MERGERS & ACQUISITIONS IN THE PHARMACEUTICAL INDUSTRY IN SOUTH AMERICA: ACTIVITY AND STRATEGIC INTENTIONS

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ABSTRACT

The popularity of mergers and acquisitions (M&A) used by companies to realize their corporate strategy or attain growth has significantly increased in the past decades. Little attention has been paid to M&A in South America in particular, however, therefore we study the activity and strategic intention of M&A deals that have taken place in the pharmaceutical industry in South America We will compare the results with other regions, namely North America and Europe. For our analysis, we created a set of data on M&A transactions by gathering information from the corporate history, news and websites of more than 6,000 pharmaceutical companies worldwide. This research led to a unique data set of 5,020 M&A deals. The time period covered by this database is from the years 1851 to 2003. In our study, we find that while in only 1.25% of all deals the target company stems from South America, the time pattern of M&A activity correlates between regions. We also found that the M&A activity is related to the development and size of the economy measured in GDP. For strategic intentions of M&A, we see statistically significant differences per region, but we deem them to be rather small in number so that we identify industry rather than country as a main driving force behind M&A motives and strategies.

INTRODUCTION

Since its last peak in the year 2000, mergers are on the agenda of companies again and new record levels are expected (Rozens 2006). The popularity of mergers and acquisitions (M&A) used by companies to realize their corporate strategy or attain growth has significantly increased in the past decades, but M&A have a long tradition in business (Cook 1888; Lamoreaux 1985; Nelson 1959). Despite all the research that has been carried out so far, little insight has been gained so far as a whole into M&A (Brealey and Myers 2002; Pohl 1985). Among these few findings is the "fact" that M&A started in the United States of America (US) and spread out to the world only recently, in the last decades (Gaughan 2002; Black 2000; Romanek and Krus 2002). Thus far, data is best available for the US, and most of the research on M&A has been done on the US and the United Kingdom (UK), therefore the conclusion that M&A on an international dimension are fairly new might be an artifact. Furthermore, even fewer findings are based on studies conducted with a focus other than on the US or UK, and little attention has been paid to M&A in South America. Through this study, we want to gain insight into the international dimension of M&A, with a special though not exclusive focus on South America and an emphasis on M&A activity and the strategic intentions of M&A transactions.

We have chosen to study these aspects on M&A in the pharmaceutical industry because of its relatively long history (over 100 years); this industry has also seen a significant number of M&A throughout the years, including several mega-mergers more recently. Additionally, the pharmaceutical industry is still quite fragmented when compared to others, and technological developments such as biotechnology have contributed to the creation of industry disturbance as well as the creation of new companies, causing existing structures to change. Finally, forecasts concerning the demographic development (e.g. increasing life expectancy and population growth) speak for the importance of this industry in the future.

THEORY & HYPOTHESES

Like other phenomena in business, M&A also have a volatile, cyclical behaviour, and have been tested for their appearance in waves (Golbe and White 1993). For many countries other than the US and the UK, the time pattern of M&A is unknown; as we suppose that M&A are not specific to the US and UK, we expect the M&A time pattern to be similar for other countries as well, including in South America.

H1: The M&A activity in South America follows a time pattern similar to other regions of the world.

Although we expect the time pattern to be quite similar, the absolute level of M&A activity might differ, and some regions will see more M&A deals consummated than others. On an aggregate level, one of the significant influencing or correlating factors in M&A activity is the business climate which, in most cases, is measured by the gross domestic product (GDP) (Steiner 1975; Becketti 1986; Golbe and White 1988). In small economies, comparatively few M&A will take place; however when it comes to international M&A, most of the foreign direct investment in developed countries takes place in the form of M&A, while these figures are significantly lower for less developed countries. Reasons for this difference might be that no potential target companies are available, or organic growth and green field investment are seen as more economic; finally, it is also possible that cultural and historical differences disfavor M&A as a means of doing business.

H2: The number of M&A transactions correlates with the development and size of an economy measured in the form of GDP.

Nonetheless, aggregate M&A activity is made up of many individual M&A transactions, which in turn have a vast range of reasons motivating them. In general, these reasons can be classified along (in)efficiency-oriented and management-oriented approaches.

For the (in)efficiency-oriented approach, motives for M&A are operative synergies, financial synergies, (mis-, over- or under-)valuation, diversification, competition and market power or taxes. Operative synergies are expected in the form of economies of scale, scope and speed, learning curve, rationalization, cost-reduction or reaching a critical size (Brealey and Myers 2002; Kogeler 1992; Pursche 1989). Financial synergies are expected in the way that internal capital markets can be more efficient than external financial markets due to better informed management or superior resource allocating systems, lower financing costs, more stable revenues and cash flows, improved access to the capital markets or prevention of illiquidity and bankruptcy (Nielsen and Melicher 1973; Hubbard and Palia 1999; Liebeskind 2000; Servaes 1996; Myers and Majluf 1984; Lewellen 1971; Lubatkin and O'Neill 1987; Levy and Sarnat 1970; Conn 1976; Shrieves and Stevens 1979; BarNiv and Hathorn 1997). Improved transaction costs might be due to vertical M&A and savings in costs for communication, negotiation, resources and control (Brealey and Myers 2002; Silver 1984) in the case of horizontal M&A due to a best practice approach (Steger 1999). The efficiency of management can be improved by a superior managed company taking over an inferior managed company (Gaughan 2002; Röller, Stennek, and Verboven 2000) or the acquisition of new, better management talent (Bogetoft and Wang 1999). M&A can be motivated by mis-, over- and undervaluation of companies when the acquiring company expects a higher value creation than the present market value or purchasing price (Gort 1969). For example, buying a company may be more economic than attempting organic growth, due to differences in valuation (Chappell and

Cheng 1984). Tender offers signal an undervaluation of the target company (Scherer 1988), and high or overvalued companies use the opportunity to proceed with an M&A mostly financed with overvalued stock (Jensen 1988). Focusing on core business by divestiture of non-core businesses reduces the conglomerate discount and improves the companies value (Campa and Hernando 2004; Mansi and Reeb 2002). From a diversification point of view, M&A can also reduce risk (Amihud and Lev 1981); companies dominated by one shareholder can be a vehicle to diversify the risk of the investment portfolio of that one shareholder. Also management and employees might want to diversify their employment risks and do so by M&A (Mueller 1969; Weston, Siu, and Johnson 2001). M&A can increase market power, restrain competition, establish entry barriers and help earn a monopoly rent (Stigler 1950; Jenks 1900). Tax advantages can also be gained through M&A when tax liabilities are avoided or M&A transactions are subsidized by tax savings (Auerbach and Reishus 1988; Butters and Lintner 1951; Herzig 1993; Manzon, Sharp, and Travlos 1994).

Management-oriented explanations for M&A transactions are hybris, managerialism, market for corporate control, free cash resources and reallocation. Hybris is caused by overconfidence and an overestimation of the management's capabilities (Roll 1986). In the case of managerialism, M&A are a manifestation of the principal-agent problem, where managers try to maximize their own utility rather than the shareholders' interests (Meeks and Meeks 1995; Zalewski 2001), hence they are interested in managing a big company and engage in empire building (Seth, Song, and Pettit 2000; Stegemoller 2001) to increase their power, salary and career opportunities (Jensen 1986; Mueller 1969). Power can also be increased vis-à-vis other stakeholders, e.g. employees (Jenks 1900). Conversely, Lewellen and Huntsman (1970) argue that the salary depends more on profitability than corporate size. M&A can be the result of an active and efficient market for corporate control where management teams and owners compete for the control of companies and where inefficiently managed companies become takeover targets (Jensen 2001; Jensen and Ruback 1983; Manne 1965; Marris 1964). The market for corporate control may also hinder M&A transactions when it prevents management and owners from engaging in unprofitable M&A transactions (Scharfstein 1988). Free cash resources might seduce management into allocating them to M&A transactions rather than handing them back to shareholders in the form of dividends or share buy-backs in order to keep the resources under their control (Jensen 1986). Finally, M&A can be motivated by reallocation if assets are relocated from one stakeholder to others, e.g. from shareholders to creditors, promoters or management (Brealey and Myers 2002; Jenks 1900).

All these reasons contribute to M&A transactions, and there may be multiple reasons for a single deal. Many of these reasons are difficult to explore and measure, consequently we want to restrict ourselves to the rational motives, namely strategic intentions for M&A as perceived from a strategic management point of view. There may be different ways to do so; first of all, M&A transactions can be motivated by the value chain, and they can be horizontal, vertical (forward and backward) or diversifying in nature. Secondly, Ansoff (1987) used a market-product grid to come up with horizontal, vertical, concentric or conglomerate diversification. Thirdly, Porter (1987) thought of strategic opportunities for development such as portfolio management, restructuring, transferring skills and sharing activities. The fourth approach is the one concerning the "fit" of merging companies from strategic (Salter and Weinhold 1982; Jemison and Sitkin 1986; Datta 1991; Shelton 1988), financial (Mirvis and Marks 1992), to cultural fit (Weber, Shenkar, and Raveh 1996; Nahavandi and Malekzadeh 1988). A fifth approach uses the classification of strategic motives as defined by Bower (2001) and Steger (1999). Bower (2001) identifies the motives of overcapacity M&A, geographic roll-up M&A, product or market extension M&A, M&A as R&D, and industry convergence. Overcapacity M&A aims at reducing overcapacity, increasing market share, and rationalizing and improving efficiency. Geographic roll-up M&A is the geographic expansion of a successful company to realize economies of scale and scope. Product or market extension M&A is the extension of either the product line or international presence. M&A as R&D sees M&A as a means of replacing a company's own R&D activities and centers with acquired R&D capacity and results. Industry convergence M&A anticipate the emergence of new industries and helps the company to position itself with M&A. Steger (1999) further proposes the category of consolidation merger, pearls on a string acquisition, strategic assembler, new industry entrance, portfolio turnover and global leap. Consolidation mergers are intended to reduce overcapacity and increase competitiveness. Pearls on a string M&A are usually done by larger companies that acquire small companies in order to enlarge their product portfolio or geographic reach. Strategic assembler M&A first try to enlarge capabilities and then the fields of activities. These transactions are also used to gain market leadership. New industry entrance M&A occur when M&A deals help a company enter a new industry, one where it had no previous presence, in order to gain access to markets, resources and capabilities in that industry. If companies apply a portfolio strategy to manage their business and go forth with several M&A in order to change their portfolio, then these M&A transactions are categorized as portfolio turnover. Very large M&A transactions (often referred to as mega-mergers) that dramatically increase product range and geographic presence are global leaps.

As most of the consolidation affects only a limited range of industries, M&A transactions appear to be driven by an industry-specific rather than country-specific logic (Andrade and Stafford 2000); we therefore expect only slight variations in the strategic intentions for M&A between regions.

H3: Strategic intentions for M&A are industry specific and there will be only slight variations between the regions of the world.

METHODOLOGY AND SAMPLE

Many professional providers of M&A data, e.g. Thomson Financial and Mergerstat, have weaknesses when it comes to international coverage of transactions. Due to this limitation, we have gathered information on deals carried out by companies in the pharmaceutical industry. In a first step, a list of companies was compiled from different sources, including stock exchanges[1], company databases and collections,[2] M&A databases,[3] antitrust authorities[4] and industry associations[5]. After deleting double

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1 Australian Stock Exchange, Deutsche Börse, Euronext, London Stock Exchange, Nasdaq, New York Stock Exchange and Swiss Stock Exchange.

2 Amadeus, BvD Suite, Diane, Fame, Hoover's, Hoppenstedt, Markus, Osiris and Pharma Seiten.

3 DealsDone, Mergerstat, Thomson Financial and Zephyr.

4 Bundeskartellamt (Germany), Competition Commission (United Kingdom), European Competition Commission (Europe) and Federal Trade Commission (United States of America).

5 Associação da Indústria Farmacêutica de Pesquisa (INTERFARMA) (Brazil), Associação Portuguesa da Indústria Farmacêutica (APIFARMA) (Portugal), Asociación de Fabricantes de Productos Farmacéuticos (AFIDRO) (Colombia), Asociación Mexicana de Industrias de Investigación Farmacéutica (AMIIF) (Mexico), Asociación Nacional Empresarial de la Industria Farmacéutica (FARMAINDUSTRIA) (Spain), Association Générale de l'Industrie du Médicament (AGIM) (Belgium), Association Marrocaine de l'Industrie Pharmaceutique (AMIP) (Morocco), Association of International Pharmaceutical Manufacturers (AIPM) (Russia), Associazione Nazionale dell'Industria Farmaceutica (Farmindustria) (Italy), Belgian Bioindustries Association (BBA) (Belgium), Biocom San Diego (BIOCOM) (United States of America), Bundesfachverband der Arzneimittel-Hersteller e.V. (BAH) (Germany), Bundesverband der Pharmazeutischen Industrie e.V. (BPI) (Germany), Cámara Venezolana del Medicamento (CAVEME) (Venezuela), Canada's Research-Based Pharmaceutical Companies (Rx&D) (Canada), Deutsche Industrievereinigung Biotechnologie (DIB) (Germany), Deutscher Generikaverband e.V. (Germany), Emerging Biopharmaceutical Enterprises (EBE-EFPIA) (Europe), Etiniø farmacijos kompanijø Atstovybiø asociacija - The Association of Representative Offices of Ethical Pharmaceutical Manufacturers (EFA) (Lithuania), France Biotech (France), Hellenic Association of Pharmaceutical Companies (SFE) (Greece), Irish Pharmaceutical Healthcare Association (IPHA) (Ireland), Japan Pharmaceutical Manufacturers Association (JPMA) (Japan), Korean Pharmaceutical Manufacturers Association (KPMA) (South Korea), Lääketeollisuss ry - Pharma Industry Finland (PIF) (Finland), Magyarországi Gyógyszergyártók Országos Szövetsége - Hungarian Pharmaceutical Manufacturers Association (MAGYOSZ) (Hungary), Medicines Australia (MedAus) (Austrlia), New Zealand Biotechnology Association (BIO-NZ) (New Zealand), Legemiddelindustriforeningen - Norwegian

entries, a list of 8,550 companies was created. Companies that were mentioned during research in press releases but were not on the original list were also added. In a second step, we identified the M&A transactions of the listed companies by using company histories, press releases, quarterly and annual reports, direct inquiries to the companies and newspaper articles; we then compiled a list of completed M&A transactions gathering information on the year, buyer, target and merging companies, country of origin and main strategic motive. We classified the strategic motives using the classifications described in the section above.

For the analysis, we used only the number of M&A transactions and not their value, because the information on purchasing prices is often undisclosed, and the value of M&A transactions is subject to the level of stock market prices or inflation. We then classified the M&A transactions according to their location (Africa, Asia, America, Europe, Oceania and South America).[6]

Association of Pharmaceutical Manufacturers (LMI) (Norway), Organisation of Pharmaceutical Producers of India (OPPI) (India), Pharma Isreal - The Association of the Research-Based Pharmaceutical Companies (Pharma Israel) (Israel), Pharmaceutical Association of Malaysia (PhAMA) (Malaysia), Researched Medicines Industry Association of New Zealand Inc. (RMI) (New Zealand), Research-georiënteerde Farmaceutische Industrie (NEFARMA) (Netherlands), Scottish Bionetwork Association (SBA) (United Kingdom), Syndicat National de l'Industrie Pharmaceutique (SNIP) (France), The Association of the British Pharmaceutical Industry (ABPI) (United Kingdom), The Australian Biotechnology Association (AusBiotech) (Australia), The BioIndustry Association - UK Biotech Sector (BioIndustry) (United Kingdom), The Danish Association of the Pharmaceutical Industry (LIF) (Denmark), The European Association for Bioindustries (EuropeBio) (Europe), The European Federation of Biotechnology (EFB) (Europe), The Pharmaceutical Research and Manufacturers of America (PhRMA) (United States of America), The Swedish Association of the Pharmaceutical Industry (LIF) (Sweden), The Toronto Biotechnology Initiative (TBI) (Canada), İlaç Endüstrisi Işverenler Sendikasi - Turkish Pharmaceutical & Chemical Manufacturers Association (IEIS) (Turkey), Verband der Diagnostica-Industrie e.V. (VDGH) (Germany), Verband Forschender Arzneimittelhersteller (VFA) (Germany), Verein zur Förderung der Humangenomforschung e.V. (Germany) and Washington Biotechnology and Biomedical Association (WBBA) (United States of America)

6 Countries belong to the regions as follows. Africa: Algeria, Angola, Antarctica, Benin, Botswana, Bouvet Island, British Indian Ocean Territory, Burkina Faso, Burundi, Cameroon, Cape Verde, Central African Republic, Chad, Congo, Congo (The Democratic Republic of), Côte d'Ivoire, Djibouti, Egypt, Equatorial Guinea, Eritrea, Ethiopia, Gabon, Gambia, Ghana, Greenland, Guinea-Bissau, Kenya, Komoren, Lesotho, Liberia, Libyan Arab Jamahiriya, Madagascar, Malawi, Mali, Mauritania, Mauritius, Mayotte, Morocco, Mozambique, Namibia, Niger, Nigeria, Réunion, Rwanda, Saint Helena, Sao Tome and Principe, Senegal, Seychelles, Sierra Leone, Somalia, South Africa, Sudan, Swaziland, Tanzania, Togo, Tunisia, Uganda, Western Sahara, Zambia, Zimbabwe. America: Anguilla, Antigua und Barbuda, Aruba, Bahamas, Barbados, Belize, Bermuda, Canada, Cayman Islands, Costa Rica, Cuba, Dominica, Dominican Republic, El Salvador, Gibrataltar, Grenada, Guatemala, Guinea, Haiti, Honduras, Jamaica, Martinique, Mexico, Montserrat, Netherlands Antilles, Nicaragua, Panama, Puerto Rico, Saint Pierre and Miquelon, Saint Vincent and the Grenadines, St. Kitts and Nevis, St. Lucia, Trinidad and Tobago, Turks and Caicos Islands, United States, Virgin Islands (British), Virgin Islands (U.S.). Asia: Afghanistan, Bahrain, Bangladesh, Bhutan, Brunei Darussalam, Cambodia, China, Hong Kong, India, Indonesia, Iran, Iraq, Isreal, Japan, Jordan, Korea (Democratic People's Republic of), Korea (Republic of), Kuwait, Lao People's Democratic Republic, Lebanon, Macao, Malaysia, Maldives, Mongolia, Nepal, Oman, Pakistan, Palestine, Philippines, Qatar, Saudi Arabia, Singpore, Sri Lanka, Syria, Taiwan, Thailand, Timor-Leste, United Arab Emirates, Vietnam, Yemen. Europe: Albania, Andorra, Armenia, Austria, Azerbaijan, Belarus, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Faroe Islands, Finland, France, French Guiana, Georgia, Germany, Greece, Holy See (Vatican City State), Hungary, Iceland, Ireland, Isle of Man, Italy, Jersey, Kazakhstan, Krygyzstan, Latvia, Liechtenstein, Lithuania, Luxembourg, Macedonia, Malta, Moldova (Republic of), Netherlands, Norway, Poland, Portugal, Romania, Russian Federation, San Marion, Slovakia, Slovenia, Spain, Sweden, Switzerland, Tajikistan, Turkey, Turkmenistan, Ukraine, United Kingdom, Uzbekistan. Oceania: Australia, Christmas Island, Cocos (Keeling) Islands, Cook Islands, Fiji, French Polynesia, Heard Island and McDonald Islands, Kiribati, Marshall Islands, Micronesia (Federated States of), Nauru, New Caledonia, New Zealand, Niue, Norfolk Island, Nothern Mariana Islands, Palau, Papua New Guinea, Pitcairn,

To further categorize the M&A transactions, we used the classification suggested by Bower (2001) and referred to press releases, newspaper articles and other available documents to determine the main motive for the transaction.

The GDP data used in this study was obtained from the International Monetary Fund (2006), and the variable used is gross domestic product, current prices, in billion US dollars for the year 2002.[7]

RESULTS

Descriptive Analysis

Overall, information on 6,432 companies could be gathered. These companies have been involved in 5,020 completed M&A transactions between 1851 and 2002 (see Figures 1 and 2). Before the year 1900, 49 transactions took place, a number that grew to 260 transactions in the first half of the 20th century, and up to 3,188 in the second half. In the years 2000 to 2002 alone, 1,421 M&A deals were consummated.

Samoa, Solomon Islands, Tokelau, Tonga, Tuvalu, Vanuatu, Wallis and Futuna. South America: Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Falkland Islands (Malvinas), Guyana, Paraguay, Peru, Suriname, Uruguay, Venezuela.

[7] Data were available for the following regions and countries. America: Antigua and Barbuda, Bahamas, Barbados, Belize, Canada, Costa Rica, Dominican Republic, El Salvador, Grenada, Guatemala, Haiti, Honduras, Jamaica, Mexico, Netherlands Antilles, Nicaragua, Panama, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, Trinidad and Tobago, United States. Europe: Albania, Armenia, Austria, Azerbaijan, Belarus, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Georgia, Germany, Greece, Hungary, Iceland, Ireland, Italy, Kazakhstan, Latvia, Lithuania, Luxembourg, Macedonia, Malta, Moldova, Netherlands, Norway, Poland, Portugal, Romania, Russia, Serbia and Montenegro, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Tajikistan, Turkey, Turkmenistan, Ukraine, United Kingdom. South America: Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Guyana,Paraguay, Peru, Suriname, Uruguay, Venezuela. Africa: Algeria, Angola, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Cape Verde, Central African Republic, Chad, Comoros, Congo (Democratic Republic of), Congo (Republic of), Côte d'Ivoire, Djibouti, Ecuador, Egypt, Equatorial Guinea, Eritrea, Ethiopia, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Libya, Madagascar, Malawi, Mali, Mauritania, Mauritius, Morocco, Mozambique, Namibia, Niger, Nigeria, Rwanda, São Tomé and Príncipe, Senegal, Seychelles, Sierra Leone, South Africa, Sudan, Swaziland, Tanzania, Togo, Tunisia, Zambia, Zimbabwe. Asia: Afghanistan, Bahrain, Bangladesh, Bhutan, Brunei Darussalam, Cambodia, China, Hong Kong, India, Indonesia, Iran, Israel, Japan, Jordan, Korea, Kuwait, Lao People's Democratic Republic, Lebanon, Malaysia, Maldives, Mongolia, Nepal, Oman, Pakistan, Philippines, Qatar, Saudi Arabia, Singapore, Sri Lanka, Syrian Arab Republic, Taiwan Province of China, Thailand, Timor-Leste, United Arab Emirates, Vietnam, Yemen. Oceania: Australia, Fiji, Kiribati, New Zealand, Papua New Guinea, Samoa, Solomon Islands, Tonga.

Figure 1: Mergers & Acquisitions in the Pharmaceutical Industry (1851-2002)

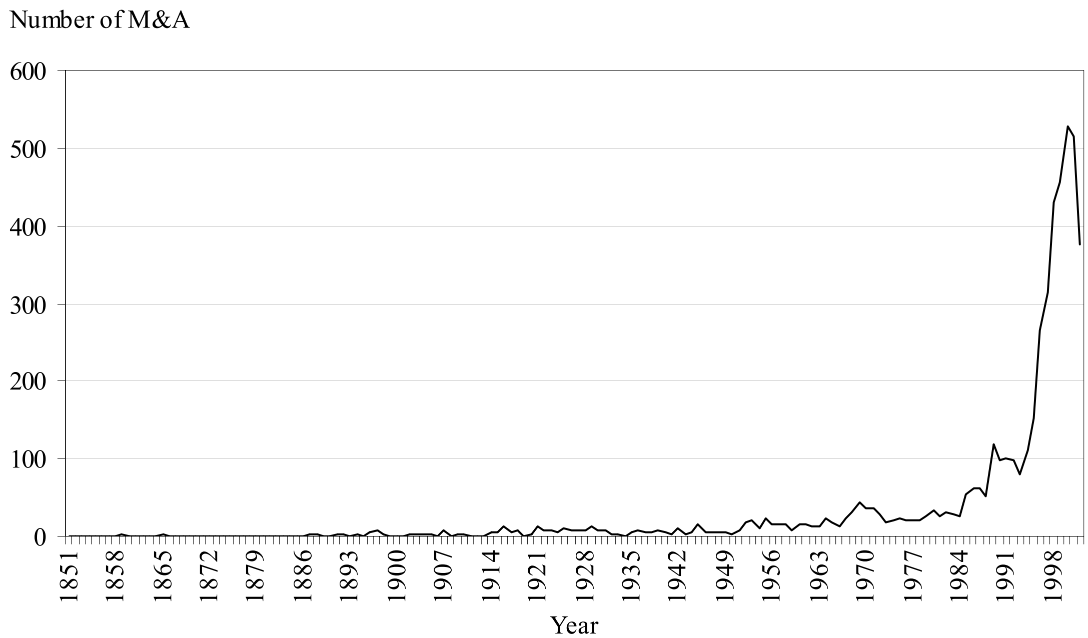
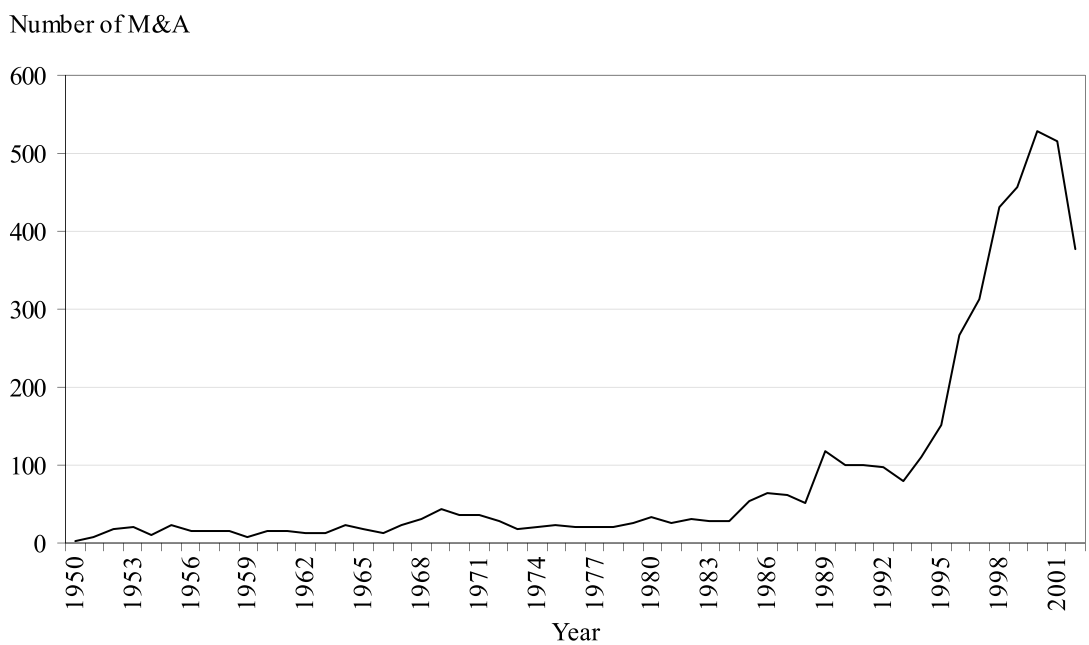


Figure 2: Mergers &Acquisitions in the Pharmaceutical Industry (1950-2002)



For a geographical breakdown of target, buyer and seller companies, see Table 1. Of all these M&A transactions, 63 target companies were situated in South America, a number that represents 1.25% of all deals (1.37% when excluding all transactions for which country information was not available). South American buyers are involved in 16, or 0.32%, of all M&A deals (0.35% excluding unknown cases). In 20 cases or 0.40% of all deals, the sellers stem from South America (0.91% excluding unknown cases).

Table 1: Geographical Origin of Target, Buyer and Seller Company by Continent (1851-2002)

	Target	Buyer	Seller
Europe	2248	2414	1143
America	1900	1908	856
Asia	276	213	130
S.America	63	16	20
Oceania	77	54	25
Africa	45	13	16

The breakdown for transactions with regard to year and continent are given in Table 2. The M&A transactions have been classified based on the location of the target company.

Table 2: Year of Merger & Acquisition of the Target Company by Continent

	Europe	America	Asia	Africa	S.America	Oceania
1851-1959	315	82	15	3	17	5
1960-1964	42	24	3	5	0	1
1965-1969	72	37	4	4	4	1
1970-1974	81	36	13	2	4	1
1975-1979	55	42	4	2	3	3
1980-1984	65	53	11	2	2	1
1985-1989	142	149	10	2	1	2
1990-1994	214	200	16	4	3	2
1995-1999	630	676	90	13	20	14
2000-2002	578	583	109	6	8	46

Information on many M&A transaction is difficult to obtain. Nevertheless, 2,469 M&A transactions were classified according to their strategic intention. The distribution of transactions and their intentions by continent is listed in Table 3.

Table 3: Strategic Intentions of M&A by Acquiring Company and Its Origin by Continent

	Extention	Overcapacity	Geographic	R&D	Convergence
Europe	679	150	133	156	28
America	665	113	105	210	43
Asia	66	16	5	8	1
South America	3	0	2	0	0
Oceania	11	1	1	2	3
Africa	1	1	0	0	0

Statistical Results

To test hypothesis 1, we used the correlation between the number of M&A transactions per continent and year. For a summary of the correlation test see Table 4. To account for the many years where only few transactions took place, we carried out a robustness test with a second correlation analysis for the years from 1980 to 2002 (see Table 5). From the analysis, we can conclude that hypothesis 1 is corroborated; M&A activity does correlate over continents at a statistically significant level over a shorter and longer period of time. For regions with little M&A activity such as Africa, Oceania and South America, this relationship is weaker; M&A Activity in South America follows a time pattern that is most similar to Europe.

Table 4: Correlation between M&A Activity and Continent (1851-2002)

		Europe	America	Asia	Africa	S.America	Oceania
Europe	Pearson Correlation	1	,978(**)	,934(**)	,612(**)	,658(**)	,800(**)
	Sig. (2-tailed)		,000	,000	,000	,000	,000
	N	152	152	152	152	152	152
America	Pearson Correlation	,978(**)	1	,943(**)	,666(**)	,621(**)	,812(**)
	Sig. (2-tailed)	,000		,000	,000	,000	,000
	N	152	152	152	152	152	152
Asia	Pearson Correlation	,934(**)	,943(**)	1	,593(**)	,551(**)	,892(**)
	Sig. (2-tailed)	,000	,000		,000	,000	,000
	N	152	152	152	152	152	152
Africa	Pearson Correlation	,612(**)	,666(**)	,593(**)	1	,374(**)	,500(**)
	Sig. (2-tailed)	,000	,000	,000		,000	,000
	N	152	152	152	152	152	152
S.America	Pearson Correlation	,658(**)	,621(**)	,551(**)	,374(**)	1	,376(**)
	Sig. (2-tailed)	,000	,000	,000	,000		,000
	N	152	152	152	152	152	152
Oceania	Pearson Correlation	,800(**)	,812(**)	,892(**)	,500(**)	,376(**)	1
	Sig. (2-tailed)	,000	,000	,000	,000	,000	
	N	152	152	152	152	152	152

** Correlation is significant at the 0.01 level (2-tailed).

Table 5: Correlation between M&A Activity per Continent (1980-2002)

		Europe	America	Asia	Africa	S.America	Oceania
Europe	Pearson Correlation	1	,966(**)	,910(**)	,535(**)	,735(**)	,770(**)
	Sig. (2-tailed)		,000	,000	,009	,000	,000
	N	23	23	23	23	23	23
America	Pearson Correlation	,966(**)	1	,925(**)	,660(**)	,685(**)	,784(**)
	Sig. (2-tailed)	,000		,000	,001	,000	,000
	N	23	23	23	23	23	23
Asia	Pearson Correlation	,910(**)	,925(**)	1	,525(*)	,571(**)	,894(**)
	Sig. (2-tailed)	,000	,000		,010	,004	,000
	N	23	23	23	23	23	23
Africa	Pearson Correlation	,535(**)	,660(**)	,525(*)	1	,301	,456(*)
	Sig. (2-tailed)	,009	,001	,010		,162	,029
	N	23	23	23	23	23	23
S.America	Pearson Correlation	,735(**)	,685(**)	,571(**)	,301	1	,299
	Sig. (2-tailed)	,000	,000	,004	,162		,166
	N	23	23	23	23	23	23
Oceania	Pearson Correlation	,770(**)	,784(**)	,894(**)	,456(*)	,299	1
	Sig. (2-tailed)	,000	,000	,000	,029	,166	

N	23	23	23	23	23	23

** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).

For hypothesis 2, we looked for correlation between the number of M&A and the GDP per region (see Table 6). As expected, the correlation for these variables is positive and statistically significant, hence hypothesis 2 is corroborated: The number of M&A transactions correlates with the development and size of an economy measured in the form of GDP.

Table 6: Correlation between GDP and Number of M&A Transaction

		Number	GDP
Number	Pearson Correlation	1	,859(*)
	Sig. (2-tailed)		,029
	N	6	6
GDP	Pearson Correlation	,859(*)	1
	Sig. (2-tailed)	,029	
	N	6	6

* Correlation is significant at the 0.05 level (2-tailed).

The third hypothesis warrants additional data which we do not have at this early stage of the research; the intention is to do a separate Chi-square analysis for all continents in order to look into the differences in strategic intentions between them. For the time being, we can compare Europe, America and rest of the world (i.e. Africa, Asia, Oceania and South America). Looking into the actual and expected counts (given in Table 8), we notice that the only significant differences are in overcapacity and R&D for the US, in geographic roll-up, overcapacity and R&D for Europe, and only in R&D for the rest of the world. While these differences are statistically significant (see also Table 7), they are rather limited in number. As a result, we see hypothesis 3 corroborated: It is rather the industry than the geographic background that determines M&A intentions.

Table 7: Chi-Square Crosstabulation for M&A Strategic Intention and Region

		Strategic Intention					Total
Region		CONVERGE	EXT	GEO	OVERCAP	R&D	
America	Count	43	665	105	113	210	1136
	Exp. Count	35,5	673,7	116,3	132,8	177,8	1136,0
	Adj. Residual	1,8	-,7	-1,5	-2,5	3,6	
Europe	Count	28	679	133	150	156	1146
	Exp. Count	35,8	679,6	117,3	134,0	179,3	1146,0
	Adj. Residual	-1,8	,0	2,1	2,0	-2,6	
Rest	Count	4	81	8	18	10	121
	Exp. Count	3,8	71,8	12,4	14,1	18,9	121,0
	Adj. Residual	,1	1,8	-1,4	1,1	-2,3	
Total	Count	75	1425	246	281	376	2403
	Exp. Count	75,0	1425,0	246,0	281,0	376,0	2403,0

Table 8: Chi-Square Test for M&A Strategic Intention and Region

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	28,372(a)	8	,000
Likelihood Ratio	29,238	8	,000
N of Valid Cases	2403		

a 1 cells (6,7%) have expected count less than 5. The minimum expected count is 3,78.

CONCLUDING REMARKS

This study has investigated mergers & acquisitions in the pharmaceutical industry with a special focus on the strategic intentions behind M&A activity in South America. In order to analyze this, we created our own set of data on M&A transactions by gathering information on over 6,000 pharmaceutical companies worldwide, which resulted in information on 5,020 M&A deals.

With regards to M&A activity, we found that this phenomenon is not limited to some parts of the world such as the US and UK but is rather a truly international one. The time pattern of M&A activity between regions is related, though the correlation is lower for regions with less activity. Indeed, it might be interesting for future research to look into factors other than the general industry trend that come into play to explain this occurrence. We also noticed that M&A activity is strongly and positively related to the development and size of the economy measured as GDP. Our analysis of strategic intention shows statistically significant differences in strategic intentions of M&A transactions per region, however these differences are small in number, which leads us to believe that the main driving force behind M&A motives and strategies lies rather in the industry than in the country.

In sum, the results of this study imply that M&A have always been an international phenomenon rather than one stemming from the United States and/or United Kingdom. Furthermore, M&A follow an industrial logic on an international scale, which means that companies should pursue a global view while realizing growth strategies.

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