

The lack of transparency and competition in the academic publishing market in Europe and beyond

The European University Association (EUA), representing 800 universities over Europe and 33 National Rectors Conferences, is very concerned about possible irregularities concerning pricing and market conditions in the research publishing sector. We find that the current lack of transparency and competition is harmful to knowledge dissemination and the progress towards a European science system based on Open Science. With this communication, EUA, on the initial initiative of Universities Denmark, is asking the European Commission, DG Competition to undertake a European analysis of pricing and competition within the large industry of research publishing.

In 2015, Commissioner Moedas first presented his three O's: Open Science, Open Innovation and Open to the world.ⁱ The goal is to make science and innovation more open, collaborative and global. These objectives are shared and fully supported by the European University Association through its activities since 2008.

Open Science is the present and future of research, inside and outside academia. As the European Council of Ministers acknowledged in their conclusions in 2016; *“Open science has the potential to increase the quality, impact and benefits of science and to accelerate advancement of knowledge by making it more reliable, more efficient and accurate, better understandable by society and responsive to societal challenges, and has the potential to enable growth and innovation through reuse of scientific results by all stakeholders at all levels of society, and ultimately contribute to growth and competitiveness of Europe”*.ⁱⁱ

A key element in Open Science is to ensure that public research results become more readily available inside and outside academia. This largely happens through publishing of research outcomes. Research journals are central to the dissemination of scientific, research-based knowledge and maximise the value of public investments in research and innovation. It is important for society to allow easy and low-cost access to publicly funded research results. Moreover, access is important to industries and SMEs as it has the capacity to shorten innovation cycles, to European citizens and taxpayers as it increases trust and transparency of science and last, not least to realising an innovative, efficient and competitive European Research Area based on open collaboration.

Every year, European universities spend in a conservative estimate some three-digit millions of Euros to access research data and publications: to read information mainly created by themselves and their scientific peers at other universities. As we describe and demonstrate in this paper, the public funds devoted to research publications ends largely in the hands of a few big scientific publishers who are making enormous profits by selling an intellectual product they obtain free of charge from researchers to a market that is neither fair, transparent nor competitive.

As a well-know allegory says : “Imagine a farmer who owns, feeds and milks his cow in order to give away the milk for free to a dairy company – and then finally buys it back in a milk carton at a very high price”. This is the business model of big research publishers.

In 2002, the British Office of Fair Trading published a statement noting, *“there is evidence to suggest that the market for STM¹ journals may not be working well.... Many commercial journal prices appear high, at the expense of education and research institutions.... it remains to be seen whether market forces, perhaps enhanced by the use of new technology, will remedy the problems that may exist”*.ⁱⁱⁱ

¹ The 'STM' acronym refers to the fields of science, technology and medicine in general

Against this background, the European University Association calls upon DG Competition to take action.

Main concerns

In the perspective of European University Association, the situation has worsened over the last 20 years, and it is time to call for intervention from European authorities to instigate real change in the business of academic publishing.

A number of articles, stakeholders and reports touch upon several issues of concern when it comes to business models of academic publishers.² Key concerns can be summarised in the following manner:

1. High degree of concentration of ownership
2. A sector with oligopolistic structures
3. No transparency in pricing
4. Large profits based on public funds
5. Calls for open access without positive effect on pricing
6. Asymmetry in negotiating power
7. Trend towards vendor lock-in
8. No sign of improvement in competition

The European University Association suggests that experts from DG Competition – possibly in collaboration with DG Research and Innovation – undertake an analysis of the above-mentioned issues, including an assessment of how the technological development of recent years has affected pricing and competition in academic publishing and how the ongoing technological developments will affect the industry in the coming years.

1. High degree of concentration of ownership

Over the years, we have seen a significant concentration of ownership of academic journals. A study from 2015 concludes that five companies control more than half of the market for academic publishing.^{iv}

- RELX (formerly Reed-Elsevier) - UK
- Taylor & Francis - UK
- Wiley-Blackwell - US
- Springer Nature - Germany
- SAGE - US

The study looked at all research articles published in the Web of Science database between 1973 and 2013, and found that these five companies published more than half of them since 2006. The study also found, that the same publishing houses controlled just 20 percent of the papers in 1973 and 30 percent in 1996. The rapid increase in mergers and acquisitions in the last two decades have raised this share to 53 percent in

² In 2003, Bas Savenjie wrote a general analysis of the business of scientific journals, which gives a good introduction to the problem (*Economic and Strategic Analysis of Scientific Journals: Recent Evolutions*).

In 2017, Rob Johnson, Mattia Fosci, Andrea Chiarelli, Stephen Pinfield and Michael Jubb published a study of the open access market and the competition in scientific publishing (*Towards a competitive and sustainable OA market in Europe - A study of the open access market and policy environment*) which summarise different research, data and articles relating to competition in scientific publishing and the route towards open access.

See more references throughout this paper to recent articles.

2013.³ Unfortunately, the increasing concentration of academic publishing and the resulting economies of scale have not led to falling prices, in spite of the advancement of digital technology, which has drastically reduced marginal costs.^v

Additionally, data on revenue and profit tells a story of a business with very large profits – to an extent rarely seen in other businesses. As an example, RELX Group – who owns the biggest publishing house Elsevier – had an adjusted operating profit of 913 million GBP in their Scientific, Technical & Medical market segment in 2017 (up from 760 million GBP since 2015). Overall, the adjusted operating profit margin of RELX rose by 6% from 2015 to 2016 and 2016 to 2017.^{vi}

2. A sector with oligopolistic structures

As demonstrated by the figures described above, there is a clear trend towards increasing concentration of ownership, and in spite of the presence of thousands of smaller publishers, the main control of the academic publishing business lies in the hands of a few, large publishing companies.

This is due to the special structure of academic publishing where there is a high degree of specialisation (journals publish articles within a narrowly defined research field) as well as a clear ranking of how influential and prestigious the journals are through the index known as 'journal impact factor'. Due to the importance of the journal impact factor in research and researchers career assessment, it is more attractive to the individual researcher to publish an article in a prestigious journal than a lower ranking journal.⁴ It is simply more prestigious to publish an article in Nature (owned by Springer Nature) or Science (owned by AAAS) than in a smaller Open Access journal⁵, and the big academic publishers own a large number of the top-tier journals.⁶

At the same time, universities and libraries are pressured to buy access to the most prestigious journals regardless of the price as professors, researcher staff, doctoral candidates – and students – need to access the most relevant and influential articles to support their own research and teaching activities.⁷

This issue was already noted in the 2002-statement by the Office of Fair Trading in the UK: "*Many journals have a particular reputation or specific focus in the subject matter that they cover... The price sensitivity of demand for many journals is thus very low and journals are generally perceived as competing on quality rather than price. Certain journals can even be regarded as markets in their own right, due to the lack of demand substitutability.*"^{vii}

The competition is thus shaped by two primary variables: 1) high barriers to entry because it is difficult for a new Open Access journal to create the prestige and reputation required to be a real substitute to an old,

³ In fact, according to the study, three publishers account for more than 47% of all papers in 2013: Reed-Elsevier (24.1%; 1.5 fold increase since 1990), Springer (11.9%; 2.9 fold increase) and Wiley-Blackwell (11.3%; 2.2 fold increase).

⁴ The prestige of a journal is often measured by the journal impact factor, ie. a measure of the average number of citations to recent articles published in a journal to indicate the relative significant value or rank of that journal within its field (<http://crimsonpublishers.com/cojrr/pdf/COJRR.000508.pdf>).

⁵ The Shanghai Academic Ranking of World Universities use the number of articles published in Nature and Science as an indicator in their ranking methodology; <http://www.shanghairanking.com/ARWU-Methodology-2017.html>

⁶ The SCImago Journal & Country Rank is a publicly available portal that includes the journals and country scientific indicators developed from the information contained in the Scopus database (which is owned by Elsevier). Go to <https://www.scimagojr.com/journalrank.php> for rankings.

⁷ The study from Rob Johnson et al. states that from a reader perspective, established journals become must-have titles and they effectively operate as their own mini-monopoly within a discipline or field.

reputable journal, and 2) market concentration because the majority of the most important journals are owned by the top 5 or even top 3 publishers (Elsevier, Springer Nature and Wiley).^{viii}

This means that the largest academic publishers - to a very high degree - are free to set the price as they choose when they sell a product to universities because they de facto operate in an oligopolistic market.

3. No transparency in pricing

It is customary for academic publishers to use strict confidentiality clauses when they enter into a new agreement. This minimises the opportunity to have a public and open debate on the practice of pricing in the publishing businesses – or give the universities an opportunity to benchmark prices against the general trend in the market. Furthermore, the lack of transparency also makes it difficult for smaller publishers in the market to find a relevant benchmark for their current pricing options against larger competitors.^{ix}

The lack of transparency is aggravated by the practice of bundling a large number of academic journals in one single agreement (a so-called ‘big deal’). Academic publishers charge extremely high prices for subscriptions to individual journals, making it less attractive or nearly impossible to buy only the most interesting journals and skip the less important ones. Most libraries agree to buy very large bundles – including a number of journals that the libraries do not actually want. In other words – it is all or nothing. It is not clear to us whether this method of sale is compatible with the objective of free competition and pricing.

However, the European University Association (EUA) has collected anonymised data on big consortia deals on access to research articles and their pricing across Europe. Their data shows big differences in costs of deals from country to country.^x As indicated in the first EUA Big Deals Survey Report, 48% of the costs of large-scale contracts with major scientific publishers for access to research publications, known as “Big Deals”, are directly covered by university budgets. The yearly total national expenditure on ‘big deal’ contracts in 2016 (periodicals, databases and e-books) varied widely - from EUR 1,410,937 to EUR 97,542,034. Using GDP/capita figures for all countries covered by the study, EUA estimated the number of persons required to work for a full year to bear the reported Big Deal expenditures per country. This ranges from costs equal to 31 persons working an entire year in the lowest case to 2494 persons in the highest case.

Where other procurement contracts normally include annual indexation according to the general price indexes, academic publishers demand annual increases in pricing without reference to – and always higher than – the price indexes. It is not unusual to see prices of big deals rise at about double the rate of inflation. In the EUA analysis, 39 percent of the deals were reported to include an annual price increase of more than 3 percent.⁸ Another study based on data obtained from 18 Russell Group institutions shows that the average bill has increased 18.9 percent in four years (from £3.3 million in 2012-13 to £3.9 million in 2016-1017).^{xi}

4. Large profits based on public funds

Across Europe, we are currently seeing a general trend towards decreasing state funding for research and education. At the same time, the big academic publishers seem to be able to maintain very large operating profits year after year.^{xii} This means that a relatively larger share of university income is tied up in costs associated with academic publishing or accessing academic journals.

The profits of academic publishers are generally made by selling products – financed by public funds – to public customers through the use of public funds. Most often, the actual producers and buyers comes from the same sector. The second EUA Big Deal Survey revealed that the approximate total annual costs of ‘big

⁸ The EUA analysis also found that Big Deal periodicals contract durations typically covers a three-year period.

deals' only for periodicals with five large publishers (Elsevier, Wiley-Blackwell, Springer Nature, Taylor & Francis, American Chemical Society) was more than 420 million Euros in 2018. The total yearly amount spent by universities across Europe on all of their electronic resources, including e.g. databases and e-books, was much higher: It was estimated by respondents amounting to ca. 681 million Euros collectively.

While traditional publishers often face a multitude of costs – paying writers for the articles, employing editors to commission, shape and check the articles and paying distributors to get the finished product to subscribers and retailers – academic publishers seem to escape most of these costs. Researchers create work under their own direction – funded largely by public grants – and give it to publishers free of charge in hope of being published, read and cited⁹.

The publishers do pay journal editors, but the bulk of the editorial burden (peer review) - checking the validity and evaluating the research – is done by working researchers (also often employed on public funds) on a volunteer basis. The publishers then sell the product back – at a very high price – to government-funded institutions and university libraries to be read by researchers – who, in a collective sense, created the product in the first place.^{xiii}

5. Calls for Open Access without positive effect on pricing

Across Europe, we see increasing demands for Open Access; making research findings available free of charge for readers, e.g. prominently in the Amsterdam Call for Action on Open Science in 2016. In Horizon 2020, the European Commission has a general principle of open access to academic publications, and most member states have published national policies for open access.

After some initial frustration, the industry of academic publishers introduced a new business model that favours and safeguards their profits. It is now up to the authors (researchers) to pay an article processing charge (APC) in order to make the article openly available in either an open access journal or a hybrid journal. The fee is usually paid by the university where the researcher is employed or by the research funder (for example the European Commission/Horizon 2020).

However, studies suggest that universities still end up paying for access to OA-articles through the so-called *double dipping* of academic publishers. Authors pay for APCs and consortia pay for subscriptions to journals included in a big deal – including articles made available in Open Access through APC payments^{xiv}. There are no mechanisms to guarantee that OA-articles are not included in the number of articles used to calculate the price of a big deal.^{xv}

Finally, despite the general ambition to promote Open Access, the majority of publications coming from public research are still locked behind a paywall – only accessible by subscription or individual purchase.^{xvi}

6. Asymmetry in negotiating power

One could argue that universities should simply boycott certain academic publishers if they are unhappy with their way of business given that universities – as mentioned - constitute the producers as well as the buyers of the academic journals. However, the general principle of academic freedom and international standards for recognition of research and career progression make it very difficult for individual universities to circumvent certain academic publishers/journals in case they do not wish to accept the offer given by them.

⁹ Researchers are primarily interested in getting the biggest impact possible of their research. They tend not to care much about copyright protection, but place greater emphasis on being published, read and cited – preferably in the most prestigious journals. Even if this means giving up copyrights.

With the number of higher education institutions in the world (somewhere around 40,000), the academic publishers face a multitude of potential buyers. They can afford to lose a few customers if some universities are unable or unwilling to pay the price of a subscription deal. The universities – on the other side – are highly dependent on access to top journals in different academic disciplines.^{xvii}

This means that the individual universities have little or no leverage power should they choose to engage in a struggle with an academic publisher. First, researchers need to access information and publish articles in the journals of their choice. Naturally, in the context of the current system, they want and need to access the highest-ranking journals, often controlled by the biggest academic publishers. Second, university researchers collaborate across fields, institutions and countries, and it is paramount for the individual researcher that (s)/he can participate in joint activities with research partners at other universities/institutions - without any restrictions on which journal to publish in.¹⁰

In practice, this makes it impossible for universities to dismiss subscriptions to certain journals and prohibit their researchers from publishing in or acting as journal editors for those journals.

Even for European university and research associations, a collective refusal to subscriptions to those journals would likely have a limited effect. For example, the European University Association (EUA) represents about 850 European universities, but global rankings like Webometrics put the number of higher education institutions worldwide at over 26,000 institutions. A more coordinated and long-term approach is necessary to make a change in this business.

7. Trend towards vendor lock-in

Indeed, the technical development has led to fewer publishers, a decrease in competition and an increasing risk of vendor lock-in. The largest publisher RELX (owner of Elsevier) clearly demonstrates this trend and risk. Over the last two decades of digitisation, RELX has acquired numerous companies facilitating discrete elements of the research workflow, integrated these and established an end-to-end research workflow portfolio that very few researchers will be able to do without.¹¹

RELX no longer refers to its business as “publishing” but rather presents itself as a “information and analytics company” with a broad portfolio covering the research process itself, the publishing process, and the research evaluation process.

“At first sight, there is an obvious concern of a conflict of interest. This is especially true when the supplier of academic journals is also in charge of evaluating and validating research quality and impact (eg: pure, plum analytics, SciVal), identifying academic experts to direct to potential employers (eg: Expert Lookup), managing

¹⁰ Researchers work and publish in groups, often with research partners in other institutions or countries. One study has found a two to four-fold increase in the number of co-authors per article over a period of three decades (www.ncbi.nlm.nih.gov/pmc/articles/PMC4640799/pdf/pnas.201511912.pdf). Another study finds that the average number of authors on a physics paper more than quadrupled from 9 in 2012 to 39 between 2016 (www.natureindex.com/news-blog/paper-authorship-goes-hyper). A Nordic bibliometric study found a marked increase in international co-authorship during the period 1984–2008. In 2008, approximately every second paper published by Norwegian, Swedish, Danish or Finnish researchers had co-authors from another country (www.nordforsk.org/en/publications/publications_container/international-research-cooperation-in-the-nordic-countries).

¹¹ Among recent developments, Elsevier has been subcontracted to provide data to the new Open Science Monitor of the European Commission, igniting protests from all over the scientific world: https://www.theguardian.com/science/political-science/2018/jun/29/elsevier-are-corrupting-open-science-in-europe?CMP=share_btn_link

the research networking platforms through which to collaborate (eg: SSRN, Hivebench, Mendeley), managing the infrastructure through which to find funding (eg: plum X, Mendeley, Sci Val), and controlling the platforms through which to analyze and store your data (eg: Hivebench, Mendeley). The conflict of interest has direct implications to the power and control that publishers have over the content and methodological approach of the research being produced.^{xviii}

This vertical integration endeavour was recently enhanced with the acquisition of Aries Systems, the largest publication workflow solutions provider used by journals and publishers for manuscript submission, peer review, production tracking and eCommerce. Now it seems not only researchers and universities but also competing publishers will have no choice but to become clients of the RELX research ecosystem.

8. No sign of improvement in competition

The debate on academic publishers has been controversial for many years, but at the same time there has been a general belief that the ongoing technological developments, the generally faster information streams and the decreasing relevance of print publishing would push the market to correct itself. It was assumed that researchers would simply start sharing their work online on free platforms and in this way challenge the publishers' control of a large amount of research results.

In 2002, the British Office of Fair Trading published a statement, which noted the three following points;^{xix}

- There is evidence to suggest that the market for STM journals may not be working well.
- Many commercial journal prices appear high, at the expense of education and research institutions.
- It remains to be seen whether market forces, perhaps enhanced by the use of new technology, will remedy the problems that may exist.

Presently, 15 years down the road, the general conclusion is that the dissemination of new technology has not led to significant positive changes in the business of academic publishing.

Alas, in 2015 an article in the Financial Times rightly baptised Elsevier *“the business the internet could not kill”*.^{xx}

More information

These last years we have seen some consortia across Europe trying to negotiate better deals including open access parameters with some of the big scientific publishers. This has been the case in the Netherlands, Germany and Sweden.

- In 2014, the Netherlands started one of the first big stand-offs with Elsevier. After a year of negotiations—and a threat to boycott Elsevier's 2500 journals— a compromise was made. The deal did not provide complete open access, but it was a step in the direction of making all government-funded research papers free to the public by 2024.^{xxi}
- In 2015, the German university sector initiated negotiations with Elsevier. The sector was looking for a deal that would give most researchers in Germany full online access to approx. 2,500 Elsevier journals at about half the price that individual libraries have paid in the past. In 2017, the negotiations reached a stalemate, and for a short period German academics lost access to all Elsevier content. This happened again in July 2018, and German academics are now currently unable to use an institutional access to recent articles published in Elsevier-journals.^{xxii}
- In 2016, a notification of potential monopolistic behaviour was filed to the UK Competition and Markets Authority on anti-competitive practices of the RELX group, owner of Elsevier, on the grounds of abuse

of a dominant market position and problems in a market sector based on own research and existing literature.^{xxiii}

- In 2018, the Swedish Bibsam Consortium, supported by the Swedish Rectors' Conference, decided against renewing the journal contract with Elsevier, as the publisher was unwilling to present a model that met the demands of open access of the Consortium¹². The current agreement was cancelled and Swedish university researchers are currently without institutional access to Elsevier journal articles published after the 30th of June.^{xxiv}

On the European level, the European University Association has actively supported its membership of over 800 universities in 48 countries and 31 national university associations in the transition to Open Access for more than a decade. This has been done through recommendations, checklists, roadmaps, an annual survey on institutional Open Access policies and recently a statement^{xxv} to EU Institutions and National Governments on prioritising Open Access to research publications and research data, including developing measures to support a more competitive environment in the scientific publishing market.

In 2016, the Association set up a High-Level Group on Big Deals, composed of university leadership and experienced negotiators, to discuss strategies for negotiations and to develop a survey mapping the European 'big deals' landscape. This led to the First EUA Big Deals Survey Report^{xxvi} providing an overview of major scientific publishing contracts in Europe in 2016. The report revealed for the first time on the European level the overall magnitude and stark disparities in the cost of big deal contracts in Europe as outlined above. The Second EUA Big Deals Survey is currently in its final stage of implementation reporting figures from 2018.

On an international level, the [OA2020](#) initiative led by the Max Planck Society and the International Coalition of Library Consortia ([ICOLC](#)) provide fora for accelerating the transition to open access and the 2013 [Action Plan](#) towards Open Access to Publications of the Global Research Council also aims at implementing open access "as swiftly as possible".

Final Remarks

For universities, access to research outcomes is an essential need to fulfil their research and education missions. It needs a more transparent and competitive academic publishing market in Europe and beyond. The recently published "[Plan S](#)" by a group of European research funders to accelerate the transition towards Open Access to research publications offers an additional stakeholder approach to foster change in the research publishing market. However, we believe that the support of governments, and, in particular, that of the European Union institutions is necessary to achieve this goal.

Endnotes

ⁱ http://europa.eu/rapid/press-release_SPEECH-15-5243_en.htm

ⁱⁱ The Council of the European Union (2016): The transition towards an Open Science System – Council conclusions. Available online at <http://data.consilium.europa.eu/doc/document/ST-9526-2016-INIT/en/pdf>

ⁱⁱⁱ Office of Fair Trading, 2002: The market for scientific, technical and medical journals

^{iv} Vincent Larivière, Stefanie Haustein, Philippe Mongeon (2015): The Oligopoly of Academic Publishers in the Digital Era.

^v Savenjie, Bas (2003): Economic and Strategic Analysis of Scientific Journals: Recent Evolutions

¹² Immediate open access to all articles published in Elsevier journals by researchers affiliated to participating organisations, reading access for participating organisations to all articles in Elsevier's 1,900 journals and a sustainable price model that enables a transition to open access

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- vi RELX Group Annual Reports and Financial Statements 2015, 2016 and 2017 (available online)
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