

MGIMO University
School of Government and International Affairs

Syllabus approved
Dean, The MGIMO School of Government and International Affairs
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“ ”
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Money, Banking and Financial Markets

Undergraduate Course Syllabus

Instructor
Henry Penikas¹

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This syllabus is designed in accordance with the MGIMO Educational Standard for the Bachelor Program in International Affairs.

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Part I

Instructor Information and Course Description

0.1 General Information

- Full course title: *Money, Banking and Financial Markets*
- Type of course: *Compulsory*
- Level of course: *B.A.*
- Year of study: *2nd*
- Number of ECTS credits allocated: *8*
- Name of the instructor: *Henry Penikas*
- E-mail: mailto:penikas_g_i@my.mgimo.ru

0.2 Course Aims and Learning Outcomes

The year of 2022 is marked by the unprecedented rise in prices world-wide. In response, the United States (US) monetary authorities and European Central Bank (ECB) raised the interest rates. In contrast to them, Turkey reduced it, though having times larger rise in prices. Which Central Bank is right? What is actually driving the prices? What can we expect in the nearest future? Is the abundance of complex financial products a remedy or a threat? If you were the Minister of Finance or the Chairman of the Central Bank, what should you undertake right now? How are all of these questions related to the climate change risks? Can Central Bank Digital Currency (CBDC) anyhow help in overcoming the challenges of risen prices? To obtain answers to these and many more other adjacent questions, we will start from the very basics. We will learn during this course what money is; how people use it; what is so special about banks, their regulation etc.

By the end of this course students should be able to:

- demonstrate the knowledge of key terms and acronyms used in finance;
- build the financial model to predict future revenues, run its stress-testing;
- compute financial risks, aggregate and allocate them by assets within a portfolio;
- trace the dependencies between money, prices, financial regulation and monetary policy;
- identify the ultimate beneficiaries of the financial and economic actions taken or proposed.

0.3 Course Requirements and Grading

Requirements. Students are required to read the core reading material in advance of each class. Further acquaintance with the recommended literature is welcomed. There will also be home assignments to prepare before the class.

Students are expected to attend no less than 80% of classes in person. Active discussion during the class with respect to the discussed topic is encouraged.

Most of the classes will start with the short 5-10 min quiz. That is why on time arrival is a must. It is better to be present in the classroom 5 min in advance. Late comers (if any) have no opportunity to redo quiz later.

Grading.

- 20% - Interim tests held during the in-person classes;
- 20% - Class participation, including evaluation of home assignments;
- 60% - Final examination.

Part II

1st Semester Course Content

1 Commodity Money and Marginal Utility

Core reading: (Mises, 1953, pp. 29-49);

1.1 Money as the Means of Indirect Exchange

Key words: marginal utility: C.Menger; direct and indirect exchange; barter trade; money substitutes; objective exchange value of money; Gold standard; bimetallism; soldier - solde; thaler - dollar;

Discussion Questions:

- There are three persons in the hypothetical economy. One has a cow, the other two have a pig each. One cow is equivalent to eight pigs. How many units of money such an economy does need if the pig-owners wish to exchange pigs for a part of a cow?

Recommended reading: Mises (1953), (Mishkin, 2004, pp. 44-48);

1.2 Demand-Supply Framework and Industrial Organisation Basics

Key words: price caps: deficit, queues, shadow economy (black market) - Union of Soviet Socialist Republics (USSR) experience; minimum wage regulation and labour unions; backward-binding labour supply curve; price discrimination v fixed pricing (price tag; auctions); implications from quota imposition; subsidies and incentives; Perfect and monopolistic competition; price dampening and the 1870 Vanderbilt-Gould Erie case; Oligopoly (Bertrand, Cournot, Stackelberg, Forchheimer), dupoly and cartels: Organization of the Petroleum Exporting Countries (OPEC); Hotelling linear and circle cities; Monopoly and monopsony, Chamberlein's monopolistic competition; antitrust regulation and Herfindahl-Hirschman Index (HHI); Giffen good;

Discussion Questions:

- Can we evaluate rise in oil prices as good or bad for an economy?
- What is the optimal number of banks?
- What is the optimal Financial Institution (FI) size?

Recommended reading: Repullo (2002); Beck et al. (2006); Moiseev (2006); Martinez-Miera and Repullo (2020), (Freixas and Rochet, 2008, p. 174, fig. 5.2);

2 Fiat Money and Inflation

Core reading: (Mises, 1953, pp. 216-242);

2.1 Credit Money and Fiat Money

Key words: bills, I owe you (IOU), paper money; money surrogates; M0-M3 aggregates; money base and money mass; money multiplier and the Ising model;

Discussion Questions:

- What is the maximum amount of credit money that a single person may issue?
- Bonus points (e.g. air company hypothetical miles) are deemed money surrogates. How does the use of such surrogates increase the money mass?

Recommended reading: Mises (1953); Huerta de Soto (2006), (Mishkin, 2004, pp. 48-56), Schinckus (2018);

2.2 Inflation and Deflation

Key words: inflation and deflation; hyperinflation; inflation canopy under price ceilings; Nominal and real values; denomination; marketing or hidden inflation? Gold Standard: view from the Mars (Milton Friedman); Gold inflation: gold-mining, Mexico gold and Spain; global stock of gold, annual gold-mining volume; Inflationism (Henry Ford, Thomas Edison) and deflationism; fire sales and frenzied purchases; Banque d'Amsterdam 1600-1812; Gresham's law: Copper Riot (1662, Russia); Inflation during 1812 Napoleon campaign in Russia;

Discussion Questions:

- If we enhance the money supply twice, how does the purchasing power of money (how its objective exchange-value) change?
- First, we increase the amount of money and observe unappealing implications in terms of price rise. Second, we wish to reduce the amount of money to get back to the initial state. Can we approach the starting point prior to money emission in terms of prices and the production structure of the economy?
- Do you agree with the statement 'Print more money and reduce interest rates', Riefler (1957)?

Recommended reading: Mises (1953, 1933); Guyot (1923); Ershov (2012);

3 Financial Products and Accounting

Core reading: (Mishkin, 2004, pp. 309-334);

Key words: Luca Pacioli & Double-Entry Bookkeeping (DEB); on- and off-balance sheet items; Last In - First Out (LIFO), First In - First Out (FIFO); Stand-alone (solo) and consolidated statements, Inter-company (ICO) transactions; Held For Trading (HFT), Available for Sale (AFS), Held To Maturity (HTM); US Generally Accepted Accounting Principles (GAAP); Russian Accounting Standards (RAS); International Financial Standards Board (IFSB) and International Financial Reporting Standards (IFRS); Balance Sheet (BS)(statement of financial position), Profit and Loss (P&L) account (statement of income); lending (conventional contract; covenants; via a set of sale-purchase agreements; Letter of Credit (LoC), repurchase (REPO) transactions and inverse REPO ones; leasing); downpayment, installments and annuity payments; syndicated loans and La Manche project; IFRS 9 (seemingly lending transactions); Henry Macleod; International Accounting Standards (IAS) 29 (reporting under hyperinflation); fixed/floating interest rates; Inverse floaters; Derivatives: futures, swaps (Interest Rate Swap (IRS), Cross-Currency Swap (CCS), Credit Default Swap (CDS), Total Return Swap (TRS)); options: Automated Teller Machine (ATM), In The Money (ITM), Out of The Money (OTM), volatility smile; Barrier note; basket derivatives, swaptions, exotic derivatives; hedging and trading derivatives; Securitization (traditional and synthetic; senior and mezzanine tranches) and toxic assets; Fair Value (FV);

Discussion Questions:

- You see an advertisement “Buy now, pay later”. Which banking product does it correspond to?
- There is an advertisement “We offer mortgage at 0.5% p.a. from the developer (building society)”. How could it be if the key rate in RUB is much larger?
- How you can artificially boost the bank/company profit?
- Under credit money, how loan demand-supply chart should look like?
- The loan has an interest rate linked to nickel-prices. What is the proper accounting treatment for such a deal (is it a loan from IFRS 9 perspective)?
- How the FV on the off-balance sheet linear derivative (e.g., a Foreign Exchange (FX) swap) is booked?
- If the initial FV for a derivative equals to zero, how a non-linear derivative (e.g., an option) is booked?
- Why a bank from Qatar reports in (QNB, 2022, p. 10) on the use of hyperinflationary standard with respect to Turkey if there is no hyperinflation in Qatar?

Recommended reading: (Mishkin, 2004, pp. 309-334), Vine (2005); Huerta de Soto (2006); King (2006); Choudhry (2007); Penikas (2020b); Titova et al. (2020); Mitchell (2021), Delta Corporation Ltd. (2020, 2021); IFRS (2022); IAS Plus (2022), (Adam, 2007, pp. 33-58);

To practice in accounting, build a financial model (refer to Annex A).

4 Financial Institutions and Financial Statements

Core reading: (Huerta de Soto, 2006, pp. 13-20), Brown (2013);

4.1 Banks

Key words: Accounting for a lending transaction: Banks v Enterprises; Monopoly for lending and Bank Charter; Lending, Storage and Bank Deposit - legal differences; full and fractional reserve banking; Bank Holding Companies (BHC), credit unions, microfinance entities; shadow banking; captive banks;

Discussion Questions:

- If a bank account is a storage contract, why it earns you an interest?
- Why an ordinary citizen cannot systematically lend to others, but only a bank can do it?

Recommended reading: (Mishkin, 2004, pp. 201-257), Huerta de Soto (2006); Ordonez (2018);

4.2 Other Financial Institutions

Key words: building societies (Evergrande); mortgages, housing price; Case-Shiller Index; Insurance companies (Prudential) and reinsurance ones (MunichRe, SwissRe); asset management company; Asset management companies, hedge funds, mutual funds, investment trusts, Real Estate Investment Trust (REIT);

Discussion Questions:

- Where the core insurance risk is located in the insurance company balance sheet: on the asset side or on the liability one?

Recommended reading: (Mishkin, 2004, pp. 287-293, 296-308), Westernhagen et al. (2004); James et al. (2013), Navin (2022);

4.3 Islamic Finance, Islamic Banking, Islamic Insurance

Key words: ijarah, istisna, mudaraba, musharaka, murabaha, slam, sukuk, Restricted Investment Accounts (RIA), Unrestricted Investment Accounts (URIA); Gulf Cooperation Council (GCC); Islamic Financial Services Board (IFSB) and total Islamic banking assets;

Discussion Questions:

- All else being equal, which amount is larger: total traditional banking assets or total Islamic banking assets?
- According to Islamic Banking principles, may a person possess stock forming part of the S&P500 index?

Recommended reading: Vogel (2000); Jaffer (2007); Khan and Bhatti (2008); Ahmad et al. (2010); Zulkifli (2012); Beck et al. (2013); Lone and Alshehri (2015); Abedifar et al. (2015); Sillah et al. (2015); Jan et al. (2018); Platonova et al. (2018); Jan et al. (2019); Visser (2019); Jan et al. (2021);

4.4 Central Banks and Correspondent Banking

Key words: Private Central Banks; Independence from the Government; SWIFT, Clearing House Automated Payment System (CHAPS), Target (1, 2); Visa, Mastercard; acquiring services (Global Payments, United Card Services (UCS)): mergants, terminal, Interchange Reimbursement Fee (IRF): us on us, us on them, internet-acquiring; Correspondent Banking: nostro and vostro accounts;

Discussion Questions:

- Should Central Banks be privatized? Should private Central Banks be nationalized?
- The bank offers you a prepayment of interest if you deposit money with it.
- What it means from the perspective of risk-taking by a bank?
- A bank borrower has prepaid its loan. A bank default (license withdrawal) occurs in-between the prepayment and scheduled dates. Might a borrower have problems in the future?

Recommended reading: (Mishkin, 2004, pp. 333-356), Rothbard (1994); Wood (2005); Brown (2013); Rossouw (2014); BIS (2016); FATF (2016); Moiseev (2017);

5 Public Finance

Core reading: Tanzi (1978);

Sovereign Debts and Sovereign Defaults. *Key words:* State budget and pay as you go (PAYG) principle; Sources of state revenues: sovereign fund raising, seigniorage; Reserve currency; Recession definition: the US approach, R-index; Mexico, Argentine and Brazil (MAB);

Discussion Questions:

- The book (Huerta de Soto, 2006, pp. 37-114) describes the history of sovereign crises for around 2400 years. The key message is that the country-wide financial crises occur every 5-10 years and all of them have similar origins. The first edition of the book was published in 1998. Ten years later a paper by Reinhart and Rogoff (2009) is published. It covered a shorter time-span of the last 800 years of humankind history. However, they bring as an own novelty that all country-wide financial crises have common patterns and tend to regularly repeat. Why Reinhart and Rogoff (2009) do not cite Huerta de Soto (2006)?
- What are the steps that the government (company) may undertake when its debt (bonds) are traded at distressed levels?

Recommended reading: (Huerta de Soto, 2006, pp. 37-114), Reinhart and Rogoff (2009, 2010); Laeven and Valencia (2012); Borwein and Bailey (2013); Miller (2022), The Economist (2001, 2008, 2011b);

Relevant novels and movies: Default (2018); Adults in the Room (2019);

Fiscal Policy. *Key words:* Taxes and Laffer curve; even and progressive income tax rates; direct and indirect taxes; Value Added Tax (VAT); taxes and pricing; selective taxes (Iceland); tax burden as per cent of Gross Domestic Product (GDP); Olivera-Tanzi effect under high inflation: Argentine case; comprehensive tax base: tax on real v nominal income; off-shores (internal v external) and tax heavens: St. Kitts and Nevis, Marshall Islands, St. Vincent and the Grenadines, Cayman Islands, Lebanon, Nauru, Cook Islands, Dominica, Bahamas, Niue, Liechtenstein, Panama, Grenada; Le Chatelier principle; Global minimum corporate tax;

Discussion Questions:

- If VAT is a 'value-added' one, why it applies to the entire value of price? Who benefits from such a system? Remember the answer till discussing inequality in Section 28.
- What options the government is left to finance its spending with in case the tax rate is quite high already?

Recommended reading: (Alekseev and Weber, 2013, Chapters 10, 27), Olivera (1967); Diamond (1973); Tanzi (1978); Anušić and Švaljek (1996), (Barth et al., 2009, p. 82);

Global minimum corporate tax. The Economist (2021a); Clausing (2022);

Social Security (Pensions), Privatization and Other Sources of State Funds. *Key words:* Retirement schemes: state v private systems; pension funds; Defined Benefit (DB) v Defined Contribution (DC); voluntarily v mandatory contributions; allocation v insurance principle; retirement age, announcement of its changes, and average length of life (aging population); substitution coefficient; social security (medical insurance); loans for education; privatisation and State-Owned Enterprises (SOE); oil rents, budget rule, and stabilisation (wealth) funds;

Discussion Questions:

- Is there a difference whether to apply PAYG pension system or an insurance-based one under stable, rising or declining total population?

Recommended reading: (Alekseev and Weber, 2013, Chapters 7, 31), (Mishkin, 2004, pp. 294-296), Kikeri et al. (1992), The Economist (2016), Diamond and Mirrlees (2002); Diamond (2005); Barr and Diamond (2008); OECD (2017);

6 Stock Markets and Financial Engineering

Core reading: Modigliani and Miller (1958);

Key words: order book, Depth of Market (DoM) and market price determination; bid, ask, close prices; Position: long/short; Market capitalisation; Free-float; meme stocks (GameStop, AMC v Hertz, Revlon); stop-loss/take-profit limits; variation margin and margin call; stock buybacks (repurchases); clearing house; rational expectations, efficient market hypothesis; London Stock Exchange (LSE), New York Stock Exchange (NYSE), Nasdaq, Dow Jones Industrial Average (DJIA);

Equity-type products. Ordinary and preferential shares; Depository Resigns (DR) (American DR (ADR), Global DR (GDR), Azerbaijan DR (AzDR), Russian DR (RDR));

Debt-type products (Fixed Income (Securities) (FI)). Speculative and productive loans (Schumpeter); bills (T-bills), bonds (Eurobonds), subordinated debt (perpetual debt), 100-year bonds; syndicated loan; Separate Trading of Registered Interest and Principal Securities (STRIPS); Exchange-traded product (ETP), Open-Ended Fund (OEF), Exchange Traded Fund (ETF), sector Standard&Poor's DR (SPDR) ETF; Listing (Initial Public Offering (IPO), Secondary Public Offering (SPO)); Special purpose entity (SPE), Special purpose vehicle (SPV), Special purpose acquisition company (SPAC); structured products;

Relevant Financial "Animals": Bear, bull; sheep; pigeons; Celtic Tiger; Treasury Investment Growth Receipts (TIGeR), Lehman Investment Opportunity Note (Lion), Certificates of Accrual on Treasury Securities (Cats); Spider;

Discussion Questions:

- How do you operationally exercise a short-sale?
- Which market price are you going to apply to long, short, netted positions?
- Which currency Eurobonds may be nominated in?
- There is a 5% p.a. asset. How we have an asset yielding 100% p.a.?

Recommended reading: Warshow (1930); The Seattle Times (1993); Mason et al. (2005); Markets Committee (2017); Teplova and Rodina (2021); La Monica (2022), (Jorion, 2009, pp. 111-246);

ETFs : Orlando (2013), (IOSCO, 2022, pp. 8-12);

Relevant novels and movies: Dreiser (1912); Wall Street (1987); Wall Street: Money Never Sleeps (2010);

6.1 Valuation and Financial Analyst Recommendations

Key words: company valuation: Discounted Cash-Flows (DCF), dividend discounting and dividend smoothing; Weighted Average Cost of Capital (WACC) and tax shield; comparable companies and comparable transactions (multiples approach); Price-to-Earnings Ratio (P/E), Price-to-Book Ratio (P/B), Earnings per Share (EPS), Dividend per Share (DPS); duration; Modigliani-Miller

theory; Financial Analyst Recommendations; Illusion of stock-picking skills; Poor investment banking selling practices;

Relevant Financial "Animals": Unicorn; cows of the Dow (cash cows); Shark Repellents (Poison pills);

Discussion Questions:

- How can it be that a financial analyst recommends buying a stock, while his target price is below the current market price?
- What is the optimal debt/equity level for a company?

Recommended reading: Modigliani and Miller (1958); Miller and Modigliani (1961), (Koller et al., 2005, pp. 681-710), (Kahneman, 2011, pp. 212-216), Penikas and Proskurin (2013);

7 Psychology, Speculation, and Fraud

Core reading: Kahneman (2002);

Key words:

Psychology. rationality, bounded rationality, and irrationality; problem formulation effect; Cobra Effect; psychology of gambling;

Speculation. bubbles: 2001 dotcom bubble; noisy traders, chartists and technical analysis (trading tools based on Fibonacci's discovery); algorithmic, High-Frequency Trading (HFT), and flash crashes; Tulip mania (XVI); the 1837 rise and fall of Jacob Little in the US; 1862 Vanderbilt and the Harlems railroads; George Soros and the Great British Pound (Sterling) (GBP) (1991); LTCM (1998); 2007 IPO story; 2008 Volkswagen (VW) stock price swing;

Fraud. Price manipulation; Financial Pyramid; Ponzi scheme; Madoff (2008); illegal use of loans and insurance; fraud and Newcomb–Benford law;

Discussion Questions:

- How old is the word Google?
- How do you evaluate an enterprise as being a financial pyramid/a bubble?
- Why Madoff could have undertaken his fraudulent activity for around 20 years?
- If companies world-wide had poor prospects in Mar-Aug'2020 due to pandemics, why their stocks rose?

Recommended reading: Siebert (2002); Kahneman (2011); Nigrini (2017); Keynes and Kaldor (1994); Walker (1995);

Fibonacci method. Vonko (2022); Kuepper (2022);

Relevant novels and movies: Zola (1891); Boiler room (2000); Catch Me If You Can (2002); Enron: The Smartest Guys in the Room (2005); A Good Year (2006); The Wolf of Wall Street (2013); Tulip Fever (2017);

8 Probability and Risk Basics

Core reading: Artzner et al. (1999);

Key words:

Mathematics and Probability Basics. Random Variable (var); Distribution families: coin tossing v dice rolling; Bernoulli, Gaussian, Chi-Squared, Gamma and Beta, Student (t); Cumulative Density Function (CDF), Probability Density Function (PDF), confidence level, quantile; Moments of distribution: mean, Variance (Var), asymmetry and kurtosis; Distribution proximities: Kolmogorov-Smirnov, Kramer-von Mises, Anderson-Darling statistics (distances); Association measures: correlation, Copulas, comonotonicity (countermonotonicity); Time series models: Auto-Regression with Moving Average (ARMA), Generalized Auto-Regression with Conditional Heteroskedasticity (GARCH), Vector Auto-Regression (VAR); pros and cons of the combined forecasts; Spurious regressions, cointegration and Granger causality; Simulation tools: Monte Carlo; bootstrap; jack-knife (Leave One Out (LOO));

Risk Basics. Risk measure (measure of risk): duration, standard deviation (Var and semi-Var), Value-at-Risk (VaR), Expected Shortfall (ES), distortion and spectral measures; coherent risk measure; Sharpe ratio; Back-testing; Risk perception: risk-averse, risk-neutral and risk-loving people; Risk identification, risk map; Risk management tools: risk-taking, risk-aversion, risk-limits and limits policy; risk-reduction (hedging, insurance, securitisation: traditional v synthetic); Risk modeling: historical vs. scenario-based (Stress-Testing (ST) and reverse ST); hedging, efficient hedging; direct and cross hedging; cash-flow v FV hedge;

Discussion Questions:

- When the risk-measure is larger: VaR at 99% or ES at 97.5%?
- If we hedge all the risk taken, what should be our profit?

Recommended reading: Bachelier (1900), (Orlando et al., 2022, pp. 1-68), (Adam, 2007, pp. 453-456), Artzner et al. (1999), (Jorion, 2003, pp. 31-102), (Jorion, 2009, pp. 3-110);

9 Commodity and Currency Risks

Core reading: (Jorion, 2003, pp. 281-310);

Key words: Banking Book (BB) and Trading Book (TB): asset holding period; intent to hold an asset; equity holdings; Open Currency Position (OCP); metal accounts; dollarization; validating the presence of non-linear currency derivatives;

The largest commodity risk realisations. Metallgesellschaft (1993); China Aviation Oil (2004);

The largest currency risk realisations. Showa Shell Sekiyu (1993), Kashima Oil (1994), Citic Pacific (2008), Aracruz (2008), Sadia (2008);

Discussion Questions:

- Compute price (commodity) risk for a time series of crude oil futures prices?
- Apply the market risk measurement framework to a data series of global temperature for the last 200Y from <https://climate.nasa.gov/vital-signs/global-temperature/>.
- Run scenario analysis of FX risk under sanctions.

Recommended reading: J.P.Morgan/Reuters (1996); Jorion (2009); Penikas and Surkov (2018); Khabibullin and Ponomarenko (2020); Egorov and Ponomarenko (2021);

10 Interest Rate Risk

Core reading: (Adam, 2007, pp. 61-82);

Key words: Asset-Liability Management (ALM); Interbank lending and interbank offered rate; Fixed and floating interest rates; Balance sheet repricing gap; LIBOR reform; Yield curve modeling; Nielson-Siegel, Vasicek, Cox-Ingersoll-Ross (CIR) models; Transfer pricing: internal v external; Funds Transfer Pricing (FTP) and loan pricing; Monti-Klein theory; Interest Rate Risk in the BB (IRRBB); Expected Value of Equity at Risk (EVEaR);

The largest interest rate risk realisations. Orange County (1994); Procter & Gamble (1994);

Discussion Questions:

- There is an expected probability of default and the share of loans that are prepaid on average. What is the break-even loan interest rate?
- What were the implications for pricing from the Glass-Steagall Act restoration in the UK in 2010s?

Recommended reading: (Dermine, 2003, pp. 35-42), (Adam, 2007, pp. 61-82), Vasicek (1977); Cox et al. (1985); Siegel (1987); Dai and Singleton (2000); Caracota Dimitriu and Oaca (2010); Schierenbeck et al. (2013); Aggarwal (2014); Orlando et al. (2019); Moiseev (2020a,b); Grishina and Ponomarenko (2021), Klein (1971); Monti (1972); Miller (1975); Dermine (1986);

11 Liquidity Risk

Core reading: (Adam, 2007, pp. 203-220);

Key words: Balance sheet liquidity risk: liquidity gap, liquidity indicators (survival period); liquidity swaps (inter-entity vs. between the Central Banks); contractual v behavioral maturity; decay function; Market liquidity risk; Intraday liquidity risk; Liquidity Transfer Pricing (LTP);

The largest liquidity risk realisations. Northern Rock (2006), Lehman Brothers (2007);

Discussion Questions:

- How to compute capital loss implications of liquidity risk?

Recommended reading: BCBS (2008); Grant (2011); Suri (2011); BCBS (2012); FRB (2020), (Dermine, 2003, pp. 42-47), (Adam, 2007, pp. 203-220), (Jorion, 2009, pp. 607-622);

12 Credit Risk: Modeling and Validation

Core reading: (Jorion, 2003, pp. 411-440);

Credit Risk Modeling. *Key words:* Default Definition (DD) and distance to default; Probability of Default (PD); collateral, pledge, encumbrance, haircut; prepayment risk; Credit risk for debt and equity holdings, credit risk losses, Financial ratio analysis: Provision v Reserve; Loan Loss Provision (LLP), Non-Performing Loans (NPL), Cost of Risk, Coverage Ratio, allowance, write-off and collection; credit ratings (internal and external): AAA, BBB, CCC ; structural models and option pricing: Altman Z-score, Black-Scholes (-Merton) formula; credit ratings: rating grade, master scale; International Credit Rating Agency (CRA) (ICRA), Export Credit Agency (ECA); Standard&Poor's; FitchRatings; Moody's Analytics;

Discussion Questions:

- There is an expected probability of default and the share of loans that are prepaid on average. What is the break-even loan interest rate?

Recommended reading: Altman (1968); Merton (1974); Scholes (1997); Gordy (2000); Altman (2006, 2018), (Dermine, 2003, pp. 30-34), (Adam, 2007, pp. 145-180), (Orlando et al., 2022, pp. 71-78, 123-170);

Credit Risk Validation. *Key words:* Discriminatory power (Gini, Accuracy Ratio (AR), Receiver Operating Curve (ROC), Area Under ROC (AUROC), confidence intervals for classification accuracy metrics), calibration, stability; traffic light approach; rating grade concentration and HHI;

Discussion Questions:

- For which values of AR or AUROC a (retail) lending process can be automated and for which ones a human engagement is still needed?

Recommended reading: BCBS (2005), (Orlando et al., 2022, pp. 171-186);

13 Portfolio and Counterparty Credit Risk

Core reading: Borzykh and Penikas (2021);

Key words: Default Correlation (DC), Default Rate (DR); portfolio credit risk; twin confidence intervals for the PD model validation; Counterparty Credit Risk (CCR) as a mix of market and credit risks; credit lines at crisis; Credit Conversion Factor (CCF) and Exposure-At-Default (EAD), Credit Valuation Adjustment (CVA), Debit Valuation Adjustment (DVA); credit risk, Collateralized Debt Obligation (CDO) and copulas; correlation risk;

Discussion Questions:

- Did Gaussian copula of Li (2000) indeed 'killed' the Wall-Street in 2007-09 as Salmon (2009); MacKenzie and Spears (2012) argue?

Recommended reading: Li (2000); Borzykh and Penikas (2021), (Adam, 2007, p. 283), (Orlando et al., 2022, pp. 187-302);

14 Operational and Other Risks

Core reading: (Jorion, 2003, pp. 533-553);

Key words:

Operational Risk. Risk classification: internal and external fraud; business lines; legal risk; IRS revaluation case; social engineering, phishing, skimming; Insurance against operational losses: Bank's Blanket Book (BBB), Directors and Officers (D&O); accounting risk and Sarbanes–Oxley Act (SOX);

Other Risks. Business risk; concentration risk; model risk; reputation risk;

The largest operational risk realisations. Codelco (1993), Barings (1994), Sumitomo (1996); Keader, Peabody & Company (1993); Enron (2001), Worldcom (2002), Societe Generale (2007), Carlos Ghosn (2008); VW scandal (2016);

Discussion Questions:

- What are basic rules to avoid fraud against yourself when using a plastic card, ATM?
- The borrower did not pay back a loan as it was granted used false documents. What type of risk is such a loan loss: a credit risk or an operational one?
- Which Information Technology (IT) solution could have helped in preventing the Societe Generale (2007) fraud?

Recommended reading: BCBS (2011a); Penikas and Surkov (2018); BCBS (2021b), (Adam, 2007, pp. 283-284), (Jorion, 2009, pp. 587-606, 643-653), CEBS (2010).

15 Aggregate Risk and Capital Management

Core reading: (BCBS, 2010, pp. 3-32);

Key words:

Risk Aggregation. Summation; variance-covariance approach; copulas; diversification effect; aggregate (total, gross) risk;

Risk Allocation. Euler principle; Shapley value; Concentration and HHI;

Capital Optimization. Capital structure: debt/equity v WACC; Return on Equity (ROE) v Risk-Adjusted Return On Capital (RAROC), Return on Assets (ROA) v Return on Risk-Weighted Assets (RWA) (RoRWA); setting risk appetite, risk tolerance, and profitability targets (Key Performance Indicators (KPI) v Key Risk Indicators (KRI)); risk-return (return over risk) ratio and portfolio risk optimization;

Discussion Questions:

- Given a risk-return vector and a correlation matrix, allocate the gross risk amongst the positions in particular assets.

Recommended reading: Markowitz (1952); Tasche (2008, 2009); Zanjani (2010); BCBS (2010); Jiang et al. (2011); Jahn et al. (2013); Maume-Deschamps et al. (2015), (Jorion, 2009, pp. 623-642), (Deutsche Bank, 2021, p. 57);

16 Corporate Governance: Incentives and Remuneration

Core reading: (Jorion, 2003, pp. 577-584), (Adam, 2007, pp. 83-98);

Key words: incentives and principal-agent problem; wages v dividends; individual and collective decision-making and responsibility (responsibility transfer during vacation); Committees: Asset-Liability Committee (ALCO), tender committee, audit committee, Remuneration Committee (RemCo); Voting rules and remuneration: simple majority and weighted majority; independent directors; Activity-Based Costing (ABC); decision/responsibility centers: revenue, cost, profit, investment, risk centers; allocation rules and Steve Jobs; Golden parachutes and Long-Term Incentives (LTI); Employee Stock Option Plan (ESOP); bonus v malus; remuneration structure in Japan; Remuneration principles of Henry Ford, Lee Kuan Yew;

Discussion Questions:

- Suppose a shareholder is personally involved in a day-to-day decision-making at large scale. How would you evaluate the degree of corporate governance development? Should shareholders get engaged in decision-making upon loan approval?
- Do banks maximize profits?
- Where the treasury (ALM unit) should reside/whom should it report to? To Chief Financial Officer (CFO) or Chief Risk Officer (CRO)?
- Is corporate treasury (ALM unit) a profit or a cost center?
- What is common in-between fraud cases of Yasuo Hamanaka and Jerome Kervel?

Recommended reading: Grossman and Hart (1983); Mirrlees (1999); Lee (2000); Kivetz (2003); Gibbons (2005); BCBS (2015); Crete (2016), (Kahneman, 2011, p. 216), (Welsch et al., 1988, pp. 561-562), (Isaacson, 2011, p. 408), (Dewatripont and Freixas, 2012, pp. 11-44), Monks and Minow (2011);

17 Systemic Risk and Financial Crises

Core reading: (Huerta de Soto, 2006, pp. 347-384);

Key words: Definition: financial stability and Financial Stability Indicators (FSI) (case of Israel), systemic risk, recession; predicting recession and R-index; business cycles and long waves of Kondratiev; Capital Definition, voluntarily savings, technical progress; Production structure evolution under full and fractional reserve banking; Minsky Moments; Glass-Steagall Act on investment banking separation from the conventional banking; recovery measures: deposit suspension (Great Depression 1929, Greece 2015), extra tax on the amount of exchange transactions; "Chicago plan" and I.Fisher;

Relevant Financial "Animals": rhinos and rabbits; Dead Cat Bounce; Black Swan and N.Taleb;

Discussion Questions:

- What type of good (bad) the financial stability (systemic risk) is in term of institutional framework laid down by Ostrom (2009)? What sort of regulation does it require then?
- If we hedge all the risk-taken, where the hedged risk resides from the system-wide perspective?
- Can people unite and exit from the financial crisis without a Central Bank? Compare the creation of the Federal Reserve Board (FRB) in 1907 and the proposal to privately buy-back Greek sovereign debt in 2009.
- It is said that during the Great Depression J.M. Keynes approached women in the shop queues and suggested them the following: "If you wish that your husband has a job nowadays, buy a new robe for yourself now." Evaluate the economical mechanism underlying the Keynes' proposal.
- Credit money produce detrimental consequences under full employment only, is it right?
- Who pioneered arguing in defense of full reserve banking (100% money): Mises in Mises (1953) or Fisher in Fisher (1935, 1936)?

Recommended reading: (Mises, 1953, pp. 261-412, Part III), Hayek (1931); Fisher (1935, 1936); Rothbard (1963); Huerta de Soto (2006), (Orlando et al., 2022, pp. 303-328), Smith (2009); Arzamassov and Penikas (2014); Miller (2019);

Relevant novels and movies: Hašek (1933); Default (2018); Adults in the Room (2019);

Part III

2nd Semester Course Content

18 General Motivation to Regulation

Core reading: Demsetz (1968);

Key words: Market Failures and Government Failures; court litigations; Laissez-faire, Full Ban; limiting v penalising regulations; licensing: consumer protection v assuring Return on Investments (RoI); prudential (prudent, solvent); Examples of regulation application: agriculture; residential building construction; traffic regulation; medicine (cosmetics); social networks and privacy; ride hailing; short sales; CDO ban in Canada before 2007-09 crisis; Expected and unexpected changes in regulation; corruption as a way to overcome government regulation in China; Bank for International Settlements (BIS) and the birth of Basel Committee for Banking Supervision (BCBS); Herstatt case (1974);

Discussion Questions:

- Does regulation liberalisation lead to a financial crisis?
- Who is the primary beneficiary of the regulation?
- Why regulation expands in recent decades?

Recommended reading: Demsetz (1968); Schwert (1981); Binder (1985); Beardsley and O'Brien (2003); Shleifer (2012), (Friedman, 1992, pp. 137-160), Barth et al. (2002); Westernhagen et al. (2004); Barth et al. (2009); Jiang and Nie (2014);

Relevant novels and movies: Shekley (1953);

19 Microprudential Capital Regulation

Core reading: Penikas (2015);

Capital Regulation of the Traditional Banks *Key words:* minimum capital v minimum Capital Adequacy Ratio (CAR); capital composition (tier 1-3), capital buffers: conservation, counter-cyclical, systemic importance, Pillar II; RWA; risk-weighted v risk-unweighted capital ratios; Basel I, Cooke ratio, and Oliver, Wyman & Company (OW); Basel II and McDonough ratio; Basel III (Total Loss Absorbing Capacity (TLAC), Minimum Requirements for Eligible Liabilities (MREL)), Dodd-Frank Act; BIPRU; Capital Requirements Directive (CRD) I-V; Solvency I-II; Central Counterparty (CCP);

Discussion Questions:

- Why banks need capital?
- Why the capital prudential ratio equals 8% of risks taken? What does the threshold mean?

- A bank lends to a building society to build a house. It also approves a mortgage for a person to buy a flat in the house constructed by this building society. How much profit a bank should register to its P&L account and consider for capital regulation purposes?
- Are Central Banks different from the commercial ones? Should not there be a capital ratio for a Central Bank?

Recommended reading: (Mishkin, 2004, pp. 260-286), (Adam, 2007, pp. 359-380), Dewatripont and Tirole (1994); Dewatripont et al. (2010); Goodhart (2011); Penikas (2015); BCBS (2006); EIOPA (2009); BaFin (2016); FCA (2022), (Orlando et al., 2022, pp. 110-119), BoE (2020);

Capital Regulation of the Islamic Banks *Key words:* "Alpha" value for CAR, 2013 reform implications;

Discussion Questions:

- According to Beck et al. (2013), the Islamic banks had more capital than the traditional ones, were more crisis-resistant. Then why a 2013 banking capital reform for the Islamic banks was needed? Benchmark your thoughts to the messages from Demsetz (1968).

Recommended reading: Kahf (2005); Archer et al. (2010); IFSB (2013); Baldwin et al. (2019); Penikas and Stefanenko (2021); Stefanenko et al. (2021);

20 Specific Financial Risk Regulation

Core reading: Penikas (2020a);

Credit Risk and Internal-Ratings Based (IRB) Approach. *Key words:* popular third-party "black box" structural models: CreditMetrics, Credit Portfolio View, CreditRisk+, PortfolioManager (KMV); Vasicek v Lunn-Davies positively correlated defaults' model; Internal Ratings-Based (IRB), Low Default Portfolio (LDP) and Bank of England (BoE) criteria, Asset (value) correlation (R); Loss Given Default (LGD): collection and workout procedures (factoring); market and cashflow-based LGD; collateral, Loan-To-Value (LTV), Loan-To-Income (LTI); Sales volume per annum (S), Maturity (M), Expected Loss (EL) and Unexpected Loss (UL); rating philosophy: Point-in-Time (PIT)/Through-The-Cycle (TTC)/hybrid; Central Tendency (CT) and Conservative Margin (CM); Use Test (UT); Incurred vs expected losses (IFRS 9); life-time PD (transition matrix approach); Credit bureaus (Fair Isaac Corporation (FICO) score), outsourcing provisioning; merging data from multiple data-sources; mandatory v voluntarily transition to IRB in the US and European Union (EU);

Discussion Questions:

- Which asset class requires less capital under IRB approach: Small and Medium-sized Enterprises (SME), mortgages, corporate loans?

Recommended reading: Vasicek (1987); Lunn and Davies (1998); Penikas (2020a,d); Penikas et al. (2021); Simanovskiy (2022), (Orlando et al., 2022, pp. 79-90, 103-105, 227-240);

Market Risk. *Key words:* FX and Interest Rate Risk (IRR) risks; Internal Models Method (IMM); Fundamental Review of TB (FRTB): Incremental Risk Charge (IRC), ST and stressed VaR (sVaR), Market Risk Standardized Approach (MRSA);

Discussion Questions:

- Around how many parameters the updated market risk regulation framework (FRTB) requires to assess: 4, 40, 400, 4000?

Recommended reading: BCBS (2013, 2016a, 2019b), (Deutsche Bank, 2021, p. 127);

Operational Risk. *Key words:* capital charge for the operational risk: Basic Indicator Approach (BIA), Advanced Measurement Approach (AMA); operational loss data; Standardized Measurement Approach (SMA); cyber-risk;

Discussion Questions:

- How to validate actual losses against expected/unexpected risks?
- What risk – credit or operational - is it when a borrower fails to pay on a loan as it was offered using false documents?

Recommended reading: BCBS (2009b,a, 2016b);

Liquidity Risk, Deposit Insurance System, and Information Disclosure. *Key words:* Liquidity ratios (N2-N4 prudential ratios, Liquidity Coverage Ratio (LCR), Net Stable Funding Ratio (NSFR)); State and private deposit insurance schemes, moral hazard; Federal Deposit Insurance Corporation (FDIC); International Association of Deposit Insurers (IADI) core principles for the effective deposit insurance system; differentiated (risk-dependent) fees to deposit insurance system; serial depositors and deposit-absorbing-banks (vacuum-cleaners); deposit insurance and bank capital regulation; implicit deposit insurance: Thailand v Australia v Russia; Pillar III market discipline and information disclosures: General Investment Performance Standards (GIPS), eXtended Business Reporting Language (XBRL), Digital regulatory reporting (DRR), Banks Integrated Reporting Dictionary (BIRD) and taxonomy;

Relevant Financial "Animals": BIRD;

Discussion Questions:

- When the liquidity risk regulation was first discussed in the Basel Committee?
- Does There Exist Market Discipline Under Fractional Reserve Banking?
- Should we allow foreign bank branches in a country?
- How stable the state deposit insurance scheme is under the fractional reserve banking?

Recommended reading: Diamond and Dybvig (1983), (Rothbard, 1995, pp. 325-333), Dennis et al. (1998); Opiel (2004); Goodhart (2011); Lin (2015); Fecht et al. (2019); Penikas (2021d); Vernikov (2022); FSI (2022), Al-Ja'Fari and Walker (2011);

Concentration Risk. *Key words:*

Concentration risk and HHI: experience of Spain, Slovenia, Cyprus;

Discussion Questions:

- Should concentration risk be regulated by counter-stimulative measures or by limiting ones?

Recommended reading: (Banco de Espana, 2008, pp. 16-17), (Banka Slovenije, 2010, p. 25), (Cy-SEC, 2012, p. 355); Lütkebohmert (2009); Gordy and Lütkebohmert (2013);

Pillar II and Model Risk. *Key words:* Internal Capital Adequacy Assessment Process (ICAAP), Internal Liquidity Adequacy Assessment (ILAA); risk identification (risk map); Pillar 2A, Pillar 2B; IT systems and data quality; banking system ST and model validation council in the US; model risk in IRB;

Discussion Questions:

- You predicted no-default for loan A, but it defaulted prior to maturity. Inversely, you predicted default for loan B, but it did not default, though it has not yet matured. Can you reallocate capital from loan B to loan A, i.e., recognize no change in capital requirements?

Recommended reading: BoE (2021); Merika et al. (2021); Tikhonov et al. (2021); Penikas (2022b);

21 Macprudential Regulation

Core reading: Kozlovtceva et al. (2022);

Key words: Lehman Brothers collapse in 2008, rethinking the case; Counter-cyclical capital buffer (Hodrick-Prescott (HP) and Kalman filters, State-Space models); Risk-weighted v risk-unweighted capital ratios; Limiting and incentive-based approaches: macroprudential Risk-Weight (RW) add-ons and limits; Basel III and Dodd-Frank Act: “Living wills” (Recovery and Resolution Plan (RRP)); Systemically Important Financial Institution (SIFI), Other Systemically Important Institution (OSII); Financial Stability Board (FSB): Global Systemically Important Bank (G-SIB), Global Systemically Important Insurer (G-SII), Domestic Systemically Important Bank (D-SIB); intended v unintended consequences of regulation;

Discussion Questions:

- Basel III+ (IV) requires banks to hold capital twice or even three times larger than before 2007-09 crisis. Does it imply that banks compliant with new requirement are 2-3x times more creditworthy?
- When the world-largest bank drafts its RRP and claims in the event of crisis it plans selling itself to another bank like in (Citi, 2012, p. 30), to what extent such a remedy measure can indeed help?
- Evaluate the progress in RRP development by comparing two reports Citi (2012, 2021).
- When a supervisor should prefer RW add-ons and when - limits?

- How do G-SIBs react to annual revision in capital buffers of their systemic importance?

Recommended reading: Kálmán (1960); Hodrick and Prescott (1997); Anokhina et al. (2014); Bongini et al. (2015); Poledna et al. (2017); Mohanty et al. (2018); McCann and O’Toole (2019); Degryse et al. (2021b); Behn and Schramm (2021); Kozlovtceva et al. (2022);

Relevant novels and movies: Too Big to Fail (2011); Margin Call (2011); The Big Short (2015);

To practice in the macroprudential regulation of banks, handle an artificial banking system on behalf of the Central Bank (refer to Annex B).

22 Corporate Governance and Remuneration Regulation

Core reading: Penikas (2012, 2021c);

Key words: Risk-takers v risk-controllers, European Banking Authority (EBA) criteria; material risk taker; default committee composition; Variable and deferred (vested) remuneration; asymmetric remuneration of advisory companies for mutual/hedge funds in the US/EU; "Chinese walls", lines of defense; Internal audit; external auditors (Deloitte, Ernst & Young (EY), KPMG, PricewaterhouseCoopers (PwC));

Notorious cases. Royal Bank of Scotland (RBS) (2008);

Discussion Questions:

- What is the implication from deferring every half of this year bonus to next year?
- How retail credit risk model developers should be rewarded?
- Can we improve the simple majority voting rule at the credit committee?
- If a bank used an outsourced PD (provision rate) estimate and the loan defaulted, who is responsible for the loss: the bank or the estimate provider?

Recommended reading: BCBS (2011b), Penikas (2012, 2021c), (Orlando et al., 2022, pp. 120-122);

23 Other Financial Regulations

Core reading: (BCBS, 2017, pp. 8-40);

Key words: Interest rate caps and floors; Anti-Money Laundering (AML)/Counter Financing Terrorism (CFT), Know Your Client (KYC); General Data Protection Regulation (GDPR); Over-The-Counter (OTC) derivatives, Global Legal Entity Identifier (GLEI) and cyclical ownership (Japan); regulation of securities houses: insider trading, conflict of interest; for issuers, listing requirements, and Securities and Exchanges Commission (SEC); principles for auditors, CRA, and other information providers; for market intermediaries, for collective investment schemes, for secondary and other markets, principles related to clearing and settlement; Escrow accounts for building societies; Subsidized Mortgages; consumer protection; self-regulation and financial ombudsman;

Financial Technologies (FinTech), Regulatory Technology (RegTech); Machine-Readable Regulation (MRR);

Discussion Questions:

- How building societies might have adjusted housing prices if the escrow (LoC) depositing is introduced?
- If you wished to regulate Big Data as suggested in ESMA (2016), how would you define it? For instance, should a MS Excel file be considered a source of Big Data?

Recommended reading: (Coates IV, 2008, p. 69), (Jorion, 2009, pp. 662-664), BCBS (2017); IOSCO (2017); Molodyko (2021);

24 From Supervision To SupTech

Core reading: (FSB, 2020, pp. 3-35);

Key words: Supervisory Review and Evaluation Process (SREP), Single Supervisory Mechanism (SSM); regulation unification and Regulatory Consistency Assessment Program (RCAP) launched by BCBS; Supervisory fees in the EU; Competition between regulators v megaregulator; integrated regulatory model early starters (Singapore, Norway, Canada, Denmark); Central Bank as megaregulator (selected examples: Armenia, Cayman Islands, Hungary, Kazakhstan, Lithuania, Malawi, Slovakia, Uruguay); megaregulators outside the Central Banks (selected examples: Bolivia, Central African Republic (CAR), Chile, Denmark, Gernsy, Gonduras, Iceland, Luxembourg, Poland); twin peak megaregulators Supervisory Technology (SupTech); Machine-executable supervision (MES); 2016 Banco de Credit Commerciale (BCC) supervisory reform in Italy; cross-border issues and supervisory colleges; extrapolation of Reserves and BoR regulation No. 4466-U;

Discussion Questions:

- What is the overall impact of SSM introduction in the EU?
- You have a set of financial ratios for two banks. First, evaluate to what extent the underlying loan portfolios vary in credit riskiness. Second, argue which bank of the two should be inspected first.
- Compare the efficiency of two supervisory measures: imposing penalties (US) to banks or requiring them to increase provisions (Russia).
- Accident-prone driving is punished. Imagine that default-likely banks start getting punished by the supervisor. How a supervisor should react if there are no more bank defaults?

Recommended reading: Buklemishev and Danilov (2013, 2017); Ermolova and Penikas (2017); Broeders and Prenio (2018); Merika et al. (2020); FSB (2020); ECB (2022); Chironna et al. (2020);

25 Regulatory Arbitrage and Regulatory Implications

Core reading: Penikas (2020c); McCann and O'Toole (2019);

Key words: Loan pricing under capital injection (bail-in); intra-country and intercountry arbitrage; Implications from Glass-Steagall Act Restoration in the United Kingdom of Great Britain and Northern Ireland (UK); Great Recession 2007-09: Complexity Tree: Retail Mortgage-Backed Security (RMBS), Asset-Backed Security (ABS), CDO and CDO-squared; Andrew Haldane: regulation complexity and simplicity; "taxi effect" and Peter Cooke; Capital adequacy minimum regulation implications for the credit money creation;

Relevant Financial "Animals": dog and frisby;

Discussion Questions:

- Do banks have motivation to segregate their business segments more granularly or not? What if the bank runs IRB?
- Why regulation implies risk shifting between jurisdictions, and not merely reduces the risk appetite of banks?

Recommended reading: Haldane (2009); Goodhart (2011); Zhong (2013); Penikas (2015, 2020a); Chavaz and Elliott (2020); Penikas (2020c, 2021a,b), (Orlando et al., 2022, pp. 317-326);

26 Monetary (Currency) Policy and Inflation Risk

Core reading: Taylor (1993); Penikas (2021a);

The Birth of Macroeconomics. *Key words:* J.M.Keynes, aggregate demand and aggregate supply; Philips curve and Non-Accelerating Inflation Rate of Unemployment (NAIRU); Beveridge curve and pandemics; GDP, Gross Output (GO); economic growth and the size of the economy; Quantity theory; Price rigidity; Ricardian equivalence; Macroeconomic modeling: Dynamic Stochastic General Equilibrium (DSGE), Computational General Equilibrium (CGE), Heterogeneous Agent New Keynesian (HANK), Representative Agent New Keynesian (RANK); inflation risk; Dutch disease;

Discussion Questions:

- Building and destroying a plant - how does it contribute to GDP?
- How financial services are accounted in GDP?
- Which is the optimal tool to hedge against inflation risk? Is Bill Gates right in the set of instruments he chooses for such a hedge?

Recommended reading: (Adam, 2007, pp. 259-264), Huerta de Soto (2006); Tovar (2008); Heyndrickx et al. (2011); Kaplan et al. (2018); Andreyev (2020);

Conventional Monetary Policy. *Key words:* Consumer Price Index (CPI), Producer Price Index (PPI); Laspeyres, Paasche, Fisher, Divisia-Theil-Tornquist indexes; Inflation Targeting (IT); core and headline inflation; Policy (key) rate; pass-through (spill-over); Taylor rule; optimum inflation target and optimum target interval; anchoring inflation expectations and their high-frequency identification; Price puzzle; divine coincidence (policy rate management might neutralize changes in the entire economy); Monetary policy trade-off: choosing between economic stabilization and inflation (in case there are supply shocks); inflation risk;

Relevant Financial "Animals": hawks, pigeons;

Discussion Questions:

- What is likely to happen with stock valuation when the policy rate is raised?
- Low policy rate makes funding more affordable, particularly to the SME and start-ups. That is why to stimulate the technological break-through we may wish to decrease the policy rate. Explain how the mentioned statement should be adjusted.
- Turkey and the US face unprecedented inflation during 2022. To combat it the FRB raised the policy rate, while the Turkish Central Bank decided to cut it. Compare the efficiency of the steps undertaken by the two Central Banks.
- How to apply credit committee voting and remuneration principles to the Central Bank top-management when deciding upon the key rate target, target interval, current value and the respective changes?
- Why New Zealand was the first country in the world to adopt IT and the last one to introduce deposit insurance scheme?
- Are inflation-linked bonds a credit asset for the purpose of accounting treatment?
- How much the credit money amount changes in case the minimum capital requirements are raised (e.g., in TLAC case)?

Recommended reading: (Mishkin, 2004, pp. 357-432), Leontief (1936), Balke and Emery (1994); Jahan (2015); Moiseev (2018); Andrade et al. (2019); Martinez-Miera and Repullo (2019); Jarocinski and Karadi (2020); Duong (2021);

Unconventional Monetary Policy (UMP). *Key words:* Forward guidance; negative interest rates and Zero lower bound (ZLB); Quantitative Easing (QE) and helicopter money (during pandemics); credit easing;

Discussion Questions:

- Would you evaluate Toxic Asset Relief Program (TARP) as an efficient program?

Recommended reading: CGFS (2019);

Modern Monetary Theory (MMT). *Key words:* differences between developed and developing countries when issuing sovereign debt;

Discussion Questions:

- List similarities and differences of MMT and the Mises-Hayek theory of the endogenous economic cycle.
- Does there exist a money multiplier in modern economies?

Recommended reading: Moiseev (2019); Mankiw (2020);

Relevant novels and movies: Rand (1957);

27 Financial Inclusion and Financial Literacy

Core reading: Rajan and Zingales (1998);

Financial Inclusion. *Key words:* financial proliferation (ATM per sq km, number of banking account holders as per cent of adult population); Bangladesh; Financial development and financial crises;

Discussion Questions:

- There are low-income people living in the rural areas. If they start having a bank account (if they become financially included), where the economic growth should come from then?
- Bangladesh experience is worth-studying, but why the country didn't advance from the third world to the first, as Singapore - for instance - did, see Lee (2000)?
- Turkey and the US augmented the money supply during 2020-2021 by the same proportion. By mid-2022 the inflation in Turkey is around 80%, while in the US it is only 8-9%. Why there is such a difference in the inflation rates in two countries?

Recommended reading: Rajan and Zingales (1998); Yunus (2006); Ponomarenko and Tatarintsev (2020);

Financial Literacy. *Key words:* Financial Literacy, financial competence, moral hazard; family budgeting, planning horizon and short-termism;

Discussion Questions:

- Should a young person 'taste' (get a flavour) of trading shares using an online stock exchange as early as possible (e.g., as a student or even as a pupil)?
- Your friend lives in the emerging economy and approaches you for an advice. He has enough money to buy a small apartment. He has two options: to buy it directly or to get engaged in the following set of transactions. As for the second option, he takes local currency-denominated mortgage and buys an apartment. Same time he converts all his savings into

one of the world reserve currencies and deposits it within a local bank. In case a financial crisis hits his economy, he expects the local currency to devalue. Hence, his foreign-currency deposit increases in terms of local currency. He is immediately able to pay out his mortgage and retain a non-negligible portion of profit. Which path of actions would you recommend to your friend?

- Your investment adviser recommends you investing into the barrier note. Study the available material and explain your rationale on whether you should invests in it or not?
- How financial literacy contributes to financial stability and economic growth?

Recommended reading: Lusardi and Mitchell (2014); Kuzina (2015); Buch (2018); Paşa et al. (2022); Bucci et al. (2022);

28 The Future of Finance and the Rising Inequality

Core reading: (White House, 2016, pp. 5-39);

FinTech and Inequality. *Key words:* Universal Base Income (UBI); Big Tech and GAFA; Insurance and Technology (InsurTech); Ecosystems; Peer-to-peer lending (P2P): Lending Club, Mintos; Bankruptcy law; Big Data, Machine Learning (ML), Artificial Intellect (AI); Ethical PD models;

Discussion Questions:

- What is the essence of banking business: lending or collection?
- Was Bill Gates right or wrong when saying in 1996: "We need banking, not banks"?
- If modern technologies of Big Data and cloud computing were fully engaged, could a centrally planned economy estimate optimum (equilibrium) prices for all the goods produced and consumer?

Recommended reading: White House (2016); Suri (2017); Fliche and Yang (2018); Fuster et al. (2018); Nigmonov (2021); Szepannek and Luebke (2021); Nigmonov et al. (2022);

UBI. The Economist (2017, 2018a,b);

Macroprudential Policies and Inequality. *Key words:* Gini coefficient and Palma ratio;

Relevant Financial "Animals": (White) Elephant curve;

Discussion Questions:

- Do macroprudential measures lead to income inequality rise or decline?
- Why the aspect of inequality evaporated from the working paper Rubio and Unsal (2017) when published in Rubio and Unsal (2020)?

Recommended reading: (Alekseev and Weber, 2013, Chapter 32), Rubio and Unsal (2017); Monnin (2018); Frost and Stralen (2018); Rubio and Unsal (2020); Georgescu and Martin (2021); Konstantinou et al. (2022);

29 International Finance and Trade

Core reading: Rey (2015);

Key words: Fixed/floating exchange rate; Foreign currency-linked rate (currency peg) (Singapore; Hong Kong; China; Switzerland); Forward and spot exchange rate parity; Balance of Payments (BoP): current and capital account; Peterson Institute for International Economics (PIIE) criterion; Implications for Export/Import; competitiveness: Revealed Comparative Advantage (RCA) and Unit Labour Costs (ULC); Central Bank foreign reserves; small open economy; IS-LM, IS-LM-BP, and Mundell-Fleming models; Dual currency regime (for locals and for the foreigners): Cuba, USSR; European Monetary Union (EMU); Maastricht Treaty, convergence criteria; monetary trilemma Monetary dilemma; Dichotomy of fiscal and monetary policies; Grexit; Gerexit; Swiss National Bank (SNB) appreciation of Swiss franc; International Monetary Fund (IMF), World Bank, and global credit money; Special Depository Rights (SDR) extension during pandemics;

Discussion Questions:

- Why should we be concerned when the national currency appreciates? What are the implications for the export and import?
- It is the trade flow that drives the international trade (exports and imports) or the FX rate that impacts the trade flows?
- Which consequences to global economy might we expect from the SDR credit lines extension during pandemics?
- Why the EUR/USD exchange rate dropped from 1.1 USD per EUR to 1.0 during summer 2022?

Recommended reading: (Mishkin, 2004, pp. 433-514, 515-677), Mundell (1999); Lu and Yu (1999); Young (2008); Bagus (2010); Hülsmann (2012); The Guardian (2015); Rey (2015); Beig (2018); Cheng and Rajan (2020); INSEE (2021);

30 National Economic Wonders: Japan v China

Core reading: Hayashi and Prescott (2003);

Key words: Growth theory, production function, Solow residual, Total Factor Productivity (TFP); Miracles v debacles and mirages; barrier of trade and barriers to technology; trade liberalization and Foreign Direct Investments (FDI); South-East Asian tigers; Brazil, Russia, India, China, South Africa (BRICS); 1990s lost decade in Japan; China: Great leap forward; centrally planned (command) economy (etatism) and SOE; Evergrande (2021); one-two-three-child policy; Managing M0 and the 2022 decrease in reserve ratio; GDP informativeness in China;

Discussion Questions:

- Why Japan was one of the late IT adopters if it did not wish to have deflation?
- Why did Chinese government might have decided to switch away from one-child policy? How limiting a three-child policy is, in your mind?
- What are the highly-probable drivers for the long-lasting Chinese economic growth?

Recommended reading: Solow (1987); Krugman (1994); Solow (1999); Bessonova et al. (2002); Penikas (2007); Dowling and Chin-Fang (2008); Dixon (2009); Panagariya (2009);

Japan. Asher (1996); Katzner (2001); Hayashi and Prescott (2003); The Economist (2011a); Ito and Hoshi (2020); The Economist (2020); Ikeda and Morita (2020);

China. The Economist (2004); Prasad (2009); Jiang and Nie (2014); Yao (2014); The Economist (2014); Naughton (2018); Zhang et al. (2019); PWC (2020); The Economist (2022a);

Relevant novels and movies: Pamuk (1982);

31 Private Cryptocurrencies and CBDC

Core reading: BCBS (2021a);

Key words: Bitcoin; blockchain; Initial Coin Offering (ICO); Ark Investments; Legal tender in El Salvador since 2021; Decentralized Finance (DeFi); Quantum computing and post-quantum cryptography; CBDC;

Discussion Questions:

- Does Bitcoin represent the monetary system ideal promoted by the Austrian economic school?
- Should we ban or regulate private cryptocurrencies?
- The works by Benes and Kumhof (2012); McLeay et al. (2014); Wang (2020) explain that money is created when loans are approved. That is why loans create deposits, and not vice versa. Moreover, Benes and Kumhof (2012) strongly support the introduction of CBDC as it represents a full reserve banking principle. Why none of the mentioned works cites neither Mises (1953), nor Hayek (1931), nor Huerta de Soto (2006) as Mises, Hayek, and Huerta de Soto explained where the credit money comes from and argued for the benefits of full reserve banking mostly a century in advance and Hayek even received a Nobel prize in economics, see Hayek (1974)?

Recommended reading: Simanovskiy (2018); BCBS (2019a); Pfister (2020); Brown (2021); BCBS (2021a);

Relevant novels and movies: Silk road (2021);

32 Climate Change, Climate Risk and Credit Risk

Core reading: Penikas (2022a); Kirk (2022);

Key words: exhaustion of the unrecoverable mineral resources; icebergs in Iceland; greenhouse gazes: Carbon dioxide (CO₂) emissions and carbon footprint; fossil fuels; freon, holes in ozone layer and refrigerator production in China; net zero policy; Kyoto protocol and Paris Climate agreement; Environmental, Social and Governance (ESG) factors and Corporate Social Responsibility (CSR); Transition risks; Carbon tax (Carbon Border Adjustment Mechanism (CBAM)) and World Trade Organization (WTO); use of input-output tables to arrive at the full climate risk measure; Climate and credit risks inter-relationship; Climate risk regulation and the Central Banks; green-washing;

Relevant Financial "Animals": Green Swan; pigeons, eagles, dodos, peacocks;

Discussion Questions:

- When visiting the website of former Google (now - Alphabet), you may notice a phrase "Zero carbon emissions since 2007" at the very bottom of the page. Is the company green or brown?
- What is to happen when no CO₂ is emitted on Earth at all?
- Provide three examples of green and brown companies.
- Should loans to finance green projects be subsidized (have interest rate discount) by the Central Bank?
- What is more likely: the global warming or global cooling?
- Julian Simon predicted in 1990s the growth in the discovered natural resources in Simon (1998). Why the Green Swan reports by Bolton et al. (2020); Pereira da Silva (2020) do not cite the book by Simon (1998)?

Recommended reading: Leontief (1973), Fagan (2008); ESRB (2016); UN PRI (2017); Nordhaus (2018); Bolton et al. (2020); Pereira da Silva (2020); Capasso et al. (2020); BCBS (021a,b); Degryse et al. (2021a); Kotlikoff et al. (2021); BIS (2022); Mattingly and Collins (2022); Darwall (2022); Makortoff (2022); Penikas (2022a); Kirk (2022), The Economist (2007, 2021b, 2022b), EC (2021b,a);

33 Concluding Remarks

Core reading: Martinez-Miera and Repullo (2020), (Penikas, 2022c, 38-54), Hayek (1978a,b);

Key words: Modern economics: resource scarcity v unlimited wants? Faust and lending: Henry Ford v Chevrolet; introduction of incorporation format (Limited Liability Company (LLC)); Nash equilibrium, Pareto optimum; property rights; fractional v full reserve banking; consumerism; 'Casino Capitalism' (J.M. Keynes); goods typology; natural monopoly and road traffic regulation experience; Psychology and implications for risk-taking regulation; competition v co-opetition; 'reference to (academic) authority' and economic stimulus measures during pandemics; Hayek -

Pigou - Somers - Keynes; CBDC or reserve of critical goods; Transitional institutions and transitional economy;

Discussion Questions:

- Does increased electricity consumption reflect economic expansion or decline in efficiency?
- There is a stock of uninhabited apartments in a given jurisdiction as the owners did not manage to find those wishing to rent it. Same time there are many homeless people in the same region. Should we allow homeless people to live in the empty apartments?
- Privilege of incorporation is a bug or a feature?
- Is there a misalignment in-between risk-return ratio for bonds (limited returns against limited downside) versus shares (unlimited returns with also limited downside)?
- What is to happen globally if Japan or the US announce a sovereign default?
- Explain why banks may tend to merge with each other.
- What should a policy-maker consider when dealing with unobservables (potential output, NAIRU etc.)? You may wish to apply Russell's paradox to justify your answer.
- Which implications should we expect from CBDC introduction on the loan and deposit rates?
- What is the cornerstone of the financial stability: law or technology?
- Apply the findings of the paper Martinez-Miera and Repullo (2020) to the Russian banking system.
- In 2010 two Harvard professors claimed that developed countries like the US can augment sovereign borrowing as much as they wish with no implications for inflation, see Reinhart and Rogoff (2010). Ten years later - because of pandemics - the US government prints huge amount of money ('helicopter money'). Money base M0 rises by 20%. However, in contradiction to their 2010 paper, the two professors actively warn of the inflation risk in Kennedy (2020). What has changed in 10 years with the position of the Harvard professors?

Recommended reading: Hayek (1978a,b), (Rothbard, 1995, pp. 402-404), Warshaw (1930); Brandenburger and Nalebuff (1997); Lee (2000); Piketty (2017); Brady (2018); Varoufakis (2019); Martinez-Miera and Repullo (2020); Molodyko (2020); The Economist (2022a); Penikas (2022c); Pigou (1937); Keynes and Kaldor (1937); Somers (1939)

Relevant novels and movies: Marlowe (1616); Goethe (1806);

Part IV

Annexes

A Financial Modeling in MS Excel

Corporate Finance Proceeds Projection Model. *Key words:* Flexible, Appropriate, Structured, Transparent (FAST) standard; Mergers & Acquisitions (M&A) financial modeling: BS, P&L, Cashflow (CF); due diligence and data room; information memorandum (info memo); comparable deals and comparable transactions; Average Revenue Per User (ARPU), P/E, P/B; cyclical references as a way to solve equations in MS Excel (bonus payment related to profit earned); policy (key) rate and own credit risk as the discount factors; Zero-Based Budgeting (ZBB), Profit Planning and Control (PPC); accounting ledger way of Financial Modeling (FM) and Management Information System (MIS);

Recommended reading: Welsch et al. (1988); Rosenbaum and Pearl (2009); FAST (2019);

MS Excel file is available at:

<https://cloud.mail.ru/public/PXi9/NpiXEaRik>;

Risk Aggregation and Allocation Modeling. *Key words:* confidence level, long and short position costs, correlation matrix, net and gross positions, allocation rules, RAROC;

Link to Google Docs is available at:

<https://docs.google.com/spreadsheets/d/1s51CTA2cXWaPEYQFZSK0KVxEfU2CL1r57byacmigc1I/edit?usp=sharing>;

B Agent-Based Modeling

Key words: Agent-Based Model (ABM); operational protocol; fractional v full reserve banking; macroprudential add-ons and limits;

Windows version is available at: <http://td.lpi.ru/~nechit/AOM33.rar>;

Recommended reading: Ermolova et al. (2021); Nechitailo and Penikas (2021)

C Recommended Websites

- Country indicators including the money supply: <https://tradingeconomics.com>; there is a fee-based access to download data;
- World Bank country statistics: <https://data.worldbank.org/>, free download;
- Specific data for World Development Indicators (WDI): <https://datatopics.worldbank.org/world-development-indicators/> and http://databank.worldbank.org/data/download/WDI_excel.zip for free download in MS Excel format;
- Stock quotes: <https://finance.yahoo.com>, data download is free of charge;

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