

Banking & Finance Frühlingssemester 2019



Universität
Zürich^{UZH}

ETH

Eidgenössische Technische Hochschule Zürich
Swiss Federal Institute of Technology Zurich

The Risk & Finance Lab

The image displays the ARIADNE software interface, which is used for risk and finance analysis. The interface is divided into several sections:

- Navigation Menu:** A tree view on the left side of the main window, listing various financial categories such as Balance Sheet, Assets, Liabilities, Loans, and Fixed Assets. The 'Balance Sheet' category is currently selected.
- Choose Item:** A central area with a red text prompt 'Choose Item' and several red icons representing different financial instruments or data points.
- Volume:** A section on the right side of the main window, containing a table with columns for 'Type of Target', 'Reached At', 'Down', 'Over Original', and 'Over Default'. The table is currently empty.
- Characteristics & Market:** A section at the bottom right of the main window, featuring a line chart and a bar chart. The line chart shows a trend over time, and the bar chart shows a distribution of values.

The ARIADNE logo is visible in the top left corner of the software window.

Quantitative finance is considered by many as rocket science. Indeed it is quite demanding as you probably experience right now. Despite its demanding mathematics – or because of it – there are many simplifications that defy real life. Consider for example, that most of the theoretical framework is built on models with zero coupons in the background. But how many zero coupons are out there? Real life is a bit more complex. If you are interested how real life can look without having to brush away good theory, here is your chance.

This course offers the unique opportunity to combine theory and practice in risk&finance. At the end of the course you will have hands on experience in building up real-cases models and system in one of the following areas

- Stress testing
- Market & Credit Risk
- Liquidity forecast
- ALM analysis
- Systemic & Concentration Risk
- Option pricing
- Book keeping
- Regulatory compliance
- And others

You will also understand how these often unrelated looking fields can be represented in a fully consistent and integrated manner.

Sound praxis builds on sound theory. The theoretical part is well documented based on a recognized book, meaningful slides and other supporting documents.

The backbone of the lecture is:

Unified Financial Analysis, the Missing Links of Finance, by Willi Brammertz, Ioannis Akkizidis, Wolfgang Breymann, Rami Entin, Marco Rüstmann, published by John Wiley & Sons London/New York, March 2009

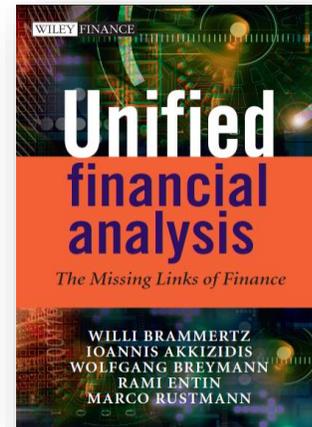


Figure 1: The Book used as the main reference for the theory of this course

Most students however will look excitedly forward to the laboratory where you can use the most advanced financial simulation environment ARIADNE and build real models.



Figure 2: The Software Ariadne used for building up the models for financial and risk management analysis

Ariadne is the state-of-the-art professional system for Financial and Risk Management Analysis. It is a successor of an earlier system which has been implemented in more than 200 large and small banks in almost 30 countries.

A unique feature is the close relationship between the theoretical and the practical part. The principal author of the book and the father of this software are the same.

Students will have access to the system on their own computers (based on web browser GUI under both Windows and Mac OS).

Figure 3: Login window

You will have real life experience using Ariadne in the following fields:

- Input
 - Mapping Financial contracts
 - Identifying and model market conditions
 - Identifying Counterparties
 - Identifying and modeling Behavioral elements
- Static Analysis
 - Financial events
 - Value & Income
 - Sensitivity
 - Risk
 - Market
 - Credit
 - Liquidity

- Dynamic Analysis
 - Simulation models as for example demanded by CCAR and ICAAP

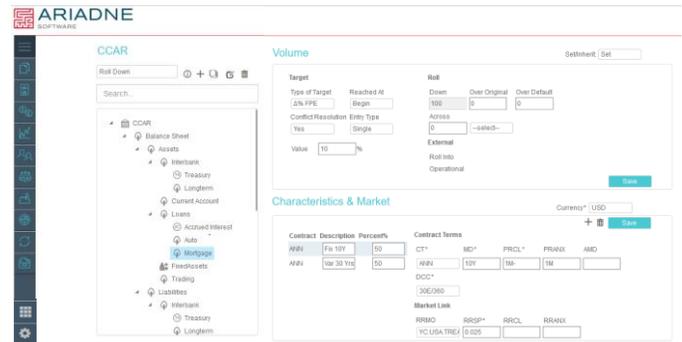


Figure 5: Parametrization window for dynamic simulation

Dynamic simulation will be the most inspiring exercise. With a limited number of parameters, it is possible to define a business strategy for a desired time horizon. This in combination with the forecasted risk factors (interest rates etc.) creates future cash-flows, balance sheets and P&L statements, a superb basis for management decisions.

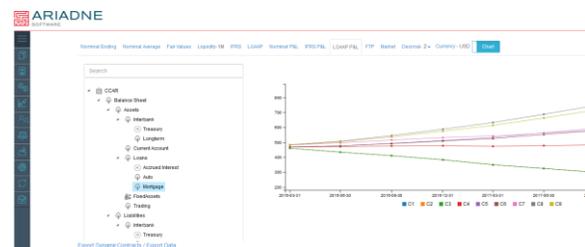


Figure 6: Forecasted fair values

Students will from groups and solve a task, which then will constitute 50% of the lecture marks (the other 50% is based on theoretical knowledge).

Examples of tasks could be:

- Model a large bank in Switzerland and perform a liquidity stress test
- Calculate the effects on value, income and liquidity of a default of one or several members of the European Community
- Simulate an interest rate income of a regional Swiss bank under three scenarios. What are the implied risks?
- Etc.

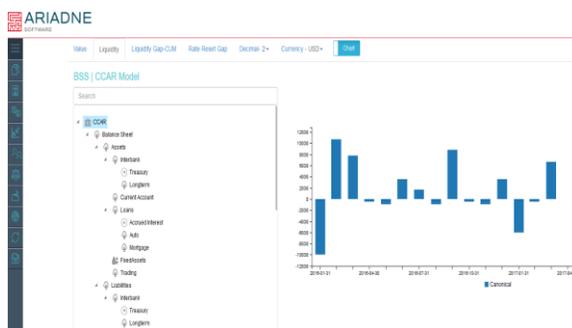


Figure 4: Liquidity gap

Registration will be limited to around twenty students.

Preconditions are a minimum level knowledge of banking and finance. Besides pricing and valuation, this should also include basics in book keeping related terms like balance sheet and P&L; assets, liabilities and equity etc.

Besides the normal registration please send an e-mail to willi@brammertz-consulting.ch shortly describing your interest and current knowledge level in banking and finance.

For more info, please visit UZH webpage indicating the module: **MFOEC210 Seminar**

Course No: 3764

UZH COURSE CATALOGUE

DIRECTORY SEARCH NOTED ITEMS TIMETABLE

MFOEC210 Seminar

Description Times/Rooms Component

Business event contents: Aim of the lecture: to discuss and demonstrate the common mechanisms underlying all types of financial analysis spanning from liquidity risk management via traditional and advanced book keeping to rocket science risk analytics. It will be shown, that based on sound first principles, it is possible to reduce complexity of financial analytics to a manageable level without compromising on its content.
Lab: in the lab tutorials students can practically implement the knowledge acquired in the lectures with a professional, globally used software, thereby enhancing the learning effect significantly. Students will build models in groups which handle problems such as "Liquidity stress scenarios at a large UK bank" or "Interest income forecast at a regional Swiss bank under different market scenarios" or "A global framework of credit risk exposure" etc.

Course Materials: Brammertz et al. "Unified Financial Analysis: The missing links of finance" John Wiley & Sons, 2009. For availability of the required reading please refer to "Link(s)".

Times: Fri 08:00-12:00

Instructor: Ioannis Akkizidis
Willi Brammertz

Languages: English

Notes: Technical equipment: bring your own laptop.
Students with a bachelor in banking and or finance and students participating in the Master of Science UZH ETH in Quantitative Finance can apply directly. Other students should contact Willi Brammertz by mail willi@brammertz-consulting.ch before applying. The course is limited to +/-20 students. In case of overbooking, the order of application applies.

Program: Seminar + Exercise (2+2)

Open to Auditors: No

Links: <https://www.msfinance.uzh.ch/en.html>
Unified Financial / Brammertz

Figure 7: Application / Registration Information