

OECD SHORT-TERM FINANCIAL TRACKER OF BUSINESS R&D (SwiFTBeRD) DASHBOARD

INTRODUCING A NEW TOOL FOR THE TIMELY MONITORING OF BUSINESS R&D INVESTMENT (BETA VERSION)

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Fabien Verger (OECD/STI), Fernando Galindo-Rueda (OECD/STI)





The need for short-term, timely R&D data

- More timely data are needed at times of crisis for:
 - Ensuring that innovation is part of an effective response to the crisis
 - Monitoring disruptions on innovation capacities
 - Preventing irreversible losses
 - Orienting support efforts
- Lags in official BERD statistics publishing
 - Provide robust and internationally comparable R&D measures
 - Year T data collected in T+1; internationally comparable data published at the end of T+1/beginning of T+2
 - Do not inform about intra-annual R&D evolution (e.g. in the early stages of a crisis/or recovery)
 - Lack of precision of surveys' intention data
 - Other nowcasting methods using proxy variables (e.g. GDP or occupation data) have drawbacks



The use of companies' financial statements as a timelier source for business R&D

- Initial exploration of publicly reported quarterly R&D expenses by large companies at the very outset of the COVID-19 crisis
 - Stressed the timeliness and relevance of such data source

• Led the OECD to build a web application to make these data publicly available and updated on a regular basis

• Timeliness: almost all quarterly data included within 2 months after the end of the quarter; 3 months for annual data



SwiFTBeRD data sources, coverage and accounting measure used

- Sources: manual inspection of quarterly, semi-annual and annual financial reports.
- Company coverage: 60 large R&D investors
 - Top 50 R&D investors + 10 other sectors' leaders
 - List based on the 2020 EU Industrial R&D Investment Scoreboard
 - -> 42% of the total R&D reported costs of the top 2500 world investors
- 2018 Q1 2021 Q3 (+ 2017 to 2020 annual data)
- Variables: R&D and Total revenue
- Accounting measures of R&D expenditure:
 - Income statement item (compiled according to US GAAP or IFRS standards)
 - Plus adjustments aimed at enhancing comparability (when possible):
 - Adding capitalised development costs (and removing amortisation of ~)
 - Excluding expenses and impairment of purchased in-process R&D



DEMO OF THE SwiFTBeRD DASHBOARD

SwiFTBeRD webpage: https://www.oecd.org/sti/swiftberd.htm

SwiFTBeRD dashboard: https://oecd-main.shinyapps.io/swiftberd/



Perspectives for further data and tool development

- Data updates: 2021 annual data (March 2022), 2022 Q1 (May 2022), 2022 Q2 (Aug. 2022), etc.
- Potential avenues:
 - Automating some of the data collection tasks
 - More historical data
 - More companies, more sectors, better representativeness, also depending on new data needs (e.g. green innovation)
 - More quantitative variables
 - Semantic analysis
 - Improvement of the dashboard
 - New features
 - Downloadable data
 - Better responsiveness



THANK YOU

FABIEN.VERGER@OECD.ORG

FERNANDO.GALINDO-RUEDA@OECD.ORG

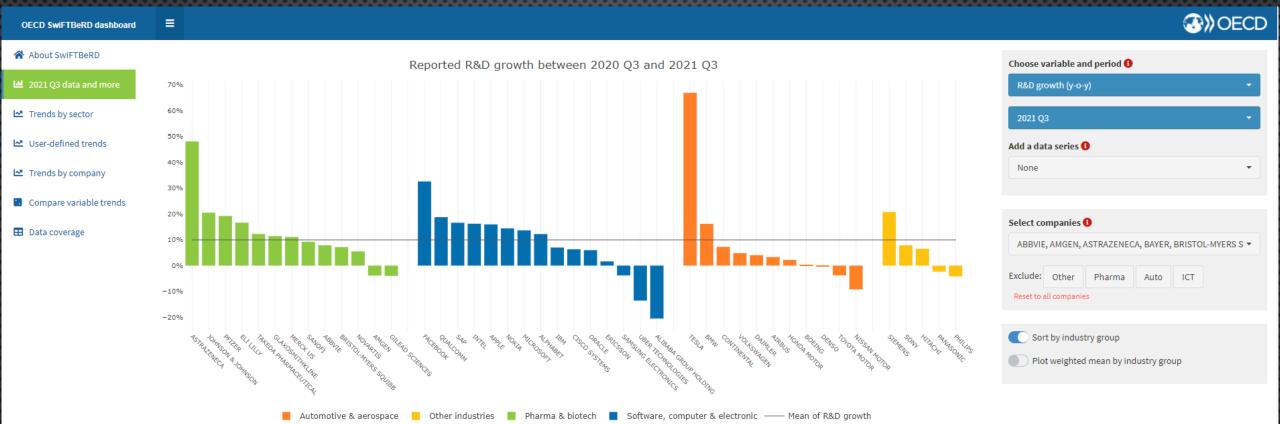
SwiFTBeRD webpage: https://www.oecd.org/sti/swiftberd.htm

SwiFTBeRD dashboard: https://oecd-main.shinyapps.io/swiftberd/

Comments and suggestions: RDSurvey@oecd.org



BACK UP SLIDES (DASHBOARD SCREENSHOTS)



Source and notes

Source: OECD Short-term Financial Tracker of Business R&D (SwiFTBeRD) dashboard, Beta version, 21 November 2021, https://oecd-main.shinyapps.io/swiftberd/.

Note: Growth rates are based on reported values expressed in nominal terms.

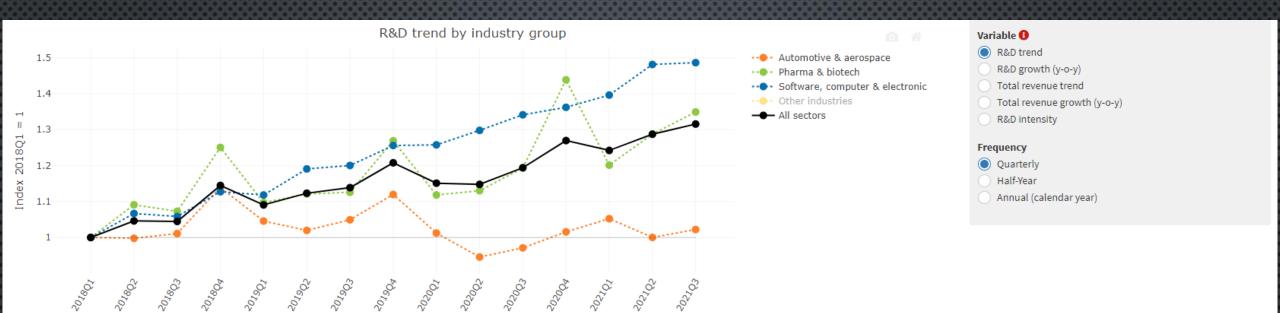
Growth rates of R&D, measured between 2020 Q3 and 2021 Q3, refer to the July-September period, except for CISCO SYSTEMS (one-month shift later) and ORACLE (one-month shift before).

Growth rate averages are based on company data converted to USD before being aggregated. As an example, the mean of the R&D growth between t-1 and t will be an average of companies' R&D in t over t-1, weighted by the share of each company R&D to all companies' R&D in USD in t-1.

Company reports of R&D expenses need not coincide with R&D expenditures as covered in official R&D statistics compiled according to the Frascati Manual (OECD, 2015). In order to compile the data presented in the SwiFTBeRD Dashboard, the OECD implements a series of adjustments aimed at enhancing comparability, whenever the necessary information is available. Companies presenting their financial results in compliance with the International Financial Reporting Standards (IFRS) capitalise part of their development costs (under some criteria). In the data presented in SwiFTBeRD, capitalised development costs are added to reported R&D expenses, while amortisation of capitalised development expenditures are conversely excluded when the information is available. In addition, when possible, expenses and impairment of purchased in-process R&D (as well as restructuring R&D costs) are excluded in the SwiFTBeRD figures in order to align as much as possible with R&D conducted in the reference period and deliver more meaningful indicators.

For Alibaba, R&D figures refer to the income statement entry 'product development expenses'.

For Uber Technologies, R&D figures presented here exclude exceptional share-based compensation.



Source and notes

Source: OECD Short-term Financial Tracker of Business R&D (SwiFTBeRD) dashboard, Beta version, 21 November 2021, https://oecd-main.shinyapps.io/swiftberd/.

Note: Data are based on reported values expressed in nominal terms.

Q1, Q2, Q3 and Q4 correspond to Jan. to Mar., Apr. to Jun., Jul. to Sept., and Oct. to Dec. respectively.

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The OECD SwiFTBeRD dashboard has been released for 'Beta' usability testing. The OECD R&D statistics team welcomes users' comments and suggestions on the dashboard features and content at RDSurvey@oecd.org.

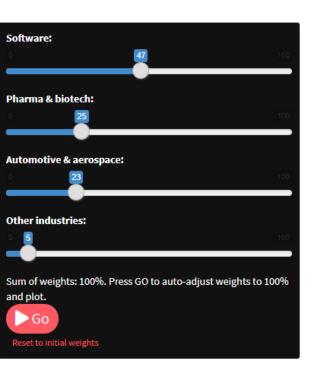


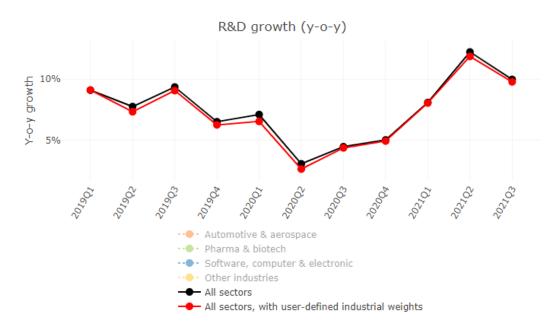
The SwiFTBeRD panel of firms is not representative of the ensemble of business R&D performers across countries. As it only covers top R&D investors, very large companies operating in R&D-intensive sectors are over-represented. Even so, the high degree of R&D concentration implies that the inferential analysis of R&D trends based on the SwiFTBeRD company sample might be reliable, at least for the countries more closely represented by the selected companies. However, R&D trends across sectors are very heterogeneous (see tab 'Trends by sector').

Consequently, if one wishes to extrapolate the results observed in the SfiFTBeRED sample to another hypothetical mix, potentially inspired by the industrial R&D structure of a given territory of interest, it may be useful to control for the different sectoral structures of the two samples.

This module allows to estimate the R&D growth pattern of a hypothetical sample of companies in which industrial sectors would have different weights than in the SfifTBeRD company sample.

The initial sectoral weights broadly correspond to the industry R&D shares in SfifTBeRD (on average, over several periods). They can be modified to visualise the effect on the overall R&D trend/growth patterns.





Variable R&D growth (y-o-y) R&D trend Frequency Quarterly Half-Year Annual (calendar year)

Source and notes

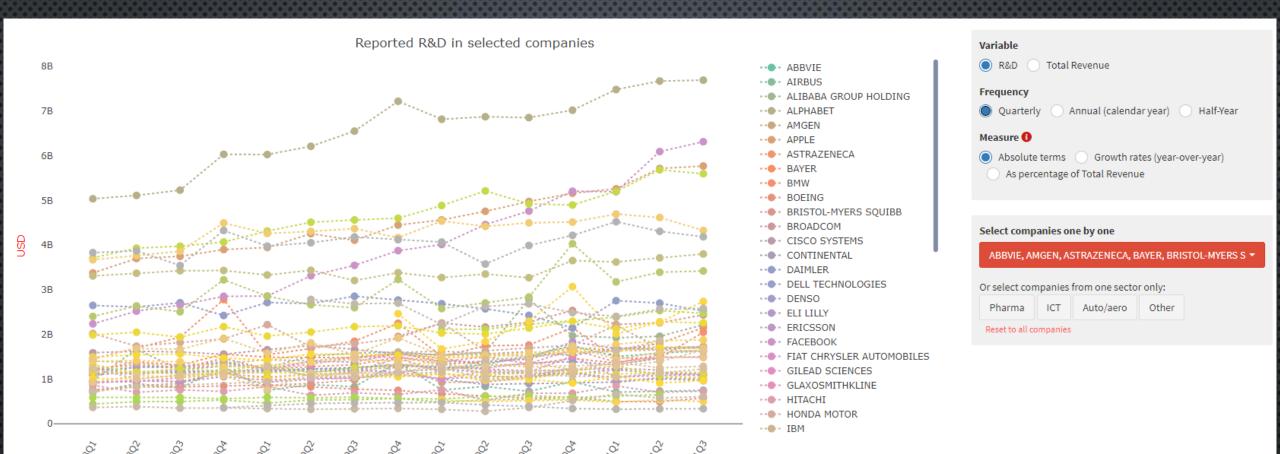
Source: User simulation from the OECD Short-term Financial Tracker of Business R&D (SwiFTBeRD) dashboard, Beta version, 21 November 2021, https://oecd-main.shinyapps.io/swiftberd/.

Note: The nowcasts are built under two parametric settings that should be borne in mind when interpreting the results. Firstly, the weights defined by the user are considered constant over the whole time series; user-defined weights are not readjusted over time depending on sectors' relative growth of R&D. Secondly, the sector R&D growth rates used for the simulation are the same as those within the SwiFTBeRD sample. This should be recalled when simulating nowcasts for a hypothetical sample where the sectors' R&D growth (in nominal terms) might have evolved differently than those in the SwiFTBeRD sample.

Underlying data are based on reported values expressed in nominal terms. The year-over-year growth is the evolution of a variable measured over a given period from the same period one year before.

Q1, Q2, Q3 and Q4 correspond to Jan. to Mar., Apr. to Jun., Jul. to Sept., and Oct. to Dec. respectively.

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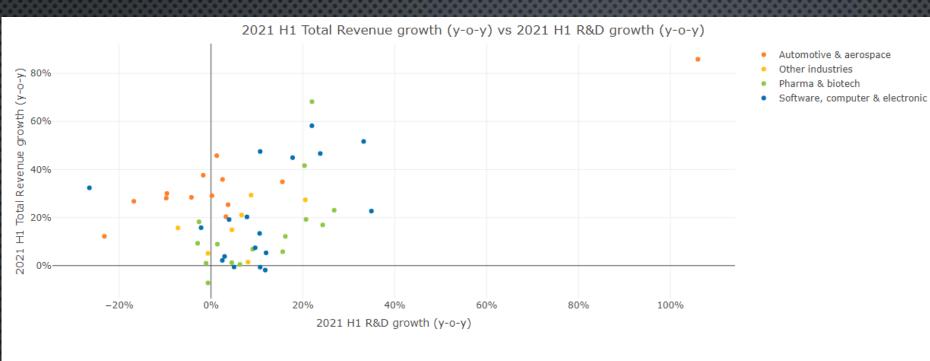
Note: Data expressed in USD. Companies' data reported in other currencies are converted to USD applying a fixed exchange rates (average 2020 exchange rates) to all data periods (including pre-2020 data).

Q1, Q2, Q3 and Q4 correspond to Jan. to Mar., Apr. to Jun., Jul. to Sept., and Oct. to Dec. respectively, except for BROADCOM, CISCO SYSTEMS, MEDTRONIC PUBLIC LIMITED and DELL TECHNOLOGIES (one-month shift later) and ORACLE (one-month shift before).

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Y-axis: 2021 H1 (Jan. to June) Total Revenue growth (y-o-y) X-axis: 2021 H1 (Jan. to June) R&D growth (y-o-y) ▼

ABBVIE, AMGEN, ASTRAZENECA, BAYER, BRISTOL-MYERS S ▼

Select companies

Source and notes

 $Source: OECD\ Short-term\ Financial\ Tracker\ of\ Business\ R\&D\ (SwiFTBeRD)\ dashboard,\ Beta\ version,\ 21\ November\ 2021,\ https://oecd-main.shinyapps.io/swiftberd/.$

Note: Growth rates are based on reported values expressed in nominal terms.

X-axis: growth rates of R&D, measured between 2021 H1 (Jan. to June) and 2020 H1 (Jan. to June), refer to the January-June period, except for BROADCOM, CISCO SYSTEMS, DELL TECHNOLOGIES and MEDTRONIC PUBLIC LIMITED (one-month shift later) and ORACLE (one-month shift before).

Y-axis: growth rates of Total Revenue, measured between 2021 H1 (Jan. to June) and 2020 H1 (Jan. to June), refer to the January-June period, except for BROADCOM, CISCO SYSTEMS, DELL TECHNOLOGIES and MEDTRONIC PUBLIC LIMITED (one-month shift later) and ORACLE (one-month shift before).

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The table below shows the company and time coverage of the SwifTBeRD dashboard. Data have been collected from reference year 2017 for annual data, and from 2018 for quarterly and semi-annual data

The mandatory requirements for financial reporting depend on the jurisdiction of the company. As a consequence, the frequency of R&D data disclosure varies across companies. A company's data coverage may also be affected by a major merger/demerger or change in accounting practices. Where such changes (structure, accounting practices, etc) have rendered a company's R&D data series inconsistent over time, historical data have been purposely removed.

In the tabe below, the 'data coverage information' is presented as follows: 'first period available-last period available *x' where *x (if exists) indicates the number x of missing data points within the period interval.

Show 100 ♥ entries					Search:
Company	♦ Variable	Annual data (calendar year)	♦ Half-year data		Industry grouping
ABBVIE	R&D	2017-2020	2018H1-2021H1	2018Q1-2021Q3	Pharma & biotech
AIRBUS	R&D	2017-2020	2018H1-2021H1	2018Q1-2021Q3	Automotive & aerospace
ALIBABA GROUP HOLDING	R&D	2018-2020	2018H1-2021H1	2018Q1-2021Q3	Software, computer & electronic
ALPHABET	R&D	2017-2020	2018H1-2021H1	2018Q1-2021Q3	Software, computer & electronic
AMGEN	R&D	2018-2020	2018H1-2021H1	2018Q1-2021Q3	Pharma & biotech
APPLE	R&D	2018-2020	2018H1-2021H1	2018Q1-2021Q3	Software, computer & electronic
ASTRAZENECA	R&D	2017-2020	2018H1-2021H1	2018Q1-2021Q3	Pharma & biotech
BAYER	R&D	2017-2020	2018H1-2021H1	2018Q1-2021Q2	Pharma & biotech
BMW	R&D	2017-2020	2018H1-2021H1	2018Q1-2021Q3	Automotive & aerospace
BOEING	R&D	2017-2020	2018H1-2021H1	2018Q1-2021Q3	Automotive & aerospace
BRISTOL-MYERS SQUIBB	R&D	2020-2020	2020H1-2021H1	2019Q4-2021Q3	Pharma & biotech
BROADCOM	R&D	2018-2020	2018H1-2021H1	2018Q1-2021Q2	Software, computer & electronic
CISCO SYSTEMS	R&D	2018-2020	2018H1-2021H1	2018Q1-2021Q3	Software, computer & electronic
CONTINENTAL	R&D		2020H1-2021H1*1	2020Q1-2021Q3*1	Automotive & aerospace
DAIMLER	R&D	2017-2020	2018H1-2021H1	2018Q1-2021Q3	Automotive & aerospace
DELL TECHNOLOGIES	R&D	2018-2020	2018H1-2021H1	2018Q1-2021Q2	Software, computer & electronic
DENSO	R&D	2018-2020	2018H1-2021H1	201801-202103	Automotive & aerospace

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OECD **OECD SwiFTBeRD dashboard** ☆ About SwiFTBeRD The OECD Short-term Financial Tracker of Business R&D (SwiFTBeRD) dashboard allows to visualise quarterly, semi-annually and annually reported R&D data for the world's top R&D investors, providing company specific and sectoral insights. It aims to deliver the timeliest possible view of R&D data reported by companies, with updates published continuously, shortly after they have been released in their quarterly financial reports. The SwiFTBeRD dashboard complements the publication of official statistics derived from R&D surveys, illustrating 2021 Q3 data and more the latest business R&D trends for the selected illustrative group of companies for different industries. The dashboard gives users a wide choice over customisable outputs, including nowcasting support tools. Trends by sector Last updates: 19 November 2021: minor updates (Q3 2021 for Alibaba and Cisco) ■ User-defined trends 18 November 2021: Q3 2021 data - major update Data coverage Compare variable trends Data sources ■ Data coverage Accounting measures of R&D expenditure Differences in R&D reporting rules between IFRS and US GAAP Use and cite the OECD SwiFTBeRD dashboard The OECD SwiFTBeRD dashboard has been released for 'Beta' usability testing.



