Week 5 - Summary

Hi there, welcome to the summary class of this week.

Ok, let's start our review from Merton's model.

What we have seen is that Merton's model is a structural model of default.

That means that default happens when a stochastic variable, representing the assets of the company, falls below a predetermined threshold.

In Merton's model, we have that default happens when the market value of the assets of the company, at maturity, is smaller than the value of liabilities.

Debt, in Merton's model, is essentially represented as a zero-coupon bond.

And, very important: default can only happen at time T, i.e. at maturity.

Remember that this is one of the points of weakness of Merton's model.

Always on Merton's model, we have seen that the probability of default is expressed in terms of a cumulative distribution function of a standard Gaussian.

In particular, this is computed in -d2, which is what we see here.

What we can say is that the PD increases in the level of debt, in the volatility of assets; while it decreases in the value of the company today.

We have then seen...the KMV model. The KMV model is a derivation of Merton's model.

It is actually one of the most important derivations of the model.

In the KMV model, default can happen at any time before T. So...not only at maturity.

The cumulative distribution function of the standard Gaussian, which is one of the main

characteristics of Merton's model, here is substituted with an empirical function, which

is estimated by Moody's KMV using a huge proprietary data set.

And finally, we have that we introduce the so-called DD.

DD is nothing more than the argument of the empirical function used by Moody's KMV, to obtain the probability of default.

Ok, for this week, we are done.

Next week, we will see other models that we can use to estimate the probability of default

of a company.

We will consider CreditMetrics by JP Morgan, and Credit Risk + by Credit Suisse.

Goodbye!