ECONOMIC CONVERGENCE IN THE EURO AREA: COMING TOGETHER OR DRIFTING APART?\(^1\)

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## ECONOMIC PROSPECTS ARE ROSY IN THE NEAR TERM

### Growth projections: Advanced economies
Percent change from a year earlier

<table>
<thead>
<tr>
<th></th>
<th>World</th>
<th>Advanced Economies</th>
<th>U.S.</th>
<th>U.K.</th>
<th>Japan</th>
<th>Euro Area</th>
<th>Germany</th>
<th>France</th>
<th>Italy</th>
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<td>2017</td>
<td>3.7</td>
<td>2.3</td>
<td>2.3</td>
<td>1.7</td>
<td>1.8</td>
<td>2.4</td>
<td>2.5</td>
<td>1.8</td>
<td>1.6</td>
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<td>2018</td>
<td>3.9</td>
<td>2.3</td>
<td>2.7</td>
<td>1.5</td>
<td>1.2</td>
<td>2.2</td>
<td>2.3</td>
<td>1.9</td>
<td>1.4</td>
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<td>Revision from October 2017</td>
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<td>0.3</td>
<td>0.4</td>
<td>0.0</td>
<td>0.5</td>
<td>0.3</td>
<td>0.5</td>
<td>0.1</td>
<td>0.3</td>
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<td>2019</td>
<td>3.9</td>
<td>2.2</td>
<td>2.5</td>
<td>1.5</td>
<td>0.9</td>
<td>2.0</td>
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<td>0.3</td>
<td>0.5</td>
<td>0.0</td>
<td>0.2</td>
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</tbody>
</table>

BUT THE EUROPEAN RECOVERY STILL LAGS BEHIND OTHER ADVANCED ECONOMIES

Source: Haver Analytics, and IMF staff calculations.
... AND THERE ARE LARGE DIFFERENCES IN ECONOMIC PERFORMANCE BETWEEN EURO AREA COUNTRIES

Source: Haver Analytics, and IMF staff calculations.
TYPES OF CONVERGENCE

• **Real convergence** (income levels)
  
  Linked to productivity growth

• **Nominal convergence** (inflation, interest rates)

• **Cyclical synchronization**
  • Business cycles
  • Financial cycles

• **Structural convergence**
WHAT KIND OF CONVERGENCE DOES THE EURO AREA NEED?

• **Multidimensional convergence** was at the heart of the proposal for a common currency (Delors Report, Maastricht Treaty)

• **Euro Area was not considered an Optimum Currency Area at the outset**
  - Limited cyclical synchronization
  - Weak adjustment mechanisms

• **Maastricht convergence criteria** focused on nominal and fiscal indicators, and assumed that real and structural convergence would be produced endogenously

• **Financial cycles** more recently seen to play a major role for macro stability
PRODUCTIVITY GAPS HAVE INCREASED

Total Factor Productivity
(2000=100)

Source: European Commission AMECO database.
EA12 comprises Austria, Belgium, France, Finland, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, and Spain.
PRODUCTIVITY GROWTH IN SOUTHERN EURO AREA COUNTRIES SLOWED RELATIVE TO THE OTHERS

Contributions to GDP Growth
Average annual real GDP per capita growth rates in percent, unweighted

Note: Productivity groups defined on the basis of labor productivity. Countries with high initial productivity include Austria, Belgium, Finland, France, Germany, Ireland, and the Netherlands. Countries with low initial productivity include Greece, Italy, Portugal and Spain. No 1990s data available for Austria.
Sources: AMECO, Haver Analytics, and IMF staff calculations.
THE RESULT IS A LACK OF **CONVERGENCE** AMONG THE 12 INITIAL EURO AREA COUNTRIES

### β-Convergence Across EA Countries, 1993-2015

PPP GDP per capita

![Graph showing β-convergence across EA countries, 1993-2015. The graph includes points for various countries, such as LVA, EST, SVK, SVN, MLT, FIN, PRT, GRC, ESP, CYP, BEL, FRA, ITA, AUT, DEU, NLD, with R² values of 0.57 and 0.06.](image)

**Sources:** WEO database and IMF staff calculations.

1/ Excludes Luxembourg, and in the case of euro area 19 Lithuania due to missing data.
INCOME CONVERGENCE WAS SLOW AFTER MAASTRICHT AND PARTLY REVERSED AFTER THE CRISIS

σ-Convergence Across EA Countries, 1960-2015
Coefficient of variation, PPP GDP per capita

Sources: WEO database and IMF staff calculations.
1/ Excludes Luxembourg.
2/ Includes Ireland from 1970 and the Netherlands from 1980 onwards.
3/ Includes Lithuania from 1995 onwards.
NOMINAL CONVERGENCE: INTEREST RATES CONVERGED, INFLATION ONLY PARTLY. REAL INTEREST RATES OVERSHOT.

Real Long-Term Bond Yield
(Spread with Germany)

Sources: IMF World Economic Outlook.
BUSINESS CYCLES HAVE BECOME MORE SYNCHRONIZED, BUT THEIR AMPITUDES HAVE DIVERGED

Concordance of Business Cycles of Euro Area Countries
(Average bilateral correlations of business cycle components)

Sources: CEPR, OECD, and IMF staff calculations.

Differential in Growth Rates
(Average absolute bilateral differential growth rates for euro area countries)
**FINANCIAL CYCLES** HAVE ALSO BECOME MORE SYNCHRONIZED SINCE THE CRISIS – EXCEPT FOR GERMANY’S

Concordance of Financial Cycles
Concordance of Germany and euro area countries with other euro area countries

![Bar chart showing concordance of financial cycles](chart.png)

Sources: BIS, CEPR, OECD, and IMF staff calculations.
... COMPLICATING MACRO POLICIES IN THE MONETARY UNION

Financial Cycles of Germany and Spain
(Financial cycles)

Sources: BIS, CEPR, OECD, and IMF staff calculations.
## OVERALL MIXED CONVERGENCE RECORD AMONG THE EURO AREA FOUNDING MEMBERS

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<thead>
<tr>
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<tbody>
<tr>
<td>Real</td>
<td>Convergence</td>
<td>No convergence</td>
<td>Divergence</td>
</tr>
<tr>
<td>Nominal</td>
<td></td>
<td></td>
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<tr>
<td>• Inflation</td>
<td>Convergence</td>
<td>Little convergence</td>
<td>Little convergence</td>
</tr>
<tr>
<td>• Interest rates</td>
<td>Convergence</td>
<td>Full convergence</td>
<td>Temporary divergence</td>
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<tr>
<td>Business cycles</td>
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<td>• Synchronization</td>
<td>Medium synchronicity</td>
<td>Convergence</td>
<td>Convergence</td>
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<tr>
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How to Foster Convergence
FOSTERING CONVERGENCE

Business cycle

→ Fiscal mechanisms
→ Common backstops
→ Flexibility-enhancing structural reforms
STRUCTURAL REFORMS ARE ESSENTIAL TO ACHIEVING CONVERGENCE

The Effect of Employment Protection Reforms on Labor Productivity

POLITICAL ECONOMY

Sustainable growth and income convergence could help build popular support for further economic integration

• Greater similarity in economic welfare reduces risk of permanent transfers

• Share benefits of monetary union
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DEFINITION: INCOME CONVERGENCE

Income convergence denotes a gradual and sustained decline in differences in per capita income levels across countries over time.

- \( \beta \)-convergence: occurs when countries with lower GDP per capita grow faster than those with higher GDP per capita (so-called “catching-up”).

- \( \sigma \)-convergence: observed when the dispersion of countries’ levels of GDP per capita declines over time, meaning their income levels become more similar.

The two kinds of convergence are related: faster growth of countries with lower GDP per capita (\( \beta \)-convergence) is necessary for the dispersion of income levels to narrow (\( \sigma \)-convergence), but not sufficient.
MEASUREMENT: BUSINESS CYCLE

• Following Drehmann et al. (2012), business cycle measured by short-term cycles in GDP

• Use bandpass filter developed by Christiano and Fitzgerald (2003) to separate time series into trend and cyclical component at specific frequency intervals

• **Short-term** and medium-term cycles used to isolate cyclical patterns with short and longer periodicity—business cycle duration set at 5 to 32 quarters

• GDP data in logs, deflated by CPI, seasonally-adjusted, and normalized to Q1 1985 for unit comparability
MEASUREMENT: FINANCIAL CYCLE

- Following Drehmann et al. (2012), financial cycle measured by medium-term component in joint fluctuations of credit, the credit-to-GDP ratio, and residential property prices

- Use bandpass filter developed by Christiano and Fitzgerald (2003) to separate time series into trend and cyclical component at specific frequency intervals

- Short-term and medium-term cycles used to isolate cyclical patterns with short and longer periodicity—financial cycle duration set at 32 to 120 quarters

- Time series in four-quarter differences in log levels (except credit-to-GDP, in percentage points), deflated by CPI, seasonally adjusted, and normalized to Q1 1985 for unit comparability

- Each country’s financial cycle calculated as simple average of medium-term cyclical component of credit, credit-to-GDP ratio, and residential property prices
REGIONAL CONVERGENCE: GERMANY VS. ITALY

σ-Convergence within Germany and Italy
Coefficient of variation, PPS GDP per capita.

Sources: Eurostat, and IMF staff calculations.