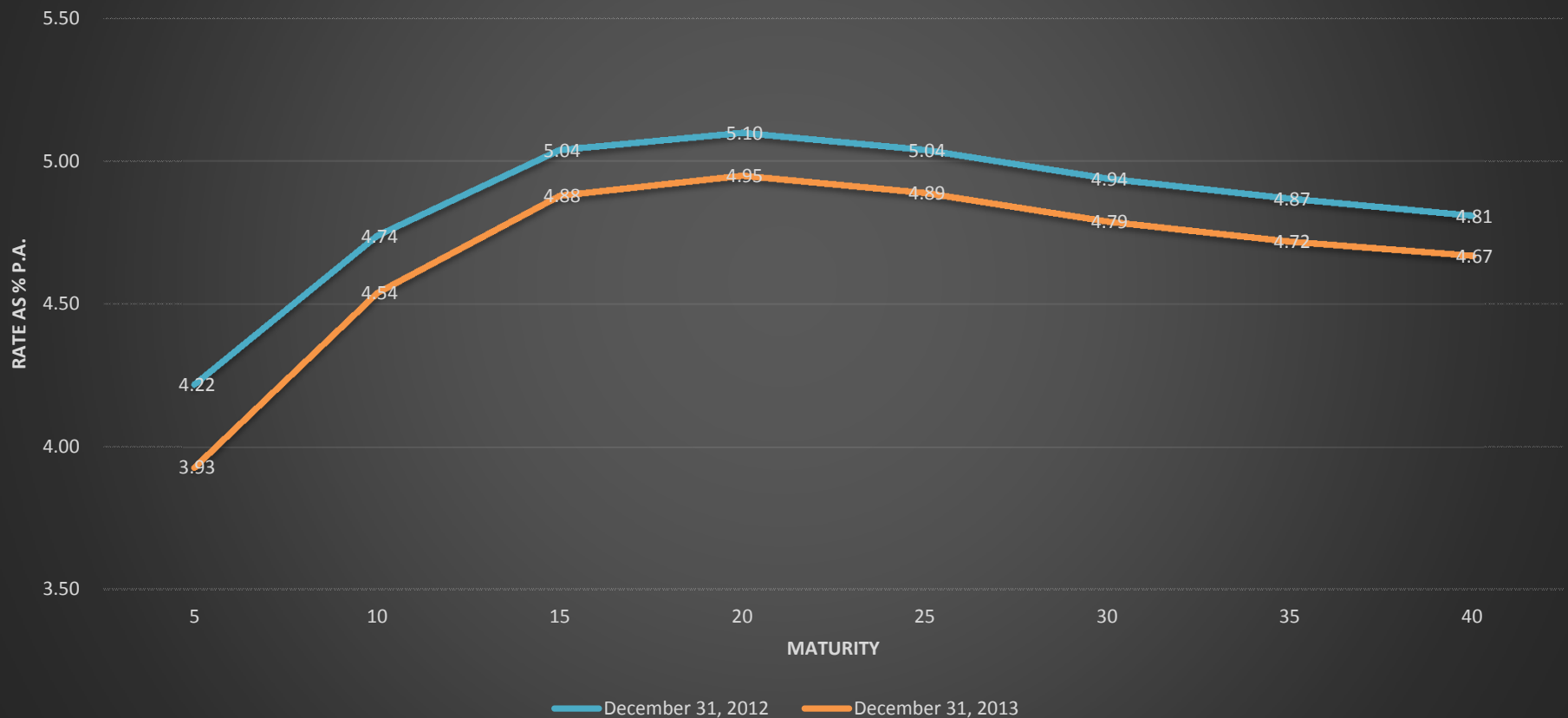
SOME TRENDS IN EUROPE CONT...



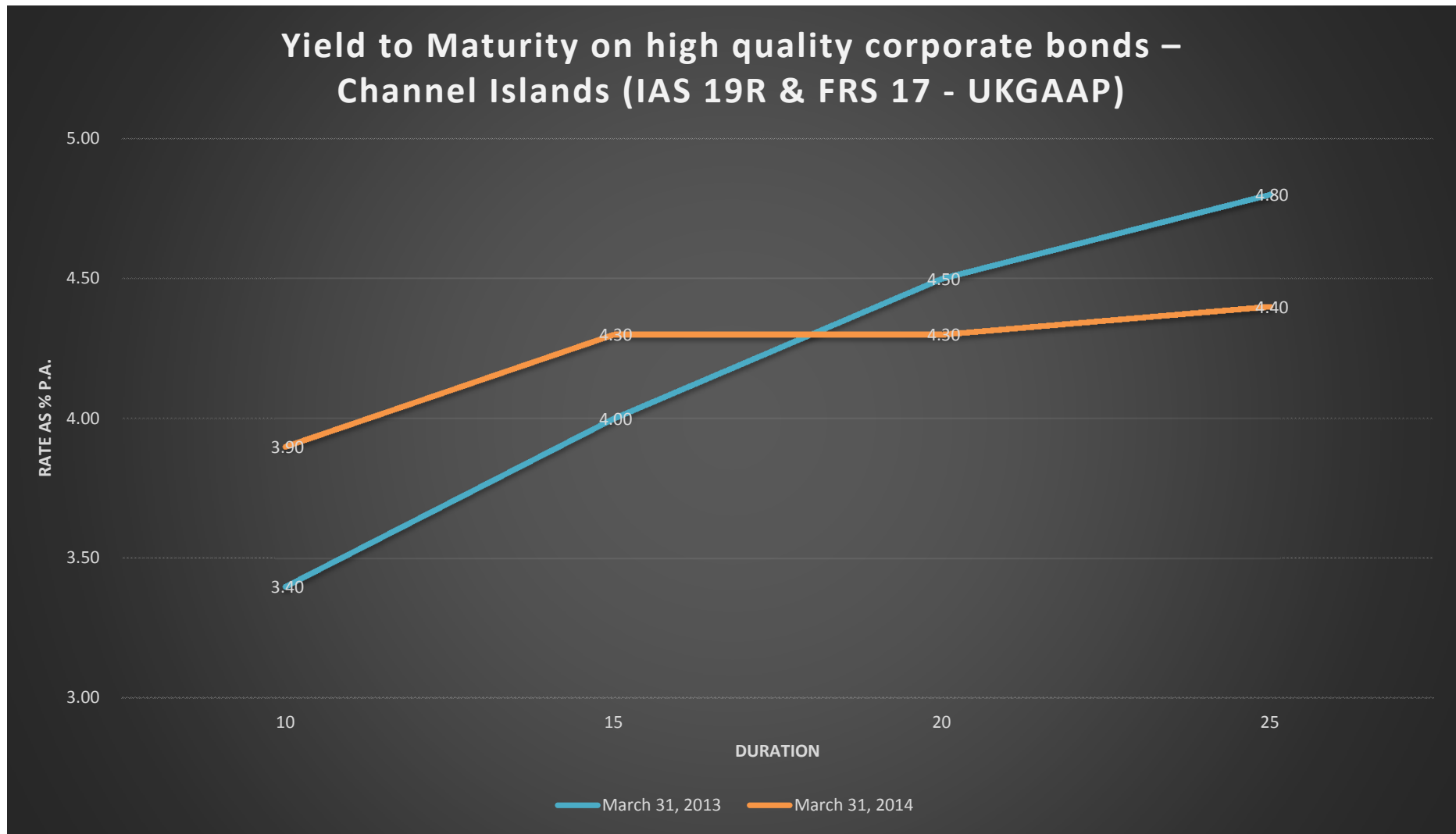
SOME TRENDS IN EUROPE CONT...



Discount rates of the German federal bank according to section 253 para. 2 – Germany (The German Act on the Modernisation of Accounting Law - BilMoG)



SOME TRENDS IN EUROPE CONT...



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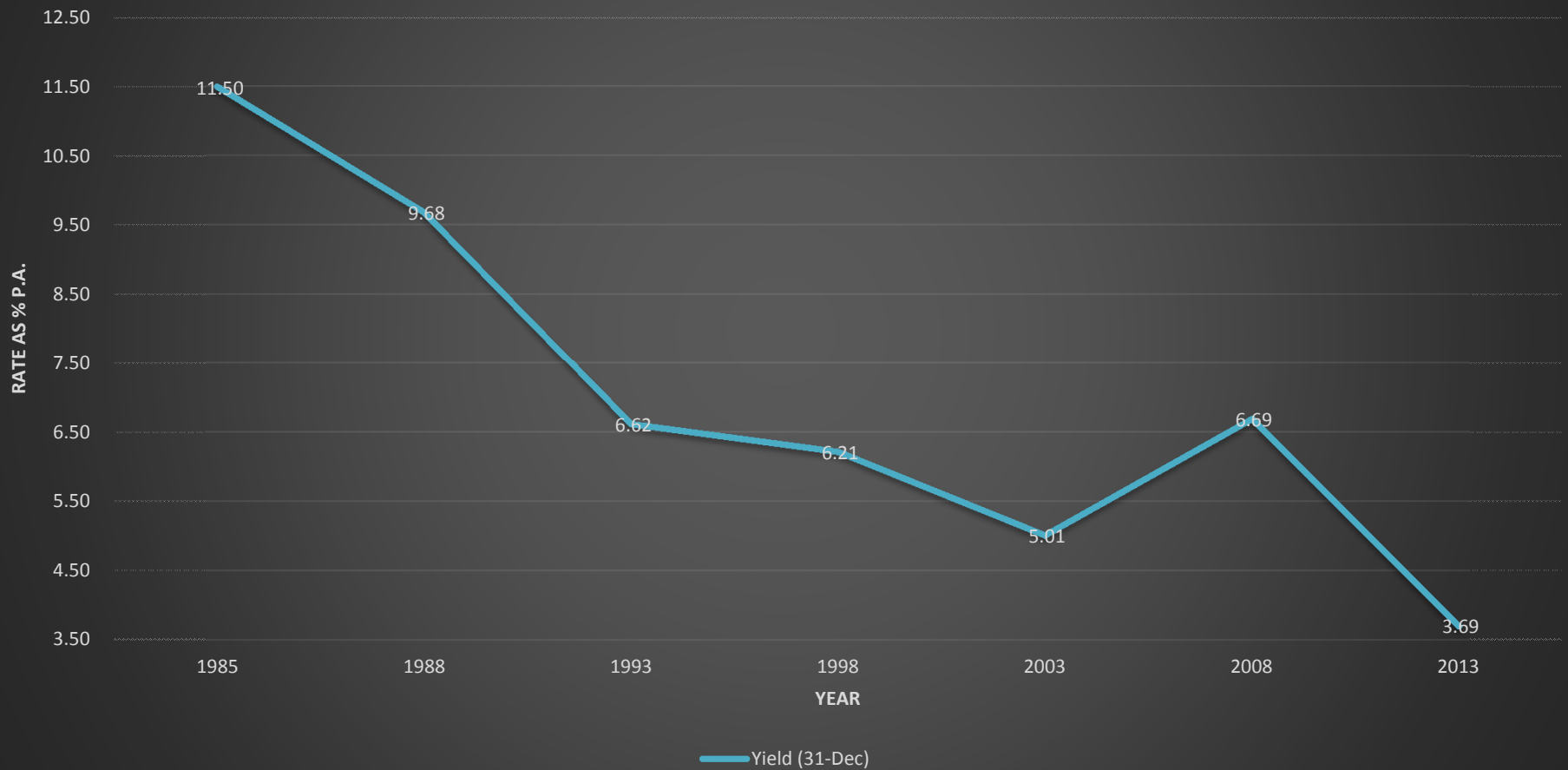


- Argentina:
 - Generally uses a real interest rate between 4% and 6%, as a flat value for all terms (above inflation).
- Austria:
 - The discount rate according to Austrian GAAP is stable over the years, unless there is a significant change in interest rates in the European financial market.
 - The Austrian chamber of chartered public accountants and tax consultants occasionally publishes recommendations of discount rates for valuations of employee benefits according to Austrian GAAP.
 - The years to maturity (duration) is not considered in determining the discount rate.

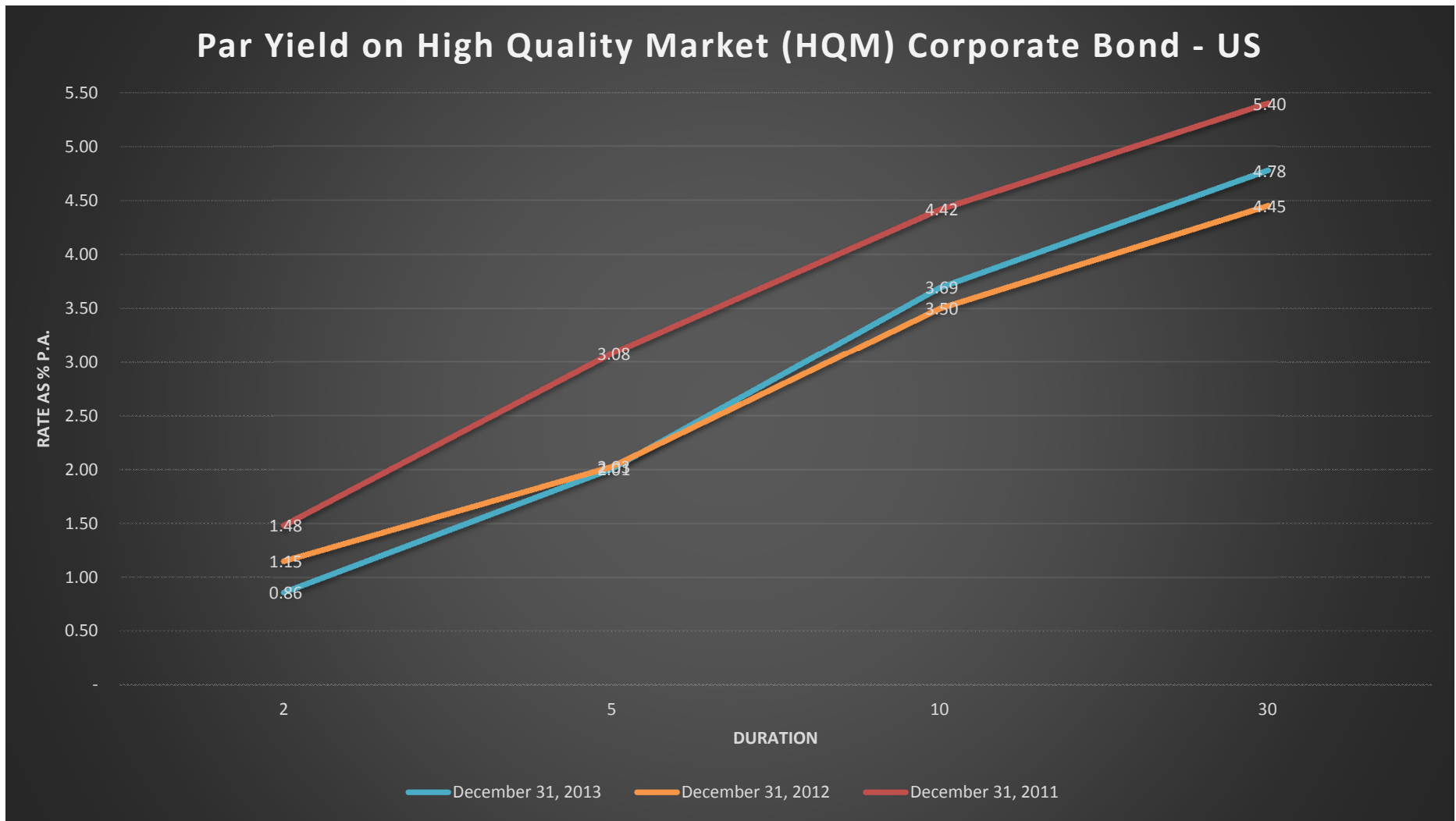
SOME TRENDS IN USA



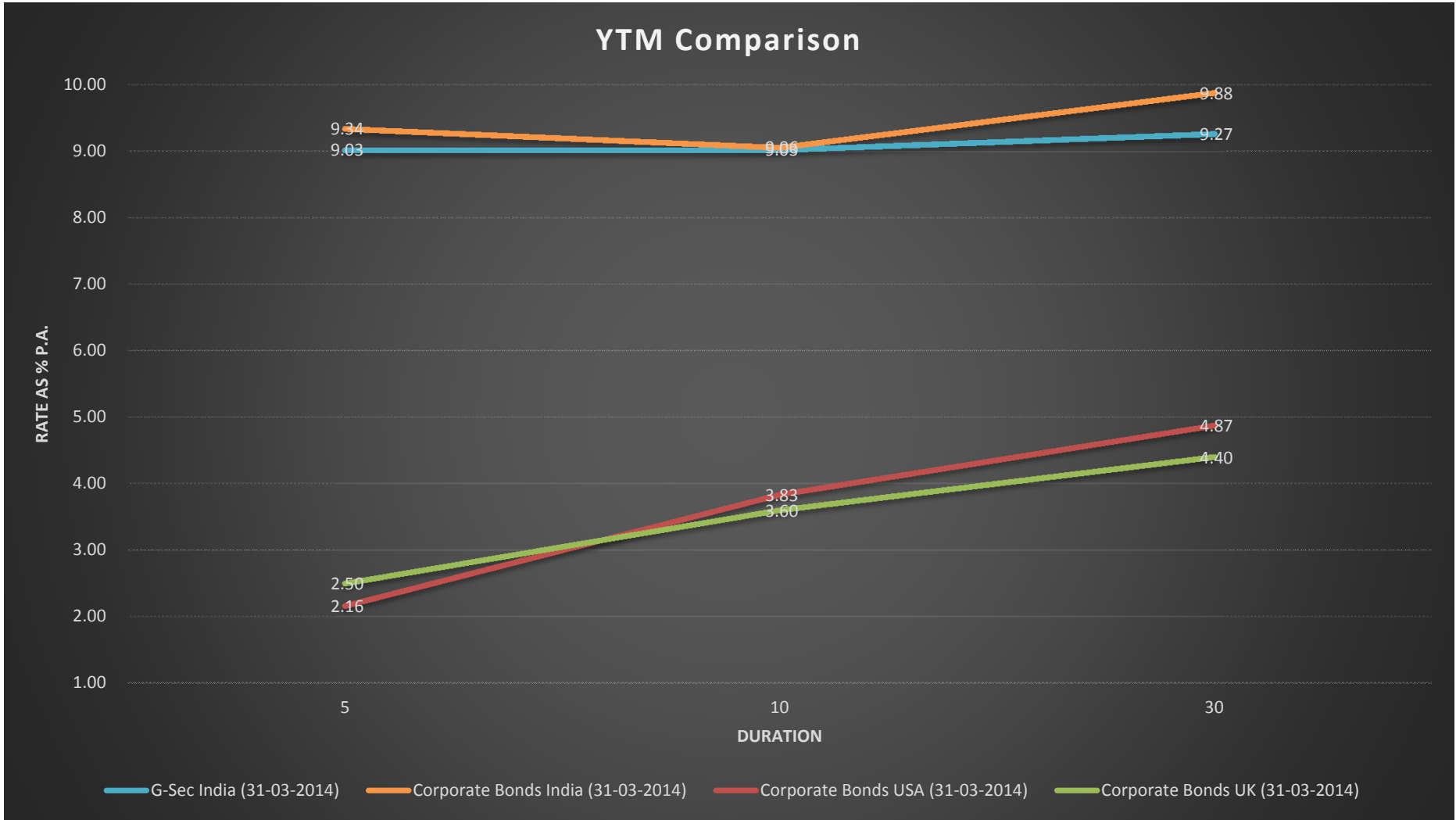
Par Yield on 10 Year High Quality Market (HQM) Corporate Bond - US



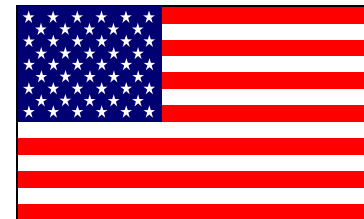
SOME TRENDS IN USA CONT...



COMPARISON



SUGGESTIONS



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- Now maybe a good time to consider strategies that lock-in some of this year's investment gains.
 - Additional plan funding may be appealing in 2015. Not only will it increase the plan's funded status, but it will also help lower future contributions.
 - These could include exploring a Liability Driven Investment (LDI) strategy (which we will see in next session) to more closely align plan assets and liabilities. (LDI is a form of investing in which the main goal is to gain sufficient assets to meet all liabilities, both current and future).
 - Plan's specific cash flows could have an enormous impact on how much the drop in discount rates affects the obligation.
 - Even though increased discount rates tend to lower the present value of obligations, the plan may still have an overall liability increase. This could result from active participants continuing to accrue benefits, or from the fact that benefits will have one year of lesser discounting at 31-03-2014 as compared to 31-03-2013.

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- Our Suggestion is to go with discount rates based on estimations (from an Actuary) for example, weighted average yields (instead of going for actual duration matching G-Sec).

 - Ways to arrive at discount rate:
 - General Approach – An actuary should:
 - ✓ Project cash flows on and after the measurement date of benefits attributed to employee service up to the measurement date;
 - ✓ Identify an appropriate spot-rate yield curve;
 - ✓ Use the spot rates to determine the present value of the defined benefit obligation at the measurement date; and
 - ✓ Determine a single weighted-average discount rate that produces substantially similar present value of the defined benefit and other appropriate calculations (for example, net interest or service cost).

- Appropriate Yield Curve – An actuary may develop an appropriate yield curve from yield data at the measurement date. Alternatively, an actuary may use a third party yield curve (if available), which an actuary has considered appropriate for the purpose of selecting a discount rate (or has adjusted so as to make it appropriate):
 - ✓ When developing a yield curve or assessing the appropriateness of (or making adjustments to) a third party yield curve, an actuary should consider the characteristics of those bonds including the following; (Currency, Quality, Type, Market Depth, etc.)
 - ✓ Curve-fitting, Interpolation and Extrapolation – When an actuary is constructing the yield curve from the available yield data, an actuary should apply appropriate curve-fitting as well as interpolation or extrapolation techniques as required. Interpolation or extrapolation techniques may be used to estimate yields at durations where the actuary considers the yield data unreliable or such data does not exist.
 - ✓ Similarly, when an actuary is using a third party yield curve, an actuary should understand how that third party has constructed its yield curve (if possible).

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- Simplified Approach – An actuary may use a simplified approach to recommend a discount rate rather than following the general approach described above. An actuary should understand the data and assumptions on which the simplified approach is based and the circumstances in which it can be applied appropriately. The simplified approach should take into account both the duration of the benefit cash flows and their skewness (that is, whether the cash flows over time are smooth or lumpy).
 - ✓ An actuary may recommend a single discount rate that, in an actuary's professional judgment, approximates the weighted-average rate that would be determined above.
 - ✓ An actuary may apply a market index or other reference rates with adjustments if appropriate. An actuary should understand the yield data and methodology used to construct the index or reference rate and adjust the rate as appropriate for the duration and skewness of the benefit cash flows.

PROGRESS ON CONVERGENCE



India is going to adopt Indian Accounting Standards, known as IND AS in place of AS. IND AS are in line with IFRS with some modifications as per Indian Economy & Financial Market conditions.

For the purpose of selecting a Discount Rate, the Bond should be denominated in the **same currency** as the benefits to be paid (*Exposure Draft- under consideration*)



Note:- IAS 19R is effective for period beginning from 1st Jan, 2013. It requires retrospective effect to be given, so an actuary will be required to provide information for the previous year's balance sheet as per IAS 19R and the effect on the same is to be shown as per IAS 1. (Exemption for comparative figure of sensitivity analysis amount, only for period beginning before 2014).

DISCUSSION

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THANK YOU