STUDY REGARDING THE EVOLUTION OF THE FINANCIAL BALANCE IN THE PHARMACEUTICAL INDUSTRY

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Abstract
This article aims at analysing the financial balance within the global pharmaceutical industry, starting from the assumption that „In the pharmaceutical industry there is sufficient liquidity to cover payment obligations". The analysed companies are part of the exclusive group comprising the top 20 global companies, e.g. GlaxoSmithKline, Merck & Co., Sanofi-Aventis and Bayer. The research conducted is based on an analysis over time of the relationship between floating assets, floating assets requirement and net cash from 2006 to 2013, and highlights the main developments of the indicators before the onset of the financial and economic crisis and after its outbreak.

Keywords: pharmaceutical industry, liquidity, floating assets, floating assets requirement, net cash

JEL classification: G01, G10

1. Introduction

Seen in a holistic manner, the pharmaceutical industry is a real impetus within the global economy, the overall drug market being one of the most successful and most balanced markets worldwide. The financial balance constitutes an absolute imperative (Munteanu, Gabriela, 2010) of any business entity, as it is indicative of the harmony between the financial resources and

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the financial needs of the company. To highlight the existence of financial balance and financial autonomy, it is imperative to study the company's balance sheet, which is the main tool needed in any economic and financial analysis, on whose basis certain indicators are determined. These indicators influence short-, medium- and long-term corrective decision-making, thus facilitating the detection and resolution of gaps within the organisation (Balteş, Nicolae, ed., 2013).

2. Research Methodology

The methods and techniques used in this article include the following: documentation and document analysis reflected in the bibliographical references, statistical methods on trend analysis and the graphical representation of the events and phenomena researched and methods pertaining to the economic and financial analysis meant to determine the financial balance. The analysed indicators are calculated by the authors based on data provided by the annual financial statements from 2006 to 2013, published on the official websites of the companies analysed. The type of sampling used was random sampling, as there is no significant difference between the sizes of the analysed population. The companies considered are *GlaxoSmithKline, Merck & Co., Sanofi-Aventis and Bayer*, which have a market share of over 12% worldwide.

3. Literature Review

The financial balance can be approached not only from the financial point of view based on the financial balance, but also from the functional point of view based on the functional balance. Based on the financial balance, a current asset (i.e. one lasting less than one year) is financed with the help of resources due up to one year, while a non-current asset (i.e. an asset with a life cycle greater than one year) is financed with funds having a maturity greater than one year. A first balance arises from the confrontation between permanent assets and permanent assets requirement, as indicated in the upper part of the balance sheet, which highlights a long-term financial balance by means of floating assets. The latter refer to that component of the permanent assets that is left after the financing of the tied-up capital that the company uses to finance floating assets (Petrescu, Silvia, 2010):

Floating assets (FA) = Permanent capital + Provisions + Investment subsidies – Permanent assets requirement

An increased number of floating assets automatically leads to an increase in the safety margin of the business entity, illustrating the fact that floating assets are financed to a large extent from permanent capital. The size of the floating assets is influenced mainly by the results of the activities carried out by the company as well as by an increased size of tied-up assets and of medium- and long-term liabilities (Robu, Vasile; Anghel, Ion; Șerban, Elena, 2014). While the upper part of the balance sheet reveals the existence of a long-term financial balance (Dumbravă, Mădălina, 2010), its lower part shows its short-term financial balance, being determined as a difference:

FA = (Floating assets + Prepaid expenses) – (Short-term liabilities + Deferred income)

This model highlights the excess of circulating assets not financed from short-term liabilities, thus constituting a real safety margin as regards the solvable situation of the company analysed. The financial balance can also be determined by means of the *functional balance*, which divides balance sheet items into operating cycles: investment cycle, utilisation cycle and financing cycle. Functional floating assets, also called global floating assets, refer to the surplus of durable resources determined as a result of financing stable uses. More precisely, they constitute the source of stable funding intended for covering stable assets (Avare, Ph.; Ravary, L.; Legros, G., Lemonnier, P. 2002).

Functional floating assets = Stable sources – Stable assets

Functional floating assets can be either positive, as a result of the fact that stable financial sources cover the investment needs of the business entity, or negative, on account of a severe lack of floating assets. This component of the financial balance, i.e. floating assets, facilitates the explanation of the funding policies of the company from three perspectives: the modern perspective, the aggressive perspective and the conservative perspective (Jianu, Iulia 2007). The modern approach consists in establishing a link between the maturity of the financing and the life cycle of the asset financed from this fund. In fact, this approach suggests the financing of short-term assets from short-term financial resources and of long-term assets from medium- and long-term liabilities. The aggressive approach focuses on risk, as

current assets and part of the tied-up assets are financed from short-term loans. The last approach to the financing of a business entity is the conservative approach, which consists in financing long-term assets and part of the current assets from long-term loans. In our opinion, establishing a correspondence between the maturity of floating assets and the life cycle of the asset is almost impossible since there is a degree of uncertainty about the operating time and the lifetime of the assets, and unforeseen events, which may prevent such a connection from forming, are likely to occur. Another extremely important component of the financial balance is the floating assets requirement. Relying on the financial balance, it is determined as the difference between cyclical demands and cyclical resources, and represents the part of the temporary allocations which are financed from permanent sources (Brătian, Vasile, 2013). The floating assets requirement (FAR) is determined according to the model below:

FAR = Cyclical demands – Cyclical resources

where:

Cyclical demands = Temporary demand (Floating assets – Cash and bank accounts) + Prepayments
Cyclical resources = Temporary resources = Short-term liabilities + Deferred income

The functional floating assets requirement has two components: the demand for operating floating assets and the demand for floating assets out of operation. The demand for operating floating assets (DOFA) is that portion of current assets such as stocks and debts not covered from operating liabilities and determined according to the following model:

DOFA = Cyclical operating assets (Stocks + Debts) – Cyclical sources derived from operation (operating liabilities)

The demand for floating assets out of operation (DFAO) is determined as the difference between cyclical assets out of operation and cyclical non-operating sources, as follows:

DFAO = Cyclical assets out of operation – Cyclical sources out of operation

If it is found that there is a positive floating assets requirement, then a surplus of temporary demand compared to temporary resources ensues (Pociovalişteanu, Diana; Mihalciuc, Camelia; Apetri, Anişoara, 2010). This situation occurs particularly in business entities that have large stocks and debts and where payment obligations are almost non-existent. A negative floating assets requirement indicates a surplus of net resources compared to floating assets, also illustrating a situation in which the level of debts is close to zero, i.e. their cashing-in is immediate, on the one hand, and liabilities are high, on the other hand. While floating assets reflect long-term financial stability, the floating assets requirement reflects short-term balance, being more fluctuating and unstable than floating assets, as it can be expressed in days of sales (FARd) in order to better notice the trends it follows over the period considered. In normal circumstances, this indicator should be between 30 and 60 days, and is determined based on the following model (Petrescu, Silvia, 2010):

$$\text{FARd} = \text{FAR} \times 365/\text{Turnover}$$

The financial balance ultimately results from the confrontation between floating assets and floating assets requirement (Suciu, Gheorghe, 2013), and the difference between the two indicators equates with the net cash. Net cash (NC) is "the image of money available and short-term financial investments arising from the current evolution of cashing-in and payments" (Balteş, Nicolae, 2010), being determined according to the following model:

$$\text{NC} = \text{FA} - \text{FAR}$$

or

$$\text{NC} = \text{Treasury assets (Current liquid assets)} - \text{Treasury liabilities (current bank loans)}$$

Following the confrontation between treasury assets and treasury liabilities, the value of net cash may be either positive, in which case the activities of the business entity generate a monetary surplus, or negative, in which case the company resorts to attracting external resources to finance the balance. In order to achieve an as complex as possible analysis of the financial balance, specialist literature recommends using the following rates (Robu, Vasile; Anghel, Ion; Şerban, Elena-Claudia, 2014):

- Margin of safety rate (SR) – is determined as the ratio between floating assets (FA) and turnover (TO), multiplied by the number of days to which the analysis refers, the value of the indicator being between 30 and 90 days depending on the activity.

$$SR = FA / TO \times 365$$

- The **rate of financing the floating assets requirement (RFfar)** – is determined as the ratio between floating assets and floating assets requirement, and when the business entity has a negative net cash, the value of this ratio is less than 100, part of the floating assets being covered from treasury loans. When the indicator is greater than 100, then there is positive net cash.

$$RFfar = FA / FAR \times 100$$

- The **rate of rotation of cyclical operating assets (Rcoa)** – is the share of floating assets (FA) within cyclical operating assets (COA) and is determined as follows:

$$Rcoa = FA / COA \times 100$$

- The **rate of financing floating assets requirement from cash loans (Rfarcl)** – is the share of cash loans (CL) within the floating assets requirement (FAR), a high value of this ratio indicating a significant risk with regard to the financing of the activity.
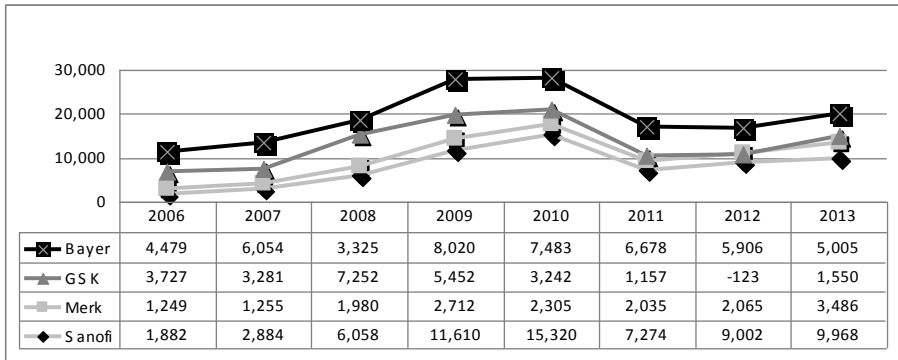
$$Rfarcl = CL / FAR \times 100$$

4. Evolution of Financial Balance in Global Pharmaceutical Industry

The chief objective of this article is to determine the existence or non-existence of financial balance in the global pharmaceutical market. The companies analysed, i.e. *GlaxoSmithKline, Merck & Co., Sanofi-Aventis and Bayer*, belong to the top 20 key players in the pharmaceutical industry worldwide. The research covers the period 2006-2013, and highlights the main developments of the indicators before the onset of the economic and financial crisis and after its outbreak. Financial balance indicators not only express the

relationships between numbers, but are also considered to be a real mirror of financial statements (Berman Karen; Joe Knight, 2011, p. 25). One of the main elements of the financial balance analysed in this article is floating assets, an indicator referring to that component of the permanent capital that is left after the tied-up capital has been financed, reflecting long-term financial balance.

Figure 1: The evolution of floating assets from 2006 to 2013

Millions of EURO

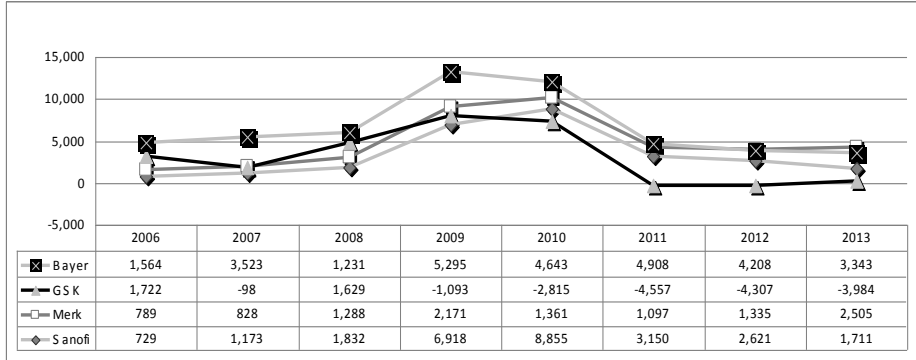|	2006	2007	2008	2009	2010	2011	2012	2013
Bayer	4,479	6,054	3,325	8,020	7,483	6,678	5,906	5,005
GSK	3,727	3,281	7,252	5,452	3,242	1,157	-123	1,550
Merk	1,249	1,255	1,980	2,712	2,305	2,035	2,065	3,486
Sanofi	1,882	2,884	6,058	11,610	15,320	7,274	9,002	9,968

Source: Own calculations based on the financial statements of the analysed companies (www.gsk.com, en.sanofi.com, www.bayer.com, www.merck.com)

Between 2006 and 2011, the floating assets of all analysed companies were positive, reflecting an increase in permanent capital and a reduction in net tied-up assets. From 2006 to 2007, for the companies investigated, there was a low level of floating assets, which showed a decrease in permanent capital through the repayment of long-term loans and an increase in the investment rate. In the period 2008-2013, with the exception of GSK, all other entities analysed had a higher level of floating assets compared to 2006, reflecting an ***increase in the safety margin*** of the business entity, illustrating the fact that floating assets are financed in a greater proportion from the permanent capital. In 2012, GSK registered a negative level of floating assets, which showed a lack of permanent capital, the company not being able to ensure the financing of tied-up assets. Another very important indicator in
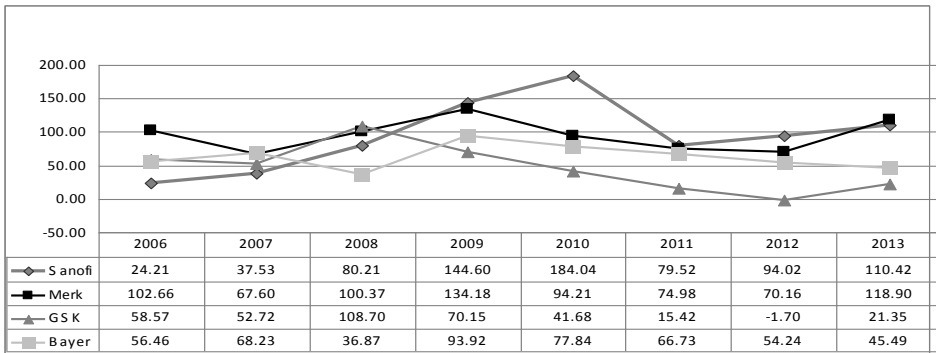
terms of the financial balance is that of floating assets requirement. The trend of this indicator from 2006 to 2013 can be noticed in the chart below.

Figure 2: The evolution of floating assets requirement from 2006
Millions of EURO

	2006	2007	2008	2009	2010	2011	2012	2013
Bayer	1,564	3,523	1,231	5,295	4,643	4,908	4,208	3,343
GSK	1,722	-98	1,629	-1,093	-2,815	-4,557	-4,307	-3,984
Merk	789	828	1,288	2,171	1,361	1,097	1,335	2,505
Sanofi	729	1,173	1,832	6,918	8,855	3,150	2,621	1,711

Source: Own calculations based on the financial statements of the analysed companies (www.gsk.com, en.sanofi.com, www.bayer.com, www.merck.com)

Figure 3: The evolution of the rotation speed of the floating assets requirement between 200 [Days]

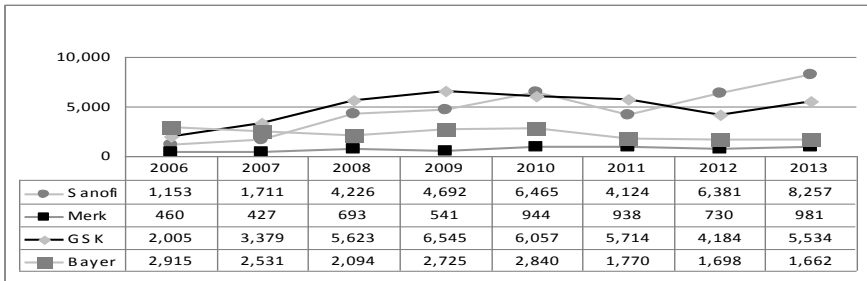|	2006	2007	2008	2009	2010	2011	2012	2013
Sanofi	24.21	37.53	80.21	144.60	184.04	79.52	94.02	110.42
Merk	102.66	67.60	100.37	134.18	94.21	74.98	70.16	118.90
GSK	58.57	52.72	108.70	70.15	41.68	15.42	-1.70	21.35
Bayer	56.46	68.23	36.87	93.92	77.84	66.73	54.24	45.49

Source: Own calculations based on the financial statements of the analysed companies (www.gsk.com, en.sanofi.com, www.bayer.com, www.merck.com)

The only company that has a negative level of floating assets requirement during the analysed period is GSK. This situation reflects a surplus of net resources compared to floating assets, temporary demands being lower than temporary resources. The other three companies analysed have a positive level of floating assets requirement, thus illustrating a surplus of

temporary demands compared to temporary resources. Unlike floating assets, which express long-term financial balance, the floating assets requirement expresses short-term financial balance, being more fluctuating and unstable than floating assets, which is why the floating assets requirement can be expressed in days of sales by means of ***rotational speed***, as can be seen in the chart below.

Rotational speed reflects the unfavourable gap between receipts in and payments, and the level of the indicator, under normal circumstances, should be between 30 and 60 days. We can notice a sharp increase in this indicator in 2008 in the case of GSK, Merck and Sanofi, following the outbreak of the crisis. The companies that have a large gap between receipts in and payment situation are Merck and Sanofi. In terms of net cash development, we can see the trend of this indicator in the chart below.

Figure 4: The evolution of net cash from 2006 and 2 Millions of EURO

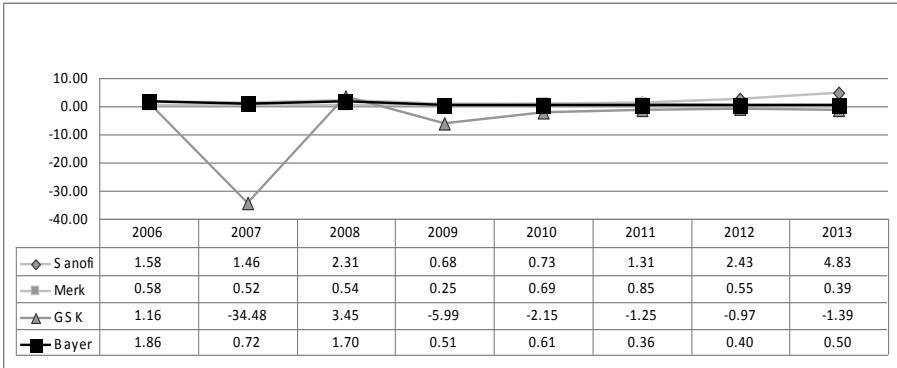|	2006	2007	2008	2009	2010	2011	2012	2013
Sanofi	1,153	1,711	4,226	4,692	6,465	4,124	6,381	8,257
Merk	460	427	693	541	944	938	730	981
GSK	2,005	3,379	5,623	6,545	6,057	5,714	4,184	5,534
Bayer	2,915	2,531	2,094	2,725	2,840	1,770	1,698	1,662

Source: Own calculations based on the financial statements of the analysed companies (www.gsk.com, en.sanofi.com, www.bayer.com, www.merck.com)

In the period 2006-2013, all four companies analysed have a positive net cash value, which indicates that a monetary surplus is derived from the activity of the entities analysed, highlighting a favourable situation as well as the existence of funds available in the bank and cash accounts. Another important indicator in the analysis of the financial balance is the funding rate of the floating assets requirement within net cash. The evolutions of the indicators in the period 2006-2013 are shown in the chart below.

This indicator represents the share of cash loans within floating assets requirement. In the analysed period (2006-2013), this indicator does not have high values, which indicates the absence of a significant risk regarding the financing of the activity in all analysed companies.

The evolution of the financing rate of FAR by means of NC from 2006 to 2013 [%]

	2006	2007	2008	2009	2010	2011	2012	2013
S anofi	1.58	1.46	2.31	0.68	0.73	1.31	2.43	4.83
Merk	0.58	0.52	0.54	0.25	0.69	0.85	0.55	0.39
GS K	1.16	-34.48	3.45	-5.99	-2.15	-1.25	-0.97	-1.39
B ayer	1.86	0.72	1.70	0.51	0.61	0.36	0.40	0.50

]**Source:** Own calculations based on the financial statements of the analysed companies (www.gsk.com, en.sanofi.com, www.bayer.com, www.merck.com)

5. Conclusions

In conclusion, the chief aim of any business entity both nationally and globally is to maintain the financial balance of its activities, in order to be able to talk about profit in sustainable terms both at present and in the future. Referring to the specialist literature, we found that financial balance is in fact economic the correspondence between the economic means needed to conduct operations and financing sources. Long-term financial balance can be determined by using floating assets, while short-term financial balance is determined by means of floating assets requirement. An economic and financial analysis of financial balance should not be content with determining floating assets, floating assets requirement, and net cash, but it should be developed on the basis of the many liquidity, solvency or even profitability indicators, and with the help of the rates pertaining to the financial balance presented in detail in the lines above. In the period 2006-2013, pharmaceutical groups *GlaxoSmithKline, Merck & Co., Sanofi-Aventis and Bayer*, registered financial balance with positive net cash, which means that entities analysed

have the cash to repay debts, to grant loans to third parties or to make investments.

6. Acknowledgments

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