Young ICCA—Skills Training Workshop

Introduction to Financial Instruments

Erin B. McHugh, CFA
Associate Director, NERA Economic Consulting

Seventh P.R.I.M.E Finance Annual Conference
Peace Palace, The Hague
23 January 2018
Introduction to Financial Instruments

- **Stock / Share (equity)**: security representing ownership interest in a corporation, entitling shareholder to dividends

- **Bond (debt)**: security representing borrowing by an entity (typically corporation or government), entitling bondholder to the repayment of principal (face value) at a specified date (maturity), as well as periodic interest (coupon) payments

- **Derivative**: financial instrument whose cash flows depend upon the performance of one or more underlying assets, indices, or rates
# Comparison of Common Stock and Bond Features

<table>
<thead>
<tr>
<th>Feature</th>
<th>Common Stock</th>
<th>Bond</th>
</tr>
</thead>
<tbody>
<tr>
<td>Claim on assets</td>
<td>Junior</td>
<td>Senior</td>
</tr>
<tr>
<td>Voting rights</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Form of periodic payments</td>
<td>Dividend</td>
<td>Coupon</td>
</tr>
<tr>
<td>Marketplace</td>
<td>Exchange</td>
<td>Generally OTC*</td>
</tr>
<tr>
<td>Maturity</td>
<td>Perpetual</td>
<td>Stated</td>
</tr>
</tbody>
</table>

* Over the counter
Bond Example

Price of bond equals bond’s cash flows (periodic coupons and repayment of principal at maturity) discounted by the appropriate rate(s)

\[
\text{Price of bond} = \frac{\text{Coupon}_1}{(1 + r_1)} + \frac{\text{Coupon}_2}{(1 + r_2)^2} + \ldots + \frac{\text{Coupon}_T + \text{Face}}{(1 + r_T)^T}
\]

\( r = \text{discount rate} \)
# Introduction to Derivatives

## Types
- Forward (OTC)
- Future (exchange)
- Option (exchange and OTC)
- Swap (OTC)
- Other (e.g., Swaption)

## Underlyings
- Common Stock
- Bond
- Index
- Currency
- Other (e.g., Commodity)
Option Example

Entitles the holder to buy (call) or sell (put) an asset (e.g., stock) at a specified (strike or exercise) price at (or before) a specified date.
Swap Example

An agreement between two counterparties to exchange cash flows

(Vanilla) Interest Rate Swap where Party B receives fixed rate

**Notional Principal:** €100 million
**Term:** 10 years
Credit Default Swap Example

An agreement in which one counterparty makes periodic payments to the other for insurance against a specified credit event

CDS where Party A buys protection from Party B on the Reference Entity

Notional Principal: €10 million
Term: 5 years

Party A

CDS Premiums

Party B

Contingent Payment

Reference Entity

Credit Event
Global derivatives market is very large, with interest rate derivatives representing largest portion

Notes and Sources:
Data are from BIS Derivative Statistics, updated as at 29 November 2017 for both semi-annual OTC derivatives statistics and exchange-traded derivatives statistics.
Valuation Considerations for OTC Derivatives

- Upon early termination of transaction, valuation required to determine close-out amount
- Unlike with exchange-traded derivatives, may not be able to observe pricing in the markets
- Market participants may come to different opinions regarding:
  - Mid-market valuation (different valuation models and/or different model inputs)
  - Bid-offer spread / liquidity charges
  - Netting
- Disputes may arise requiring expert determination
Contact Us

**Erin McHugh, CFA**

Associate Director  
NERA—London  
+44 20 7659 8736  
erin.mchugh@nera.com