(#) and Title **(FINA 17) Asset Securitization**

Description Introduction to the theory and practice of asset securitization.

Prerequisite FINA 512 Corporate Finance

Course Outline

Class 1 - 2 **In the morning**, we define securitization and structured finance. We examine the motive for refinancing the company assets off-balance sheet: assets do not always equal liabilities in real value terms. We start the class off with a role play that illustrates the features of this market, namely:

- Since securitization/structured finance space is measurable, valuation and structuring exist without an authoritative mark (a price or rating)
- Knowledge of the structure can change the structure, which implies that a structure is the solution of a nonlinear problem
- Assets ≥ liabilities must be true at all times for a cash transaction (where ownership is transferred, not just risk) which implies that not all transaction solutions are feasible

Then we present the valuation framework as mathematical, where the basic requirements for building sustainable transactions are (i) knowledge of its lexicon; (ii) access to good data; and (iii) transactor numeracy. We present a simple model for structuring and valuing ABS: ***the back of the envelope*** (**BOTE**), where risk measured in the ratio of total expected credit enhancement to cumulative losses. BOTE requires that students learn the meaning of the *average life*, the maturity used for pricing ABS.

For the rest of the day, we look more closely at the problem of good data: (i) what is it, how do we know it is good, what is bad data, how can we know when the deal data presented to us is deceptive? (ii) how is data used in deal analysis and structuring? I embed a hands-on exercise based on (ii) which asks students to perform the BOTE using a definition that replaces *mean* cumulative losses with the *standard deviation* of the cumulative loss distribution (which is closer to the modern-day definition). We also have a transaction case study based on (i). For homework, students read a case study (UniCapital LLC I-II) whose numerical interpretation rests on the ability to use the BOTE model.

Class 3 - 4 **In the morning**, we analyze the application of the BOTE to the UniCapital case and use logic to tease an interpretation out of the valuation it gives us. The content of Classes 3 – 5 is focused on valuation and structuring using the cash flow model. **For the rest of the morning**, I lay out the organization of the cash flow model. Then, I present the formulas for the asset side of the cash flow model that starts from an analysis of the state conditions of the loans (performing as scheduled, defaulting, prepaying in full; we rule out partial prepayments), looks at the dollar impact of each of these states, and ends with a summary of cash available for distribution, allocation rules and principal amortization.

In the afternoon, I also present the formulas for the liability side of the cash flow model, which is to say, the waterfall: a simple two-tranche structure. After reviewing the formulas, students begin to build their cash flow models from scratch.

Class 5 - 6 The work of cash flow building carries over into Classes 5-6. When the students are finished building the analysis of cash flows to security holders, we also review the mathematics of rating based on defaults, losses or reductions in yield. Students are then asked to measure the average life and the reduction of yield. From this point on, they must answer (in groups) a series of questions designed to enable them to understand the dynamics of risk and return in structured securities. It is only at this point that they fully grasp the meaning of nonlinearity and asset-liability parity. It is usually at this point that they also understand what went wrong in the structured finance market. The remainder of class time is spent reviewing the material for the exam.

Class 7 In the morning, we present the extension of the ABS paradigm elaborated over the prior six classes to securities issued by other types of structured finance vehicles: credit card master trusts, CDOs, ABCP and SIVs. We also discuss their formal characteristics, but without the mathematical underpinnings and detail in the first six classes.

Rec. Texts: ***The Analysis of Structured Securities***, lecture notes.