COMMENTARY

Making pharmaceutical companies report what matters about innovation

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1. There is a lack of transparency about the cost of innovation of the pharmaceutical industry even though these costs are claimed to be the major driver for high prices for medicines.
2. This is reflected by annual reports of the major pharmaceutical firms that contain a low number of pages on innovation and its detailed costs in comparison with pages about remuneration of executives where the detail is excessive.
3. This disbalance provides an objective view of the transparency priorities of a company and has the potential to shift this focus in favour of transparent and detailed information on the cost of innovation by adjusting the regulation for financial reporting.

KEYWORDS
innovation, pharmaceutical industry, remuneration, transparency

1 | INTRODUCTION

The pharmaceutical industry elicits ambivalent responses from many sides. Pharmaceutical innovation has been essential for much of the progress in medicine, especially in the last century. However, it cannot be denied that the public response to the pharmaceutical industry is often negative, largely driven by high drug prices and excessive marketing activities. The profits generated by this activity have contributed to increased value of the companies for their shareholders and investors, but less so to the public. The increasing cost of medicines has been explained by high risks and development costs spiralling upwards at much higher rates than inflation. The available analyses of development costs were done by external consultants and academics and are never based upon audited information from the annual report and therefore subject to potential bias. This is reflected by a large variation in the estimates for the cost of development of a single marketed drug from 3 billion to much less than 1 billion dollars per new medicine. Additionally, the sample is not complete by any account as a recent study by an academic group found only publicly available data on 18% of products. The highest estimate of about 2.6 billion came from a group that was criticised for its sponsored links to the pharmaceutical industry. Currently, there are no audited figures available for the development costs other than at a very high level of integration, reflected in the overall R&D spend of the publicly quote companies. An earlier detailed study of the reporting about Corporate Social Responsibility (CSR) of the pharmaceutical and chemical industry indicated a good performance in many areas but a clear deficiency in the transparency about fair pricing and availability. Development cost is an important argument that is used widely in the discussion about fair pricing as the reason for high prices of medicines. The discussion about the fairness is always one-sided due to the lack of transparency of development costs of a new medicine to the public. The only quantitative information publicly available is the total R&D expenditure. A counterargument against supplying information of the development costs of individual medicines is that it may be cumbersome, but there are other areas of the accounts of the companies that are reported in detail.

The remuneration of executives of pharmaceutical companies is a good example as another component of the CSR requirements. There equally has been much discussion about level of the remuneration of executives in all areas, including the pharmaceutical industry, the nonprofit sector, and governments. This has led to regulation requiring

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detailed reporting of executive compensation. In the U.S. statutes only the regulations for this consist of 31 pages.\(^6\) Such detailed rules are absent for the reporting of innovation costs. In this paper, we contrasted the availability of quantitative information about executive compensation as one aspect of CSR with the information about the cost and nature of innovation. We counted the number of pages about executive remuneration in relation to what companies report on innovation, in publicly available information for shareholders and the general public.

2 | METHODOLOGY

2.1 | Justification and definitions used in our analysis

For the analysis of the Annual Reports of the companies, we set up a series of guidelines in order to judge every annual report equally. Each annual report is written in a different format, which makes it harder to classify them on a certain number of pages discussing innovation and remuneration. Some companies use the 10-K report they filed with the SEC, some have created their own format and layout, while others made a combination of both. We did not find large variation between companies in the typography and graphics; this was therefore not sufficient motivation to apply a correction on the count.

For the innovation, the following guidelines have been drawn up: by definition, Innovation is “the multi-stage process whereby organizations transform ideas into new/improved products, service or processes, in order to advance, compete and differentiate themselves successfully in their marketplace.”\(^7\) Therefore, we accept it as innovation when a page or chapter of the AR complies with these terms. It is no longer seen as innovation when the medicinal product or process is not “new,” meaning its patent has expired or the process is widely implemented in the field. We calculate a ratio by determining the number of pages dedicated to this subject, we count a page as innovative when a majority of the page consists of scientific innovative material. The following parts of the AR are excluded because we focus on scientific innovation: Risk factors, corporate development, Regulatory processes, Price control options, Reimbursement, and Statements from the CEO, Board of Directors, and Controlling committees.

For the remuneration the following guidelines have been drawn up: by definition, remuneration is payment for work or a service. Some companies use different terms like “Compensation,” which is also taken into account when considering remuneration. We calculate a ratio by the same standards as innovation. Compensation statements in the appendices of the 14A proxy statement are only taken into account if there is a clear distinction from other financial statements and possibly from executive and non-executive compensation.

The compensation and other monetary values are displayed in dollars. If the monetary values were not found in the ARs in dollars, it was converted with the exchange rate of the 1st of April 2020. This date was chosen because the reports are written over the year of 2019, and April 2020 is the first full month the reports were required to be filed. The same currency was used for every conversion.

For the executive remuneration, most of the information was gathered from the proxy statement (schedule 14A complying with rule 14a-101 of the SEC\(^6\)). Perhaps not surprisingly, finding pages on innovation required more effort and the reporting on this vital aspect of the companies was not available in a comprehensive manner.

| Company                    | CEO salary (% sales) | Total pages report | Remuneration (pages) | Innovation (pages) | IRI  |
|---------------------------|----------------------|--------------------|----------------------|--------------------|------|
| Johnson & Johnson         | 0.02                 | 248                | 54                   | 1                  | 0.02 |
| F. Hoffmann-La Roche Ltd  | 0.02                 | 158                | 3                    | 38                 | 12.67|
| Pfizer Inc                | 0.03                 | 186                | 44                   | 26                 | 0.59 |
| Novartis AG               | 0.03                 | 343                | 71                   | 26                 | 0.37 |
| Merck & Co Inc            | 0.06                 | 316                | 13                   | 21                 | 1.62 |
| Eli Lilly and Co          | 0.10                 | 187                | 23                   | 6                  | 0.26 |
| Novo Nordisk As           | 0.01                 | 117                | 15                   | 7                  | 0.47 |
| AbbVie Inc                | 0.06                 | 216                | 34                   | 4                  | 0.12 |
| Amgen Inc                 | 0.09                 | 277                | 55                   | 7                  | 0.13 |
| Sanofi                    | 0.02                 | 294                | 50                   | 21                 | 0.42 |
| GlaxoSmithKline Plc       | 0.03                 | 316                | 28                   | 13                 | 0.46 |
| AstraZeneca Plc           | 0.08                 | 276                | 23                   | 46                 | 2.00 |
| Gilead Sciences Inc       | 0.13                 | 241                | 18                   | 41                 | 2.28 |
| Bristol-Meyers Squibb Co  | 0.07                 | 226                | 51                   | 6                  | 0.12 |
| CSL Ltd                   | 0.14                 | 143                | 15                   | 10                 | 0.67 |

Abbreviation: IRI, innovation remuneration index.

Note: The salary percentage is the CEO remuneration as fraction of total sales.
With this method, we minimalised the total number of pages, to make a fair comparison. We calculated the ratio of the number of pages in the annual report used for innovation to those used for executive remuneration (Innovation Remuneration Index - IRI). Additionally, we evaluated the number of pages used to describe remuneration in comparison with the total number of pages in the annual report and additions. A high IRI implicates that the company reports relatively more about innovation than about remuneration. The higher the IRI, the more pages of the total number are used for remuneration, implicating less focus on other subjects.

3 | RESULTS

Our findings are shown in Tables 1 and 2 and Figure 1. One of the most innovative branches of industry spends between 3 and 71 pages on the remuneration of executives, whose salary comprised between 0.01 and 0.14% of total sales. The R&D budgets of these companies is between 15% and 20% of sales and was covered in 1–46 pages, and we found no quantitative information about the cost of development in any of the reports in accordance with earlier findings. Moreover, variability in the ratio of the two types of reports is large with one company spending 54 pages on remuneration and 1 on innovation and another 38 on innovation and 3 on remuneration. Only 4 of the 15 companies spent more pages on innovation than on remuneration. All relevant pages from the annual reports are collected in a supporting information.

4 | DISCUSSION

Innovation is what drives a pharmaceutical company and generates the value for society and its shareholders. An argument against publishing a detailed breakdown of research and development costs could be that it would harm the company by jeopardising its competitive position. However, it could be argued that this may only hold only for a company operating in a perfectly operating market where prices would be optimal by the “invisible hand” concept of Adam Smith. The sole problem of worldwide access of innovative medicines already demonstrates that this is not the case for medicines. This was perhaps recently poignantly illustrated by the tenfold price differences apparently paid by governments for different COVID-19 vaccines. These prices were accidentally revealed by the Belgian Minister of Health, to the irritation of the manufacturers with whom it was agreed by the EU to keep the prices confidential.

The cost of innovation is an important component of the price of medication. No other industry reports such components of its prices in detail. But there it is assumed that the market will do its work and that therefore more information than the price is unnecessary for the consumer. Mobile phones and computers are widely available at reasonable prices, also in low- and middle-income countries, but medicines are not. Additionally, medicines are rarely directly paid by its consumers, who in many cases do not have a choice between different products. These points would argue for a much more extensive transparency of the costs of innovation for the pharmaceutical industry compared to other branches to generate a more ideal market.

Some stakeholders probably will argue that such transparency would jeopardise innovation rather than promote it, but we consider this unlikely. There is considerable uncertainty about future sustainability of the current price level of innovative medicines and price negotiations are generally based on theoretical assumptions of value in quality of life and are difficult to substantiate. A system that is also based upon standardised and publicly available development cost would introduce the cost of the development as a valid argument, also for justifying high prices.

| Company                     | Annual Report | Proxy statement | Other |
|-----------------------------|---------------|-----------------|-------|
| Johnson & Johnson           | x             | x               |       |
| F. Hoffmann-La Roche Ltd.   | x             |                 |       |
| Pfizer Inc.                 | x             | x               |       |
| Novartis AG                 | x             |                 |       |
| Merck & Co Inc.             | x             |                 |       |
| Eli Lilly and Co.           | x             |                 |       |
| Novo Nordisk As.            | x             | x               |       |
| AbbVie Inc.                 | x             |                 |       |
| AMGEN Inc.                  | x             | x               |       |
| Sanofi                      | x             |                 |       |
| GlaxoSmithKline Plc.        | x             |                 |       |
| AstraZeneca Plc.            | x             |                 |       |
| Gilead Sciences Inc.        | x             | x               |       |
| Bristol-Meyers Squibb Co.   | x             | x               |       |
| CSL Ltd.                    | x             |                 |       |

*Novo Nordisk AG publishes a remuneration report.*
By publishing these costs, companies would have an incentive to make development maximally effective, and competition would be introduced in a system that has become increasingly operationally heavy and ineffective with trial costs for some large trials exceeding 100M$. This would benefit investors and reduce development times. Reputationally, it would also benefit the industry, by separating the costs of research, from pure development and especially marketing. Cost price transparency would also exactly define the cost of failure—a necessary component of development costs. Such new key performance indicators for the industry would also allow potentials shareholders to invest in the most efficiently operating companies.

We put the exquisite detail in which executive compensation is reported in juxtaposition to the apparent lack in transparency of research and development cost to counter the argument that detailed reporting of research and development costs for new medicines would be technically impossible. Apparently, it has been feasible to generate extensive regulation for executive remuneration, so there is no reason why this could not be done for research and development costs, which will be readily available from internal cost accounting systems anyway. Our survey is limited by the sample, which only contains the largest stock market quoted companies and our analysis of the information by page numbers only rather than detailed content. More detail on development activities is certainly available in shareholder webinars and are semi-public information but we chose not to include this as it is unaudited data and often not easy to find. In any case, none of this information ever contains audited accounts of development costs.

There are no principal objections against the extensive reporting of remuneration, but we have demonstrated that there is a troubling disbalance in the annual reports. We question why it is apparently acceptable to report the executive compensation to the level of the private use of a mobile phone, while even the whole extent of the compensation is negligeable compared to the sales (and therefore can never affect pricing), while the main component of cost remains at the very high aggregation level of “research and development.” The disbalance is of course not solved by just reducing the detail of the executive compensation. This would improve our metric, but not the transparency.

5 | CONCLUSION

All our medicines contain a very small and very precisely controlled amount of substance, which invariably has a low cost-price. The final cost of a medicine is therefore driven by other factors. The company must be sustainable and able to respond to new situations, and this will require sufficient equity so a sustainable profit must be included. The advantages of this were all too obvious in the past period where the presence of technology in industry allowed rapid development of new vaccines. Such a profit must also cover the costs of failure. However, the main cost component of a medicine is information—the scientific facts that support the value-based use in patients. Whilst we know precisely how the salary of the small number of executives is structured, there is no objective information about this important
component of the medicines, that we give to our patients. The requirement for standardised information of development costs of medicines by adjusting the legal framework for financial reporting would eventually make medicines cheaper and more readily available and would benefit all stakeholders in this industry.

COMPETING INTERESTS

The authors have no conflicts of interest to declare.

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SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section at the end of this article.

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