Post-Crisis Recovery in Slow-Motion Mode: The Role of the Nonfinancial Corporate Sector

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This presentation is based on joint work with M. Gächter, M. Geiger and F. Glötzl.
“The structure of an economic model … needs to include the interrelated balance sheets and income statements of the units of the economy.”

Hyman Minsky, 1996
Precrisis credit booms predict the drop in postcrisis economic activity
Precrisis credit booms are a drag on postcrisis recovery

Precrisis Credit Boom and Economic Activity since 2008

Real GDP
Change in real GDP (2008-2012, percent)

Unemployment Rate
Change in unemployment rate (2008-2012, percentage points)

Investment Ratio
Change in investent-to-GDP ratio (2008-2012, percentage points)

Source: European Commission, MIP Database.
Many countries are suffering from a massive drop in private sector demand
Increase of private sector saving relative to investment

Change in *Net Lending / Net Borrowing* (NLNB) 2007 to 2013

Public vs. Private Sector (2007 to 2013)

Households vs. Corporations (2007 to 2013)

Source: European Commission, AMECO.
The nonfinancial corporate sector has become a net lender in many countries
Changes of NLNBP balances in the corporate sector…

**Euro Area**

### Net Lending / Net Borrowing (% of GDP)

- **Households**
- **Nonfinancial corporations**
- **Government**
- **RoW**
- **Financial Corporations**

Source: ECB - Euro Area Accounts.

### Nonfinancial Corporations - Changes in Debt Ratio

- **GDP**
- **Transactions**
- **Other changes**
- **Total change**
- **Inflation**
- **Debt-to-GDP ratio (r.a.)**

Source: ECB - Euro Area Accounts, own calculations.
... have led to decreasing debt ratios in Germany ...

**Germany**

**Net Lending / Net Borrowing (% of GDP)**

- Households
- Nonfinancial corporations
- Government
- RoW
- Financial Corporations

**Nonfinancial Corporations - Changes in Debt Ratio**

- GDP
- Inflation
- Transactions
- Other changes
- Total change
- Debt-to-GDP ratio (r.a.)

Source: ECB - Euro Area Accounts, own calculations.

Source: ECB - Euro Area Accounts, own calculations.
... and in some vulnerable euro area economies

Spain

Net Lending / Net Borrowing (% of GDP)

Nonfinancial Corporations - Changes in Debt Ratio

Source: ECB - Euro Area Accounts, own calculations.
Investment spending has decreased dramatically across Europe
Investment drop: Heterogeneous timing across countries

Change in Real Fixed Gross Investment

Total change (2007 to 2013, in percent)
-64 - -30
-30 - -15
-15 - 0
0 - 20

Source: European Commission - AMECO.

% of real fixed gross investment in 2007

2007-2010
2007-2013
2010-2013

Source: European Commission - AMECO.
Drop in investment is not only construction-driven

Change in Real Fixed Gross Investment by Type of Goods, 2007 to 2013

Contributions in percentage points of fixed gross investment in 2007

Source: European Commission - AMECO, own calculations.
External rebalancing has mostly been driven by the decline in investment
Euro area: Rebalancing driven by investment decline

Source: ECB - Euro Area Accounts.
Spain: Rebalancing mainly driven by investment decline

Spain: Saving, Investment and External Balance

Source: ECB - Euro Area Accounts.

Sectoral Saving Rates (% of GDP)

Source: ECB - Euro Area Accounts.

Sectoral Investment Rates (% of GDP)

Source: ECB - Euro Area Accounts.
Germany: Positive saving shocks, investment decline

Germany: Saving, Investment and External Balance

% of GDP
27
25
23
21
19
17
15
NLNB, total economy (r.a.)
Savings
Fixed capital formation
Other factors + stat. dis. (r.a.)
Source: ECB - Euro Area Accounts.

Sectoral Saving Rates (% of GDP)

% of GDP
30
25
20
15
10
5
0
-5
Households
Nonfinancial corporations
Government
Financial corporations
Total
Source: ECB - Euro Area Accounts.

Sectoral Investment Rates (% of GDP)

% of GDP
30
25
20
15
10
5
0
-5
Households
Nonfinancial corporations
Government
Financial corporations
Total
Source: ECB - Euro Area Accounts.
External rebalancing at the expense of investment

External Rebalancing: Change in Net Lending / Net Borrowing (Total Economy), 2007 to 2014

% of GDP

Source: European Commission - AMECO.
Firms have reacted strongly to the crisis
The microdata perspective: Firm behavior during the crisis

- European Records of IFRS Consolidated Accounts (ERICA)
- Stock-listed firms in eight euro area countries (AT, BE, DE, ES, FR, GR, IT, PT)
- Most observations from DE, IT & FR (~ 84% of observations)
- Approximately 1,000 firms, 2005 to 2012 (~ 7,400 firm/year observations)
- Covers the lion’s share of listed companies in the respective countries
Structural breaks in the behavior of large firms

- Corporate investment decisions
  - Investment may depend on the availability of internal funds if firms are financially constrained (Fazzari et al., 1988)
  - Positive cash flow sensitivity of investment

- Corporate saving behavior
  - Alternative approach to reveal financial constraints (Almeida et al., 2004)
  - Constrained firms should respond by increasing their cash holdings
  - Positive cash flow sensitivity of cash

- Comparison of firm behavior pre- and postcrisis
  - Existence (or anticipation) of financial constraints likely in the case of...
  - an increase of the cash flow sensitivity of investment, and
  - an increase of the cash flow sensitivity of cash (increased liquidity preference)
Even large firms reduce investment while hoarding cash

**Investment Ratio of Stock-listed Corporations**

% of total assets

- 2006: 11%
- 2007: 9%
- 2008: 8%
- 2009: 7%
- 2010: 6%
- 2011: 5%
- 2012: 4%

**Cash Holdings of Stock-listed Corporations**

% of total assets

- 2006: 15%
- 2007: 13%
- 2008: 11%
- 2009: 9%
- 2010: 7%
- 2011: 5%
- 2012: 3%

Source: ERICA database, own calculations.
The micro perspective (I): Investment

Firm Investment Behavior: Pre- and Postcrisis Differences

Cash Flow Sensitivity of Investment

- **Estimated coefficient**
- Coef. 0.117, p.value 0.191
- Coef. 0.133***, p-value 0.000

Operating cash flow

- Pre crisis
- Post crisis

Lagged Cash Holdings and their Impact on Investment

- **Estimated coefficient**
- Coef. 0.552***, p-value 0.000
- Coef. 0.102, p-value 0.145

(Lagged) Cash holdings

Source: ERICA database, own calculations.
The micro perspective (II): Cash holdings

Firm’s Cash Holdings: Pre- and Postcrisis Differences

Cash Flow Sensitivity of Cash

Estimated coefficient

Operating cash flow

| Coef. 0.18*** | p-value 0.01 |
| Coef. 0.30*** | p-value 0.000 |

Investment Expenditures and their Impact on Cash Holdings

Estimated coefficient

Investment

| Coef. -0.19*** | p-value 0.00 |
| Coef. -0.25*** | p-value 0.00 |

Source: ERICA database, own calculations.
The investment decline jeopardizes the European convergence process
Convergence has stalled in many countries

GDP per capita (p.c.) in 2001 vs. 2013

Index, 100 = EU-28 average

Source: Eurostat.
Strong implications for the catching-up process

GDP per capita and Gross Fixed Capital Formation excluding Construction

**2007**
Gross fixed capital formation excl. construction to GDP (%)

**2013**
Gross fixed capital formation excl. construction to GDP (%)

Source: European Commission - AMECO, own calculations.
Thank you for your attention
ANNEX

Helene Schuberth
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Oesterreichische Nationalbank
Empirical specifications – investment equation

\[ Inv_{i,t} = \alpha + \beta Inv_{i,t-1} + \gamma OCF_{i,t} + Z'_{i,t} \delta + \lambda_t + \nu_{i,t} \]

- \( Inv_{i,t} \) ... Investing cash flow (ratio to total assets)
- \( OCF_{i,t} \) ... Operating cash flow (ratio to total assets)
- \( Z'_{i,t} \) ... Control variables (log assets, sales, employment, leverage, cash holdings)
- \( \lambda_t \) ... Time dummies (years)
- \( \nu_{i,t} \) ... Error term

**Estimator:**
Dynamic panel regression following Blundell & Bond (1998)

<table>
<thead>
<tr>
<th>Time Horizon</th>
<th>Model 1</th>
<th>Model 2</th>
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<th>Model 6</th>
<th>Model 7</th>
<th>Model 8</th>
<th>Model 9</th>
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</thead>
<tbody>
<tr>
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<td>CF Invest.</td>
<td>CF Invest.</td>
<td>CF Invest.</td>
<td>CF Invest.</td>
<td>CF Invest.</td>
<td>CF Invest.</td>
<td>BS Invest.</td>
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<td>0.149***</td>
<td>0.163***</td>
<td>0.0581</td>
<td>0.169***</td>
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<td>(0.002)</td>
<td>(0.004)</td>
<td>(0.007)</td>
<td>(0.001)</td>
<td>(0.006)</td>
<td>(0.004)</td>
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<td>(0.148)</td>
<td>(0.724)</td>
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<td>(0.625)</td>
<td>(0.254)</td>
<td>(0.683)</td>
<td>(0.551)</td>
<td>(0.431)</td>
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<td>(0.356)</td>
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<td>L.Cash</td>
<td>0.190***</td>
<td>0.552***</td>
<td>0.102</td>
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<td>0.332*</td>
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<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
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<td>Observations</td>
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<td>896</td>
<td>2172</td>
<td>2375</td>
<td>709</td>
<td>1666</td>
<td>1691</td>
<td>335</td>
<td>1356</td>
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</tbody>
</table>

*p-values in parentheses
* \( p < 0.10 \), ** \( p < 0.05 \), *** \( p < 0.01 \)
Empirical specifications – cash equation

\[ \text{Cash}_{i,t} = \alpha + \beta \text{Cash}_{i,t-1} + \gamma \text{OCF}_{i,t} + Z'_{i,t} \delta + \lambda_t + \nu_{i,t} \]

- \text{Cash}_{i,t} \ldots \text{Cash holdings (ratio to total assets)}
- \text{OCF}_{i,t} \ldots \text{Operating cash flow (ratio to total assets)}
- Z'_{i,t} \ldots \text{Control variables (log assets, investment, leverage)}
- \lambda_t \ldots \text{Time dummies (years)}
- \nu_{i,t} \ldots \text{Error term}

\textbf{Estimator:}
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<tbody>
<tr>
<td>Cash&amp;LA</td>
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<tr>
<td>L.Cash</td>
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<td>0.888***</td>
<td>0.552***</td>
<td>0.704***</td>
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<td>0.703***</td>
<td>0.814***</td>
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<td>(0.000)</td>
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<td>(0.237)</td>
<td>(0.806)</td>
<td>(0.134)</td>
<td>(0.202)</td>
<td>(0.946)</td>
<td>(0.031)</td>
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<td>0.172**</td>
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<td>0.280***</td>
<td>0.179***</td>
<td>0.299***</td>
<td>0.274***</td>
<td>0.294***</td>
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<td>(0.000)</td>
<td>(0.031)</td>
<td>(0.000)</td>
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<td>(0.010)</td>
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<tr>
<td>Investment</td>
<td>-0.199***</td>
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<td>-0.185***</td>
<td>-0.264***</td>
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<td>(0.000)</td>
<td>(0.001)</td>
<td>(0.000)</td>
<td>(0.000)</td>
<td>(0.135)</td>
<td>(0.188)</td>
<td>(0.002)</td>
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<tr>
<td>L.Leverage</td>
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<td>-0.187**</td>
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<td>(0.993)</td>
<td>(0.060)</td>
<td>(0.265)</td>
<td>(0.270)</td>
<td>(0.010)</td>
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Year Dummies: yes, yes, yes, yes, yes, yes, yes, yes, yes
Observations: 3777, 1188, 2589, 3777, 1188, 2589

*p-values in parentheses
* p < 0.10, ** p < 0.05, *** p < 0.01