



Interest Rate Derivatives

Overview

This is an intermediate to advanced course focussing interest rate SWAPS & FRA's, interest rate futures and interest rate options. The course is very "**hands on**" in that all delegates will learn to use Excel (without VBA) to precisely price interest rate swap and Fra's (and some exotics) as well as interest rate futures and interest rate options using Excel. As a result, it is strongly recommended that delegates bring their own laptops. Please note that laptops are encouraged but are not compulsory - delegates who don't bring their own laptops will be able to follow along quite easily as all spreadsheets and data are provided on a DvD. The course starts by looking at curves and why they are so important for the valuation of interest-rate derivatives. We discuss all of the details of interest rate derivatives from:



What is a collar?



It is something they put around your neck dude!



- The tools you need to understand derivatives valuation such as probability, cost of carry and stochastic processes.
- The ins and outs of Bond Forwards & Repos.
- Understanding and pricing Short Term interest rate contracts (STIRS).
- Bond futures (including cheapest to deliver).
- Understanding SWAPS and FRAs.
- Pricing and valuing Swaps and Fras using different methods.
- Mark to market of a SWAP.
- Overnight Index Swaps.
- Basis SWAPS.
- Bootstrapping the SWAP curve.
- Some Exotic swaps and their valuation.
- The blended curve.
- Traditional methods of pricing options.
- The Black model for pricing interest rate options.
- Single and multiple term structure models.
- Options on Futures.
- Understanding and pricing Caps, Floors, Collars, Corridors.
- The Greeks.
- Hedging spot positions using interest rate derivatives (in particular Swaps and options).
- Hedging interest rate derivatives with other interest rate derivatives.

Please refer to the agenda for more info.

Geometric Progression is accredited as a provider of education and training by BANKSETA. Accreditation number: 557066.

We are a B-BBEE level four contributor. We have a B-BBEE procurement recognition level of 100%. The rating was performed by the Department of Trade and Industry (the DTI).

Contact Sandra at:
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Reg No: 2005\020493\23





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Level: Intermediate to Advanced

Duration: 4 Days. (8h45 - 16h30)

Prerequisites

It is important to point out that delegates are expected to already be familiar with the different types of Interest Rate Derivatives. In other words, it is expected that delegates will already be familiar with how the financial markets work and will have completed an introductory derivatives course covering what the interest rate derivatives are and the basics of how they work (please refer to the "Understanding derivatives" course for more information). Although the start of each of the topics includes how the products work and why we use them, the focus is on the valuation and the more technical aspects of the products.



Furthermore, delegates will be required to know and understand:

- The bond markets.
- The money markets.
- Fundamental aspects of pricing spot bonds and spot money markets instruments. (Please refer to the "Comprehensive Introduction to Bonds" course regarding Bonds, bond valuation and curves for more information).
- The concept of margining and futures contracts.
- The basic concept of options and how they work.
- The concepts of trading e.g. bid, offer, yours, mine etc.
- The concepts of calculus i.e. the basics of differentiation and integration.
- The concepts of the time value of money.
- The basics of how to use Excel.

Please note that pre-reading will be made available for all the delegates who attend the course. The pre-reading will only cover summary material of calculus, trading and the time value of money. The pre-reading is orientated to those who want to recap the key concepts.

Suitable for:

- Business analysts;
- Investment analysts and Research;
- Investors;
- Traders;
- Regulators & Compliance Staff;
- Risk Managers;
- Fund Managers & Trustees;
- Graduates and interns;
- Delegates registered to write CFA® exam, FRM® exam, PRM® exam;
- Anyone seeking a greater insight into the interest rate derivatives market;

A certificate is available on request

Cost & Details

This course is mostly run on an in-house basis and is occasionally run publicly. Please contact us if you are interested in either running the course internally or would like to attend a public course. Check out the website for more info. A notice will be sent out if you are on the email database.

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Agenda

1. Curves and why they are so important for interest rate derivatives.

- The Par Curve
- Bootstrapping
- The zero / spot curve
- The Forward Curve

Please note that the linear interpolation approach will be used to "joint the dots". For a more in depth look at curves and the different types of interpolation techniques please refer to the Geometric Progression course called "Yield curves & Swap Curves: Interpolation, Interpretation and Analysis".

2. The tools you need to understand derivatives valuation

- Understanding Fair Value
- Expectation pricing versus arbitrage pricing.
- The cost of carry concept.
- Understanding probability, odds and gambling.
- Distributions.
- Martingales and sub-martingales.
- Stochastic Processes.



3. Interest rate forwards

- The ins and outs of Bond Forwards.
- The Interest rate Cost of Carry and the forward rate.
- The relationship between forwards and REPOS.

Delegates will price the products using Excel and current data.

4. Interest rate futures

Understanding Short Term interest rate contracts (STIRS).

- Pricing STIRS.
- The Convexity effect.
- Understanding bond contracts (including cheapest to deliver).
- Pricing bond futures.

Both local and international examples of futures contracts will be used. Time will be spent looking at the advantages and disadvantages of using the products. Delegates will price the products using Excel and current data.



5. Interest rate swaps

- Understanding SWAPS and FRAs.
- Uses of SWAPS and FRAs.
- Pricing and valuing Swaps and Fras. *Please note that numerous methods will be used to demonstrate how to value SWAPS e.g. from spot rates, FRAs etc. Furthermore, different techniques will be used to derive the value of the SWAPS.*
- *Mark to market of a SWAP.*
- *Overnight Index Swaps.*
- Basis SWAPS.
- Some exotic Swap strategies to take advantage of yields curve shifts.
- Bootstrapping the SWAP curve.
- The Blended curve.
- Swap spreads.

Delegates will price the products using Excel and current data. Furthermore delegates will bootstrap a linear blended curve.

6. Interest rate options

- The Black - Scholes - Merton approach to pricing options.
- The simple tree / lattice valuation.
- Why the traditional Black - Scholes - Merton model is inadequate for interest rate options.
- The Black model for pricing interest rate options.
- Single and multiple term structure models.
- Options on Futures

Please note that this section uses calculus. Background reading regarding the concepts of calculus will be made available for those who are a bit rusty and want to recap the concepts. Delegates will price the products using Excel and current data.

7. Collars caps and floors.

- Understanding Caps, Floors, Collars, Corridors.
- Pricing Caps and Floors.

Delegates will price the products using Excel.

8. Interest rate Option sensitivities.

- The Greek alphabet and the behaviour of the "Greeks".
- A look at Estimating volatility and correlation.
- Volatility smiles.
- Volatility surfaces.
- Volatility cones.

9. Hedging interest rate products.

- Hedging spot positions using interest rate derivatives (in particular Swaps and options).
- Hedging interest rate derivatives with other interest rate derivatives.



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Tutor: Mark Raffaelli CFA,FRM

Mark graduated with a Bachelor of Commerce from the University of Natal, South Africa in 1990. He is a CFA Charterholder and a member of the CFA Institute. He is also a fellow member of the Global Association of Risk Professionals (GARP) and has the Financial Risk Manager (FRM) qualification. Mark's extensive experience ranges from trading in Spot & Derivative Products and Consulting to the development of Risk Models, Pricing Software and Trading Systems. Those who have been to Mark's courses will know about his passion for the financial markets and ability to cut through jargon, simplify technical issues and provide real life examples. He has been nicknamed the "Steve Irwin of the financial markets".



What makes Geometric Progression different from other providers:

- We don't regurgitate traditional textbooks; instead we share real life experiences.
- We explain all the products as they relate to your own lives in plain English.
- We look at how the products are used by the professionals and how you could use them yourselves to make money.
- We are one of the few providers globally that also runs courses on the more intricate aspects of the financial markets e.g. stochastic mathematics, matrices etc.
- We love multimedia and include video and film in our courses.

We also offer practical training e.g. we teach people how to trade as if they were on the desk so that they get a turn to find out what it is like. Excel and computer examples are used where required.



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Terms and Conditions

Customer Information:

Fees include all the tuition, course file, lunches and refreshments for the duration of the course. Geometric Progression is not responsible for covering airfares or other travel costs incurred by registrants. Delegates will be responsible for their own accommodation and transport.

Disclaimer:

Geometric Progression reserves the right to change or cancel any part of the training courses due to unforeseen circumstances.

Cancellations:

If you cancel more than 10 working days before the course date, there is no cancellation fee. If you cancel between 2 and 10 days before the course date, a cancellation fee of 50% will be charged. Any cancellation less than 2 days before the course date will result in the full fee being charged.

Substitutions:

Registered delegates may be substituted at any time prior to the seminar without incurring any additional fee. Please inform Geometric Progression of the change.

Payments:

Payments must be made prior to the running of the event unless otherwise agreed with Geometric Progression.

Confirmation:

All registrations will be deemed confirmed and subject to these Terms and Conditions. Any disabled individual desiring auxiliary aid for this conference should notify Geometric Progression at least one week prior to the conference in writing, fax or email.

PLEASE NOTE:

Geometric Progression reserves the right to refuse admission where evidence of full payment cannot be shown. Should you require an original VAT INVOICE to requisition payment, please contact us on (0861) 000 615.

Geometric Progression reserves the right to cancel the course. Registered delegates will be notified and a full refund will be made.



Booking Form

Course: _____ Date of Course: _____

DELEGATE 1

First & Last Name: _____

Designation: _____

Company: _____ Department: _____

Tel: _____ Fax: _____ Cell phone: _____

Email: _____ VAT Registration No: _____

Postal Address _____

Special Dietary requirements (pls circle) None Kosher Halaal Vegetarian

DELEGATE 2

First & Last Name: _____

Designation: _____

Company: _____ Department: _____

Tel: _____ Fax: _____ Cell phone: _____

Email: _____ VAT Registration No: _____

Postal Address _____

Special Dietary requirements (pls circle) None Kosher Halaal Vegetarian

DELEGATE 3

First & Last Name: _____

Designation: _____

Company: _____ Department: _____

Tel: _____ Fax: _____ Cell phone: _____

Email: _____ VAT Registration No: _____

Postal Address _____

Special Dietary requirements (pls circle) None Kosher Halaal Vegetarian

Authorised By: Date:.....

Signature: