Catherine L. Mann
OECD Chief Economist
20 October 2017
Paris

Banque de France
Toulouse School of Economics
“Financial Structure, Financial Stability and the Economy”

Finance and economic growth in OECD and G20 countries

Catherine L. Mann
OECD Chief Economist

20 October 2017
Paris
I. Setting the scene: big trends
II. Finance and growth
III. Finance and the distribution of the growth dividends
IV. Which policy responses?
I. BIG TRENDS
Finance has expanded considerably…

Share of financial sector value added in GDP, %

Note: OECD shows the simple average of OECD countries for which the data are available.
Source: Cournède, Denk and Hoeller (2015).
... with a massive increase in lending.

Credit by banks and other financial intermediaries, % of GDP

OECD shows the simple average of OECD countries for which the data are available.
Source: Cournède, Denk and Hoeller (2015).
II. FINANCE AND GROWTH
Finance boosts growth by:

• Reducing the need for self-financing, hence
  – allocating capital more efficiently
  – monitoring investments more professionally

• Facilitating international trade

• Smoothing cash-flow shocks

• Facilitating monetary policy transmission
Too much finance can harm growth by:

• Misallocating capital (e.g. too much housing construction relative to business investment)
• Magnifying the cost of implicit guarantees
• Distorting allocation of talented labor
• Generating boom-bust cycles (esp. housing)
• Heightening the risk of regulatory capture
In practice, finance is a key ingredient of growth, but there are limits

Estimated link with growth of a 10% of GDP increase in bank credit

Note: Dotted lines show 90% confidence intervals. Bank credit also includes credit by other intermediaries.
Source: Cournède, Denk and Hoeller (2015).
Baseline empirical specification

Standard growth regression:

\[ \text{Growth}_{ct} = \beta \text{Credit}_{ct} + x_{ct}\gamma + \rho_c + \tau_t + \varphi_{ct} + \varepsilon_{ct} \]

\text{Growth}_{ct}: \text{Growth of real GDP per capita}

\text{x}_{ct}: \text{Investment-to-GDP, average years of schooling, population growth}

\rho_c: \text{Country fixed effects to control of unobserved country heterogeneity}

\tau_t: \text{Year fixed effects to account for common shocks to GDP growth}

\rho_{ct}: \text{Country-specific trends to control for trends in GDP growth and credit}
The marginal effect of further bank credit expansion is negative…

…even when abstracting from the near-term impact of financial crises:

<table>
<thead>
<tr>
<th></th>
<th>GDP growth per capita</th>
</tr>
</thead>
<tbody>
<tr>
<td>Credit by banks and other</td>
<td>-0.016**</td>
</tr>
<tr>
<td>financial intermediaries</td>
<td>-0.021***</td>
</tr>
<tr>
<td>(0.006)</td>
<td>(0.006)</td>
</tr>
<tr>
<td>Investment rate</td>
<td>0.191***</td>
</tr>
<tr>
<td>(0.039)</td>
<td>0.211***</td>
</tr>
<tr>
<td>School years</td>
<td>-0.476</td>
</tr>
<tr>
<td>(0.291)</td>
<td>-0.482*</td>
</tr>
<tr>
<td>Population growth</td>
<td>-0.476</td>
</tr>
<tr>
<td>(0.319)</td>
<td>-0.356</td>
</tr>
<tr>
<td>ln(Lagged GDP per capita)</td>
<td>-2.661**</td>
</tr>
<tr>
<td>(1.090)</td>
<td>-4.114***</td>
</tr>
<tr>
<td>Banking crisis dummy</td>
<td>-</td>
</tr>
<tr>
<td>Year fixed effects</td>
<td>No</td>
</tr>
<tr>
<td>Linear country trends</td>
<td>No</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.242</td>
</tr>
<tr>
<td>Sample period</td>
<td>1961-2011</td>
</tr>
<tr>
<td>Observations</td>
<td>1260</td>
</tr>
</tbody>
</table>

Note: All regressions include country fixed effects. Brackets surround standard errors.

Source: Cournède and Denk (2015).
Channels behind the negative link between credit and growth

1. Excessive financial deregulation pre-crisis
2. Too-big-to-fail guarantees
3. Household credit outpacing business credit
4. Bank lending outpacing bond financing
1. Financial deregulation → too much lending → weaker growth

Far reaching financial deregulation:
• Conceptually an explanatory factor
• Technically a way of identifying causality: IMF indicators of financial regulation are used as instruments for credit size.

First stage of the IV:
\[ Credit_{ct} = \beta_t FinReg_{ct} + \chi_{ct}\gamma + \rho_c + \tau_t + \varphi_c t + \varepsilon_{ct} \]

Other regressions using system generalised method of moments (instrumenting with lags of credit ratios) also indicate causality from too much credit to lower growth

These regressions confirm that more credit reduces growth.
2. Too-Big-to-Fail Implicit Subsidies: More negatively associated with growth

Implicit bank debt guarantees influence the relationship between bank credit and GDP growth

Percentage point change in real GDP per capita growth associated with an increase in bank credit by 10% of GDP

Note: The figure shows econometric estimates of the association of an increase in bank credit with GDP growth, controlling for a wide range of factors. The point estimates are surrounded by 90% confidence intervals.
3. Business credit has a more favourable link with growth than household credit

Estimated link with economic growth, in percentage points, of an:

- Increase in credit to households by 10% of GDP
- Increase in credit to businesses by 10% of GDP

The error bars show 90% confidence intervals.

Source: Cournède and Denk (2015).
4. Increases in bank lending have a more negative link with growth than other debt

 Estimated link with economic growth, in percentage points, of an:

- Increase in bank lending by 10% of GDP
- Increase in other debt by 10% of GDP

Source: Cournède and Denk (2015).

The error bars show 90% confidence intervals.
By contrast, more stockmarket funding boosts growth

<table>
<thead>
<tr>
<th></th>
<th>GDP growth per capita</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stockmarket capitalisation</td>
<td>0.034*** (0.005)</td>
</tr>
<tr>
<td></td>
<td>0.017*** (0.004)</td>
</tr>
<tr>
<td></td>
<td>0.018*** (0.005)</td>
</tr>
<tr>
<td></td>
<td>0.015*** (0.004)</td>
</tr>
<tr>
<td>Investment rate</td>
<td>0.275*** (0.060)</td>
</tr>
<tr>
<td></td>
<td>0.232*** (0.063)</td>
</tr>
<tr>
<td></td>
<td>0.277*** (0.074)</td>
</tr>
<tr>
<td></td>
<td>0.245*** (0.081)</td>
</tr>
<tr>
<td>School years</td>
<td>0.287 (0.400)</td>
</tr>
<tr>
<td></td>
<td>-0.209 (0.359)</td>
</tr>
<tr>
<td></td>
<td>0.874 (1.154)</td>
</tr>
<tr>
<td></td>
<td>0.588 (1.151)</td>
</tr>
<tr>
<td>Population growth</td>
<td>-0.982*** (0.265)</td>
</tr>
<tr>
<td></td>
<td>-0.623** (0.283)</td>
</tr>
<tr>
<td></td>
<td>-0.476 (0.393)</td>
</tr>
<tr>
<td></td>
<td>-0.467 (0.384)</td>
</tr>
<tr>
<td>In(Lagged GDP per capita)</td>
<td>-8.296*** (1.435)</td>
</tr>
<tr>
<td></td>
<td>-7.107*** (2.024)</td>
</tr>
<tr>
<td></td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>-1.207** (0.511)</td>
</tr>
<tr>
<td>Banking crisis dummy</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>-1.207** (0.511)</td>
</tr>
<tr>
<td>Year fixed effects</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>Linear country trends</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.35</td>
</tr>
<tr>
<td></td>
<td>0.57</td>
</tr>
<tr>
<td></td>
<td>0.60</td>
</tr>
<tr>
<td></td>
<td>0.61</td>
</tr>
<tr>
<td>Sample period</td>
<td>1989-2011</td>
</tr>
<tr>
<td></td>
<td>1989-2011</td>
</tr>
<tr>
<td></td>
<td>1989-2011</td>
</tr>
<tr>
<td></td>
<td>1989-2011</td>
</tr>
<tr>
<td>Observations</td>
<td>705</td>
</tr>
<tr>
<td></td>
<td>702</td>
</tr>
<tr>
<td></td>
<td>871</td>
</tr>
<tr>
<td></td>
<td>702</td>
</tr>
</tbody>
</table>

Note: All regressions include country fixed effects. Brackets surround standard errors.

Source: Cournède and Denk (2015).
III. FINANCE AND THE DISTRIBUTION OF THE GROWTH DIVIDENDS
More finance can promote income

• equalisation if:
  – It relaxes consumption constraints on poor
  – It encourages work in the formal sector

• inequality if:
  – It flows more freely to the better off
  – Finance pays particularly dispersed wages
Empirical specification

Practically the same as the growth regression:

\[ Gini_{ct} = \beta Credit_{ct} + x_{ct} \gamma + \rho_c + \tau_t + \varphi_{ct} + \varepsilon_{ct} \]

- \( Gini_{ct} \): Gini coefficient varying between 0 (equality) and 100 (inequality)
- \( x_{ct} \): Unemployment rate, average years of schooling, openness to trade
- \( \rho_c \): Country fixed effects to control of unobserved country heterogeneity
- \( \tau_t \): Year fixed effects to account for common shocks to inequality
- \( \varphi_{ct} \): Country-specific trends to control for trends in inequality and credit
Credit and stock market expansions are linked with greater income inequality

Change in Gini coefficients for disposable income for a 10 % of GDP increase in:

- Credit by banks and other intermediaries
- Stock market capitalisation

The error bars show 90% confidence intervals.

Source: Cournède, Denk and Hoeller (2015).
Channels behind the negative link between credit and income equality

1. Unequal access to credit

2. Credit as an amplifier of earnings risk

3. Financial sector pay
1. Credit is more unequally distributed than disposable income

Credit and income shares across the income distribution in euro area countries, 2010

1. Lower-income households find access to credit more difficult

Percentage of households expressing difficulty in obtaining credit in euro area countries, 2010

Source: Cournède, Denk and Hoeller (2015).
2. Bank credit: a suspect in raising economic insecurity

Change in labour earnings growth at different percentiles of the earnings growth distribution
For 10% of GDP increase, in percentage points

Source: OECD estimations using harmonised household survey data from 29 countries
3. The share of financial-sector employees rises with the income bracket

Percentage of financial-sector employees in each percentile of the income distribution
European countries, 2010

Source: Denk (2015).
3. Empirical specification

Standard wage regression:

\[ \ln(w_i) = x_i \beta + \gamma Fin_i + \varepsilon_i \]

To allow for heterogeneity of wage premia across employees:

\[ \ln(w_i) = x_i \beta^{NF} + (Fin_i \times x_i) \beta^F + \varepsilon_i \]

**Employee controls:** age, gender, highest level of education, years of experience in the firm and their square

**Employer controls:** employees in the firm, privately or publicly owned, level of wage bargaining, geographical location

**Job controls:** permanent or temporary contract, occupation category, number of overtime hours paid
3. Finance pays more than other sectors for similar profiles, especially at the top

Estimated financial-sector wage premium across the income distribution, European countries, %, 2010

Source: Denk (2015).
IV. WHICH POLICY RESPONSES?
To sum up, too much, or the wrong kind of finance: Negatively associated with growth and inequality

Growth impact of higher credit
For 10% of GDP increase in credit or stock market capitalisation, in percentage points

Increase in Gini coefficients due to higher credit
For 10% of GDP increase, Gini impact in percentage points

Note: The error bars show 90% confidence intervals.
In response, assessing policies with the OECD resilience framework:

- **Weighing trade-offs between growth and risk**
- **How do growth and risk interact with income equality?**

**Tail risk = the risk of an extreme negative growth shock**

Extreme negative growth

\[\text{i.e. max GDP loss with 95\% prob.}\]
Financial regulation can present a trade-off between growth and risk

Macro-prudential policies can reduce fragility, but some may lower growth

Growth benefits from financial market liberalisation offset by higher crisis risk

Note: The X axis plots the effect on fragility; Fragility is defined as higher likelihood of financial crises (policies with red outline) or a higher GDP (negative) tail risk. Three types of financial crises are considered: Currency, banking and twin crises. Tail risk is defined as the effect on the bottom 10% of the distribution for quarterly GDP growth. For each policy, the Y axis plots the average (overall) growth effect.

Source: Authors’ calculation based on Caldera Sánchez and Gori and by Caldera Sánchez and Röhn.
Finish the clean-up of banks: 
Zombie firms are associated with weak banks

Bank health composite index

Average zombie firm share for each category of bank health

Note: Panel A shows the average level of bank health across 11 European countries (Austria, Denmark, Estonia, France, Germany, Greece, Latvia, Portugal, Slovenia, Spain and the United Kingdom), weighted by the number of firms for which a bank is considered to be their main bank. Bank health is given by the first principal component (i.e. the one associated with the largest eigenvalue) from a principal component analysis of seven core balance sheet and financial statement variables of banks. Panel B shows the average zombie firm share for each bin of bank health, purged of country-industry-fixed effects. The relationship is statistically significant at the 1% level and is based on over 1.5 million firm-bank observations for 11 European countries over the period 2001-2014.

Zombies capture capital, reduce dynamism: 
*Turnaround positively associated with productivity*

**Capital sunk in zombie firms**

*Share of total capital stock, 2013*

**Productivity gains from reducing zombie capital**

*Gains to aggregate multi-factor productivity*

---

**Note:** Firms aged 10 years or more and with profits not covering interest payments over three consecutive years. The sample excludes firms that are larger than 100 times the 99th percentile of the size distribution in terms of capital stock or number of employees.

**RHS:** Counterfactual gains to aggregate MFP from reducing zombie capital shares to industry best practice level.

Too-Big-to-Fail Implicit Subsidies: Still work to do

The credit rating uplift from *de facto* public sector backing is still higher than in 2007

Notes: Annual average values stand-alone credit rating (SACR) and difference between all-in credit rating (AICR) and SACR, which defines “Uplift”, based on data from Moody’s. Sample of 204 banks, including 27 G-SIBs. Source: Schich and Toader (2017, forthcoming).
Revitalise the stockmarket funding of small growth companies

Listings (IPOs) of smaller growth company in advanced economies

Source: OECD Business and Finance Scoreboard 2017
Need to balance growth, risk and minimise trade-offs

- Post-crisis overhaul of regulation has focussed mostly on risk
- Other policies matter too

A well-developed and healthy financial system is needed

- Reduce debt subsidies
- Clean up remaining banking problems
- Europe needs to achieve overhaul of bank business model

Challenge: how to make finance more inclusive
Resources: blogs, ppt, video, research

**Economic Resilience**

**Finance and Inclusive Growth**

**Global Forum on Productivity**

Research teams: Boris Cournède, Alain de Serres, Guiseppe Nicoletti, Peter Hoeller, Oliver Denk, Aida Caldera Sanchez, Priscilla Fialho, Filippo Gori, Dan Andrews, Chiara Criscuolo, Valentine Millot, Muge Adalet McGown, Serdar Celik