

Firm Level Data from ORBIS/AMADEUS Database

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ORBIS-AMADEUS Financial and Production Data

- ORBIS database provided by Bureau van Dijk (BvD) (2005–), harmonized worldwide (150 million+ companies in 90+ countries).
- AMADEUS is the European subset of ORBIS (1996–).
- Collected from official business registers, annual reports, newswires, and webpages.
- Five main features of the data:
 - 1 Balance sheets and profit and loss account (advantage over Census).
 - 2 Good coverage relative to Census iff one merges across different vintages of data/across different disks.
 - 3 Covers many of small and private firms (advantage over Compustat/Worldscope). Listed firms are 1 percent of the sample.
 - 4 Detailed industry classification (4-digit)
 - 5 Mimics official size distribution for most European countries (maybe others)

Coverage Relative to Eurostat (Manufacturing Wage Bill)

	Spain	Italy	Portugal	Germany	France	Norway	Romania
1999	0.69	0.59					
2000	0.71	0.63			0.70	0.54	
2001	0.73	0.62			0.72	0.68	
2002	0.75	0.69			0.75	0.67	
2003	0.74	0.68			0.73	0.73	
2004	0.75	0.71			0.71	0.66	0.85
2005	0.74	0.72			0.71	0.67	0.85
2006	0.74	0.73	0.91	0.34	0.72	0.71	0.75
2007	0.74	0.73	0.94	0.34	0.73	0.73	0.83
2008	0.72	0.84	0.97	0.28	N/A	0.65	0.81
2009	0.72	0.81	0.96	0.28	0.71	0.85	0.92
2010	0.73	0.83	0.96	0.30	0.73	0.82	0.90
2011	0.74	0.86	0.97	0.28	0.75	0.82	0.72
2012	0.71	0.85	0.96	0.25	0.73	0.87	0.74

Share of Total Wage Bill by Size Class (2006)

[▶ other variables](#)[▶ compnet comparison](#)

	Spain	Italy	Port	Germany	France	Norway	Romania
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ORBIS-AMADEUS

1-19 emp	0.19	0.11	0.18	0.01	0.08	0.14	0.06
20-249 emp	0.47	0.53	0.50	0.33	0.30	0.43	0.32
250+ emp	0.34	0.36	0.32	0.67	0.61	0.43	0.61

Eurostat (SBS)

1-19 emp	0.20	0.22	0.21	0.07	0.14	0.15	0.07
20-249 emp	0.43	0.44	0.49	0.26	0.31	0.41	0.33
250+ emp	0.37	0.34	0.30	0.67	0.55	0.44	0.61

Firm Level Variables: Example

- Balance Sheet: Assets, Liabilities, Equity and Memo lines (number of employees, export revenue)
 - Assets: Tangible, Intangible, Cash...
 - Liabilities: Long Term Debt, Current Liabilities (Bank Loans, Creditors)...
 - Shareholder Funds: Capital/Equity
- Profit and Loss Account: Sales, EBIT, EBITDA and Memo lines (materials, cost of employees, R&D)
- **Panel data: changes in productivity and financial conditions over time.**

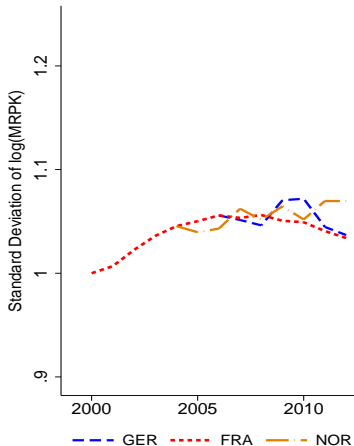
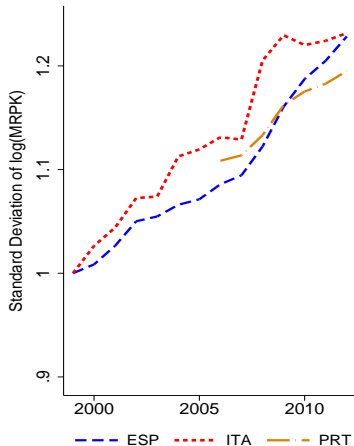
Paper: Leverage Across Firms, Banks, and Countries by Kalemli-Ozcan, Sorensen, Yesiltas, JIE 2012

OECD Countries

- Non-financial firms enter the crisis with low levels of leverage (debt/assets)
- Financial firms have procyclical leverage if they are big.
- Ongoing Work:
 - SME (less than 250 employee) finance investment with short term debt

Stylized Fact 2: Misallocation of Capital Over Time (Europe)

Paper: Capital Allocation and Productivity in South Europe by Gopinath, Kalemli-Ozcan, Karabarbounis, Villegas-Sanchez



- ORBIS includes over 30 million ownership/subsidiary links
- Data shows full list of shareholders and subsidiaries in time series.
- Key feature of the ownership links:
 - 1 Nationality of the Owner
 - 2 Ultimate vs Direct
 - 3 Type and sector of Owner
 - Industry-FDI: Parent company industrial.
 - Financial-FDI: Parent company is a bank, financial company, insurance company, mutual fund other financial institution.

Comparison to Official Aggregate FDI/equity Flows

- OECD International Direct Investment Database: Bilateral foreign investment positions (more than 10% of ownership stake).
- Coordinated Portfolio Investment Surveys (CPIS): Bilateral portfolio equity investment positions (less than 10% of ownership stake). Limited time variation.
- Aggregate level databases are based on the concept of residence which assigns ownership of financial flows to legal entities' place of registration.
- The legal entity (which is the direct owner) is often located in a tax heaven or financial center.
- Direct ownership overstates exposure to financial centers and understates exposure of countries such as the US.

Paper: “Who Owns European Firms?” by Kalemli-Ozcan, Korsun, Sorensen, Villegas-Sanchez, Volosovych

- Residents of the United States ultimately (directly) own 23% (15%) of Spanish, 25% (13%) of French, and 22% (8%) of Italian foreign investment stocks.
- North America is a major source of foreign investment funds but the OECD data and BvD direct ownership data, greatly underestimates this.
- A significant share of North American investments are channeled through West European financial centers (e.g., Ireland and the UK).
- The ultimate ownership data show that more than 10% of the German, British, and Dutch foreign investment stocks have their ultimate owners in Far East and Central Asia

Paper: “Foreign Ownership, Selection, and Productivity” by Fons-Rosen, Kalemli-Ozcan, Sorensen, Villegas-Sanchez, Volosovych

- Both financial and industrial foreign investors select high productivity domestic firms to invest in
- Accounting for such selection, even a 100 percent increase in industrial FDI has a small effect on TFP (2-3 percent increase) after 4 years of initial investment

Issues with the Dataset

The download is not trivial. Several reasons for this:

Sources: WRDS (Wharton), BvD Web, disks

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- AMADEUS provide most recent 10 years for the same company where ORBIS provides 5 most recent years
- AMADEUS drops the firm if firm did not report anything in the last 5 years where ORBIS keeps the firm as long as firm is active (not exit)
 - Example: If a company file info last time in 2007 but still active in business registry, AMADEUS 2013 download will not include this company, however info on 2002-2007 will be in ORBIS-2013 for the same company

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- Reporting lag of 2 years so coverage of 2007, 2008 from 2009 download/disk will be bad but will be good from 2010+ download/disk
- Capping: Online (WRDS, BvD) caps number of firms/observations that can be downloaded in certain period of time: researcher will not notice this since download will not crash but come as missing observations
- Update: For the same firm, same variable that is missing in 2007, can be there in 2010 since info is updated constantly.
- To build a panel of maximum coverage over time one has to use: ORBIS-2005, ORBIS-2009, ORBIS-2013, AMADEUS (WRDS)-2010, AMADEUS-2014

Table: ORBIS-AMADEUS TO WRDS, 2006, MANUFACTURING, SPAIN

	Several Vintages	Direct WRDS Download
Panel B: Wage Bill		
1-19	19.2%	0.6%
20-249	47.0%	44.4%
250+	33.8%	53.4%
Panel C: Output		
1-19	13.6%	1.2%
20-249	41.5%	42.6%
250+	44.8%	54.4%

- **It is a big pain to work with this data:** Products are not user friendly, not designed for researchers, there can be mistakes and BvD is slow to respond
- Cleaning and merging different vintages requires several steps
 - Merge via firm ids but firm ids change, sector classification change, firms can change sectors
 - Units are different across countries (both currency and numeraire), sometimes BVD variables for harmonization may not work
- **“How to Construct Nationally Representative Firm Level Data from ORBIS/AMADEUS Database?”** by Kalemli-Ozcan, Sørensen, Villegas-Sanchez, Volosovych, and Yesiltas

Data is collected from business registries and commercialized, so costly.

- Initial subscription (with historical disks, only 6) will be around 50,000-60,000 and each additional year will be around 25,000-35,000 (more outside universities)
- Direct access via WRDS
 - Only AMADEUS.
 - Historical foreign ownership not retained
- OECD has its own internal ORBIS subscription.
- Several universities also have direct subscription to ORBIS

Conclusion

Advantages:

- Data set has an advantage over “Compustat type” data given the non listed firm coverage
- Data set also has an advantage over “Census type” data given the links between production and financial data

The dataset is ideal:

- If we want to connect real and financial variables at the firm level, going outside the realm of listed firms and achieving national representation
 - Alternative: collect the data country by country via national central banks or statistical offices
- If we want to measure international flows of FDI and portfolio equity investment correctly in terms of direct and ultimate investors/risk bearers.

Share of Total Gross Output by Size Class (2006)

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	Spain	Italy	Portugal	Germany	France	Norway
ORBIS-AMADEUS						
1-19 employees	0.14	0.12	0.12	0.06	0.05	0.11
20-249 employees	0.42	0.49	0.43	0.27	0.23	0.40
250+ employees	0.45	0.40	0.46	0.67	0.72	0.49
Eurostat (SBS)						
0-19 employees	0.14	0.20	0.14	0.06	0.09	0.13
20-249 employees	0.38	0.41	0.42	0.22	0.27	0.36
250+ employees	0.49	0.39	0.43	0.72	0.64	0.51

Table: SIZE DISTRIBUTION: BvD vs. OECD AND COMPNET [▶ Back](#)

BASED ON EMPLOYMENT

COUNTRY	0-1 TO 19			20 TO 249			+250		
	BvD	ES	CN	BvD	ES	CN	BvD	ES	CN
Belgium 08	87.6	95.1	89.5	11.5	4.6	9.9	0.9	0.3	0.7
Estonia 07	86.4	91	89.4	12.9	8.6	10.3	0.7	0.4	0.4
Finland 07	86.4	95.9	92.2	12.4	3.7	7.2	0.1	0.3	0.6
France 09	87.8	96.3	66	11.1	3.4	31.8	0.1	0.2	2.2
Germany 08	81.0	92.8	20.8	17.4	6.7	65.9	0.6	0.5	13.4
Italy 08	85.0	97.6	83.5	14.1	2.3	15.8	0.8	0.1	0.7
Latvia 07	83.5	89.3	71.1	15.2	10.3	27	0.3	0.4	1.9
Spain 08	86.7	96.5	90.7	12.6	3.4	9	0.6	0.1	0.3

NOTES: Each cell gives the share of number of firms of the corresponding size group in total economy from the relevant data source for the given year (%).