Foundations of Financial Economics
The course

Paulo Brito

[1]pbrito@iseg.ulisboa.pt
University of Lisbon

February 21, 2020

The course webpage

https://pmbbrito.github.io

The course: topics

General equilibrium theory (dynamic and stochastic)
- on the determinants of the (risk free) **interest rate**
- on the fdeterminants of the **risk premium**
- on **asset pricing** at an aggregate level

In particular we will deal with their **fundamentals**:
- behavior of agents
- processes for the resources at the micro and macro levels
- institutional framework in which contracts are performed
- distribution of agents characteristics

The course: main questions

- ▶ How do agents behave in intertemporal and uncertain environments ?
- ▶ What is the effect of an increase in wealth on the equilibrium interest rate ?
- ▶ How does saving (from the supply side) reacts to changes in interest rates ?
- ▶ What is the difference between individual and aggregate risk ?
- ▶ Does the asset market allows for insurance ?
- ▶ How can risk be priced in a macroeconomic perspective ?
- ▶ How does the aggregate price of risk relates to asset pricing ?
- ▶ How does rates of return relate to distributional issues ?
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Evidence:

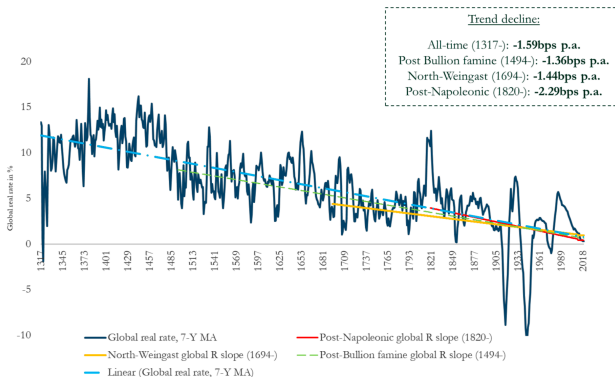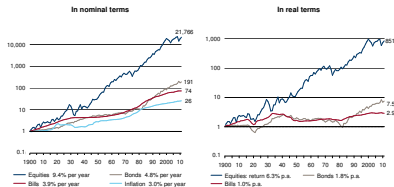secular evolution of the real interest rate

Figure IV: Headline global real rate, GDP-weighted, and trend declines, 1317-2018.

Figure: source: Schmelzing (2020)

Evidence

Equity premia: there is clearly a price for risk

Figure 1: Cumulative returns on US equities, bonds, bills and inflation, 1900–2010

In nominal terms · In real terms

Source: Elroy Dimson, Paul Marsh, and Mike Staunton, *Triumph of the Optimists*, Princeton University Press, 2002, and subsequent research

Figure 2: Real annualized returns (%) on equities versus bonds and bills internationally, 1900–2010
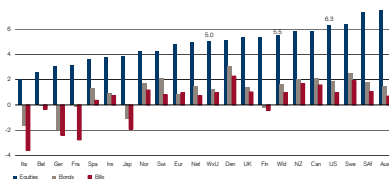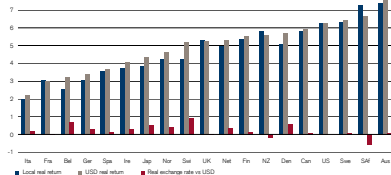
Source: Elroy Dimson, Paul Marsh, and Mike Staunton, *Triumph of the Optimists*, Princeton University Press, 2002, and subsequent research
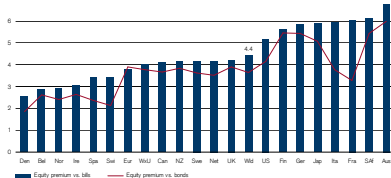
Evidence

Equity premia: the price for risk is different for different countries

Figure 3: Real annualized equity returns (%) in local currency and US dollars, 1900–2010

Source: Elroy Dimson, Paul Marsh, and Mike Staunton, *Triumph of the Optimists*, Princeton University Press, 2002, and subsequent research.

Figure 4: Worldwide annualized equity risk premium (%) relative to bills and bonds, 1900–2010

Source: Elroy Dimson, Paul Marsh, and Mike Staunton, *Triumph of the Optimists*, Princeton University Press, 2002, and subsequent research. Premiums for Germany are based on 109 years, excluding hyperinflationary 1922–23.

Evidence:

rate of interest and rate of grwoth

Economic Growth And Interest Rates Have Become More Closely Aligned

Growth rate relative to the interest rate
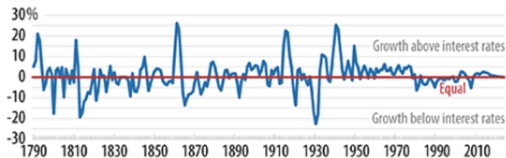
Source: CBPP analysis of data from OMB, CBO, *Historical Statistics of the United States*, and MeasuringWorth.com.

CENTER ON BUDGET AND POLICY PRIORITIES | CBPP.ORG

http://www.cbpp.org/research/federal-budget/difference-between-economic-growth-rates-and-treasury-interest-rates

Evidence

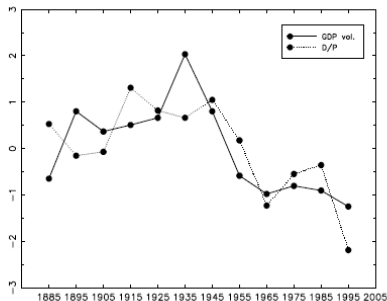US: dividend/price volatility and GDP volatility

Figure 3
GDP volatility and the D/P ratio—Prewar evidence
This figure plots the standard deviations of GDP growth and the mean D/P ratio by decade starting in 1880 until 2000. Both series are demeaned and divided by their standard deviation. The GDP data are from Ray Fair's website (http://fairmodel.econ.yale.edu/RAYFAIR/PDF/2002DTBL.HTM) based on Balke and Gordon (1989). The dividend yield data is from Robert Shiller's website (http://aida.econ.yale.edu/~shiller/data/ie_data.htm).

Figure: in Damodaran (2012)

Evidence:

Historical series on RoR, GDP and financial crises

- ▶ Jordà and all (2019): historical rates of return
- ▶ Paul (2018): financial crises and productivity
- ▶ Schmelzing (2020): historical interest rates

The course's options

- This is a **HUGE** field, therefore we have to make choices:
    - we study two-period and multi-period discrete-time versions of a **simple** benchmark model;
    - we try to get explicit solutions whenever possible
    - we compare the macroeconomic, microeconomic and finance perspectives
    - we deal (mostly) with endowment economies (i.e, output is given)
    - we compare theoretical results with the relevant stylized facts (when possible)
    - we provide an introduction to financial frictions and their aggregate effects

The course's options

We do not deal thoroughly with, but can cover simple cases, v.g :

- ▶ theory of decision making under uncertainty
- ▶ theory of intertemporal decision making under uncertainty
- ▶ financial frictions (v.g., information imperfections and contract theory)
- ▶ corporate finance
- ▶ detailed pricing of financial instruments
- ▶ financial intermediaries (banks)
- ▶ monetary policy and fiscal policy
- ▶ open economies and international capital markets
- ▶ financial bubbles and financial crashes
- ▶ numerical computation of DSGE models