

Seek Project:

Private Funding of Higher Education: Human Capital as an Asset Class

Motivation

- ▶ Trend towards **high level tertiary education** to compensate for a decreasing potential of high-skilled labor
- ▶ Trend towards a **higher share of private expenditures** as public budgets are under pressure in many countries
- ▶ **Relative abundance of the factor capital** which is going to decrease the average rate of return
- ▶ Investors seeking to stabilize their yields should, therefore, be interested in **alternative, human capital-based assets**

Research Questions

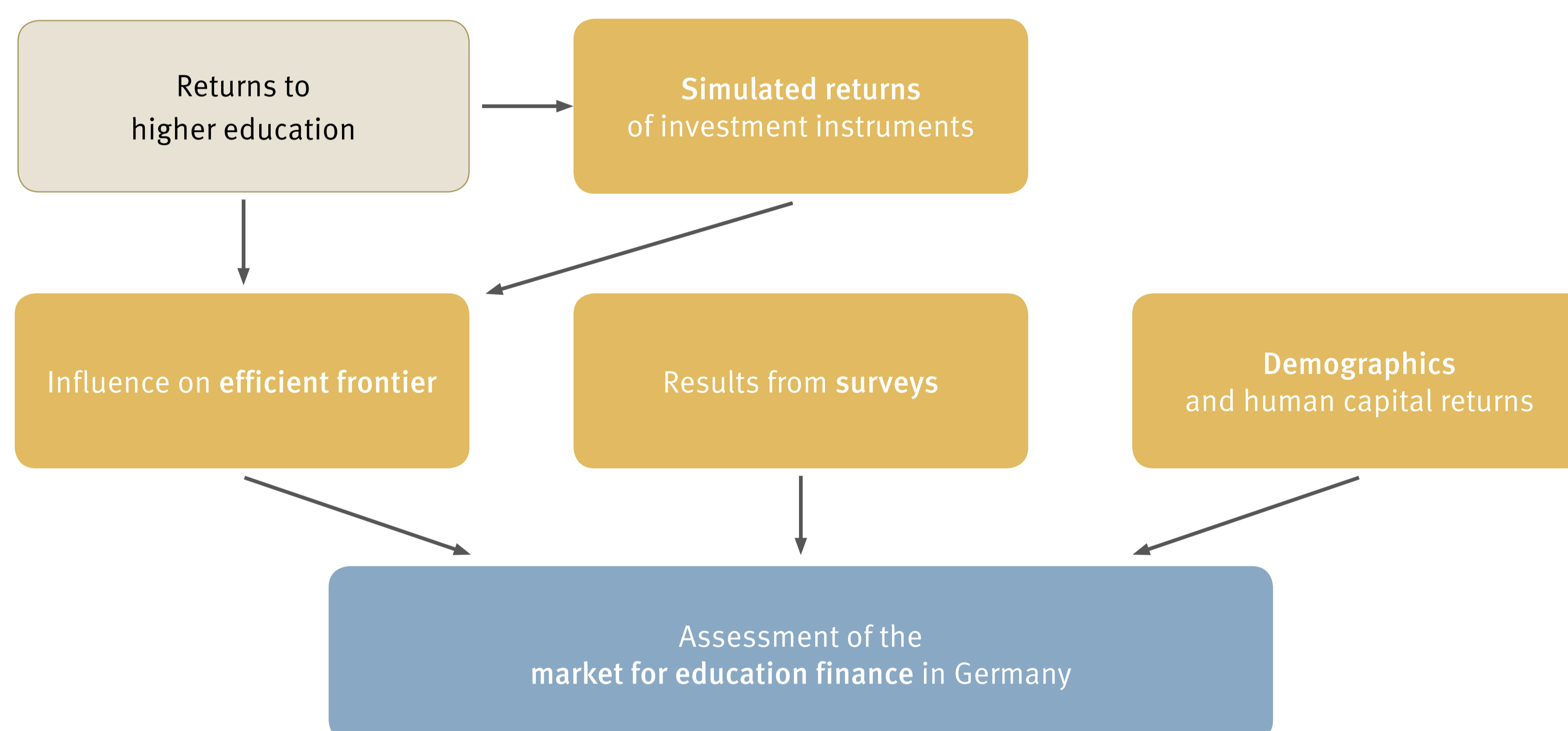
Basis of the following analyses:

- Estimations of the **returns to higher education** for different fields of study in Germany
- ▶ What are the **risk-return relationships** of different types of human capital (HC) investment instruments?
- ▶ Do human capital-based assets improve the **efficient frontier** of the investor?
- ▶ What are the opportunities for the development of the **private market for education finance in Germany**?

Research Team

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Overview of the Methodology



Methods for Estimating the Returns to Higher Education

- ▶ Adjust the **Mincer earnings equation** in order to fit the perspective of a financial investor
- ▶ Calculate the returns to education for **several levels and fields of study**, e.g.
 - Mathematics and natural sciences
 - Medicine
 - Engineering
 - Arts and Literature
- ▶ **Database:** German census (waves: 1980, 1989, 1991, 1993, 1995, 1996, 2000, 2003 – 2008)

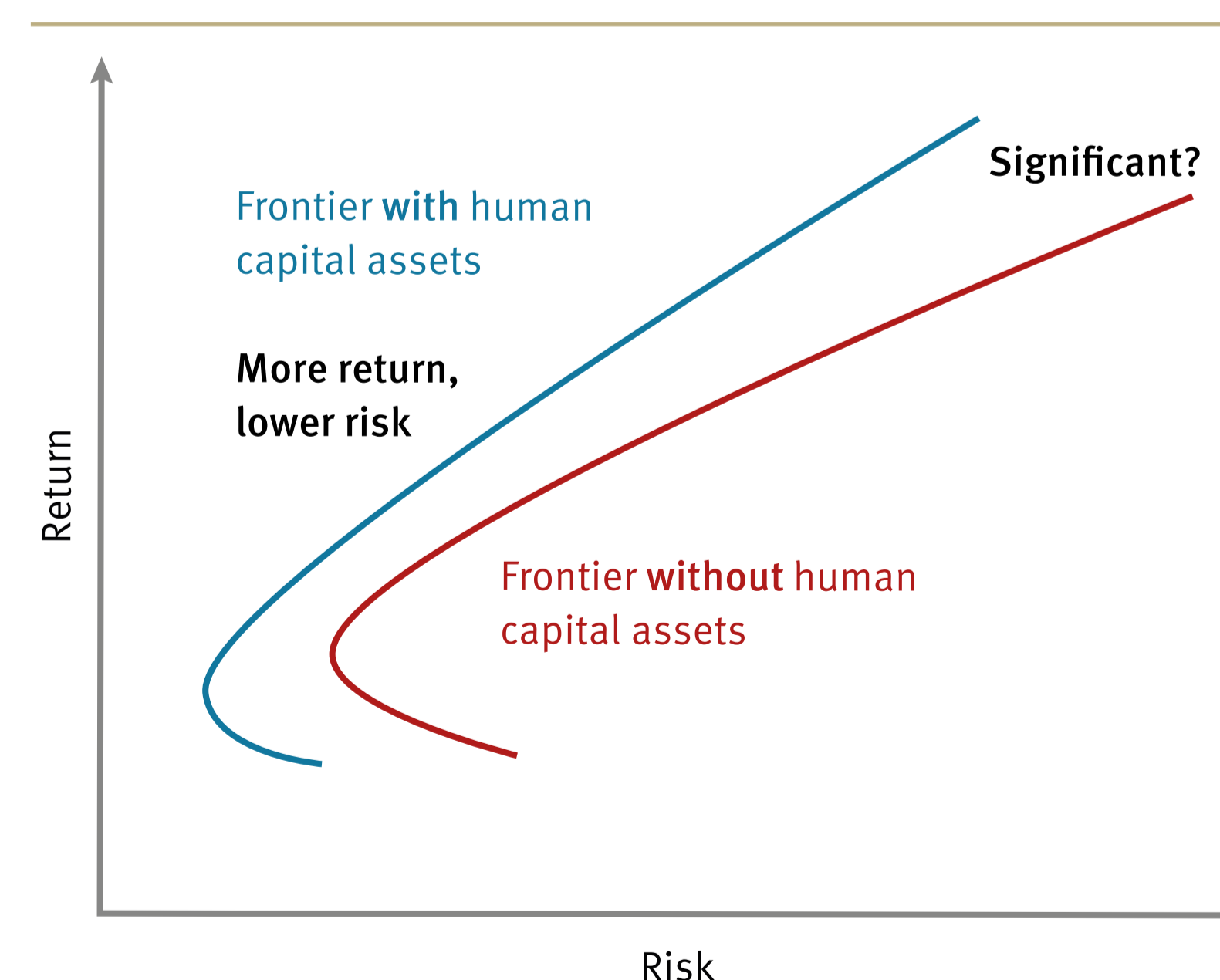
Methods for Research Question 1: Return Distributions of HC Investment Instruments

- ▶ **Basis of the analysis:** Distribution of returns to education for several levels and fields of study from the Mincer earnings equations
- ▶ **Monte Carlo simulation** of the return distributions for
 - **Income-contingent loans** (bond-type investment)
 - Fixed interest rate
 - Repayments only in periods in which income of the borrower is above a specific threshold
 - **Human-capital contracts** (equity-type investment)
 - Repayments are a linear function of the income of the borrower

Methods for Research Question 2: Improvement of Efficient Frontier?

- ▶ **Spanning tests** to investigate the frontier of efficient portfolios **with** and **without** human capital investments

Comparison of Efficient Frontiers



Source: ZEW

Use of:

- ▶ Return distributions from Mincer earnings equations directly
- ▶ Simulated return distributions from HC investment instruments

Methods for Research Question 3: Private Market for Education Finance

- ▶ **Theory:** Equilibrium effects of demographic changes, dividends, asset prices, and human capital returns
- ▶ **Surveys** (in Germany and Latin America)
 - **Students** (test of the acceptance of financing instruments)
 - **Capital providers** (practical experiences: monitoring, enforcement, default etc.)
- ▶ **Combination** with the results of the efficient frontier tests and assessment for the development of the **market for education finance in Germany**