**Credit Markets – Homework 8**

**Matheus Raka Pradnyatama**

**Problem 2. a) Convertible Bond**

Merton Model (L7. Page 19)

Fair Value of Risky Bond

At maturity , the convertible bondholder will receive the greater of:

* Conversion value:
* Non-conversion payoff, the minimum of the liability or the asset at time T:

Therefore, the payoff will be:

Only receive when

Value of the Conversion Option is similar to a call option with strike:

**Fair Value of Convertible Bond at time-0**

It is economical for the convertible bond holder to exercise the call option when:

**Problem 2.b) Convertible Equity Value**

When a convertible bondholder exercises the call option, they dilute the existing equity.

If the firm’s total asset at time T is , and the bondholders converts , the remaining portion is to be enjoyed by the original equity holders.

Convertible Equity Value will be minus the expected loss from conversion:

From Lecture 7, page 19:

**Fair Value of Convertible Equity at time-0**

**Problem 4.b)**

For zero-coupon bond,

**Problem 4.d)**

Geometric Sum formula:

Present Value of Bond

Present Value of Interest-Only (IO) Bond