Geographical Dynamics in the Old and New Economy – Analysing the German Merger and Acquisitions Market

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ABSTRACT

The recent wave of mergers and acquisitions (M&As) is not only profoundly altering the structure of businesses, but has also triggered a thorough reshuffling in the location of economic activity. This paper explores these changes in Germany over the last decade, with particular attention being paid to industry-specific transformations. In order to identify the logic behind changes in the location of economic activity and decision-making, four factors are analysed across ten different industrial sectors. These factors include the presence of economies of proximity and agglomeration, the degree of metropolitan interconnectivity (or 'archipelago economies'), the concentration of economic activity in large urban metropolitan areas, and the role played by geographical distance in shaping M&As. The results indicate that a simple old *vs.* new economy dichotomy does not explain changes in the location of economic decision-making and activity across sectors. The evolution of the location of economic activity in Germany is fundamentally dependent on local, institutional and, above all, industry-specific characteristics. The conclusions stress the need for a relational conceptualisation of corporate takeovers and provide suggestions for future research.

Key words: Mergers & acquisitions, industry sectors, old and new economy, gravity model, Germany

INTRODUCTION

Since the mid 1980s most of Europe and the developed world experienced an unprecedented wave of mergers and acquisitions (M&As) that only faded away during the economic downturn at the beginning of the 21st century. In 2000 the global market for M&As represented US$ 3,498 billion[1] (UN 2002). Germany, together with the US and the UK, was one of the three most important markets for M&As (Economic Intelligence Unit 1996; OECD 2000). During the 1990s alone, around 30,000 corporate takeovers involved at least one German firm.

This massive number of takeovers[2] has led to important changes not just in the structure of businesses, but also to a thorough reshuffling in the location of economic activity and decision-making. In Germany and elsewhere, M&As have contributed to an increasing concentration of firms and corporate control in core regions and urban agglomerations and to the reinforcement of existing headquarter locations as major economic control nodes (Ò hUhallachàin 1994; Green and Mayer 1997; Chapman and Edmond 2000; Rodríguez-Pose and Zademach 2003; see also Duranton and Puga 2003). Yet whereas research on corporate takeovers from a microeconomic perspective is extensive, the number of empirical studies examining its overall effects on the location of economic activity is still relatively small. In particular the relevance of place-specific attributes in M&A decisions remains a deeply neglected topic in geographical research.

This paper builds on Rodríguez-Pose and Zademach's (2003) exploration of the impact of the wave of M&As in the 1990s on the changing geography of economic activity in Germany. Its aim is to deepen our understanding of the role played by location factors in M&A activity, paying particular attention to a dynamic examination of the changes in the spatial distribution of M&As across ten German industrial sectors, which range from knowledge intensive, so-called 'new economy' industries such as financial services, media, or information and communication technologies (IC/CT) to more traditional 'old' sectors like automotive, heavy manufacturing, or the textile industry. Taking the *M&A Review database* of the German *Handelsblatt* group as the source of data, we examine German M&As during the 1990s in order to identify different types

of processes and their spatial impact across sectors. We first focus on the possible existence and significance of local clustering processes, i.e. *economies of proximity and agglomeration*, and the *degree of metropolitan interconnectivity* (or ‘archipelago economies’). Second, the gravitational forces different industrial sectors are exposed to are scrutinized, highlighting whether there is a *tendency towards concentration* of economic activity in large agglomerations. Finally the changing role of *geographical distance* and its effect on M&As is studied.

The paper is divided into four further sections. In order to provide some insights about the territorial impact of M&As dynamics, section two reviews the still relatively scarce literature addressing M&A from a spatial perspective. After a brief description of the database and the methodology, section three focuses on the territorial dynamics of the wave of M&As in Germany. In section four, these territorial dynamics are examined in five ‘new’ (financial services, insurance, transport, media and IC/CT) and five ‘old’ economy (heavy manufacturing, automotive, energy, chemicals and textiles). Section five finally presents some concluding remarks.

CORPORATE TAKEOVERS IN SPATIAL PERSPECTIVE

As today’s dominant form of foreign direct investment in developed countries, M&As have become one of the main drivers of industrial restructuring. Firms engage in M&A activity for several reasons. The basic strategic corporate objectives include the search for new markets, increased market power and dominance, greater size and scope, efficiency gains through synergies, and geographic and product line diversification, i.e. the spreading of risk. Corporate takeovers enable firms to quickly access strategic assets, such as skilled labour, patents, brands, licenses, or management skills (Porter 1990; Trautwein 1990; Berkovitch and Narayanan 1993; Dunning 1997). Further central factors motivating firms to undertake M&As are financial enticements – like tax treatment and subsidies, transfer pricing, trade barriers, transportation costs, or monopoly type practices (Ravenscraft and Scherer 1987; Healy *et al.* 1992; Loughran

and Vij 1997; compare also Clark 1993; Wrigley 1999) – and personal or behavioural attributes (Shleifer and Vishny 1989; Avery *et al.* 1998; Shinn 1999).

The basic rationale behind M&As is thus one of achieving greater efficiency. But corporate takeovers and mergers not only lead to firm restructuring and economic change (see Curry and George 1983; Jensen and Ruback 1983; Davies and Lyons 1996; Nilsson and Schamp 1996). They also have profound political and socio-institutional implications and are by no means an 'aspatial phenomenon': strategic decisions on the transfer of assets and control affect not only the firms involved, but also both the locations and environment with which they are associated and the organisational and geographical shape of industries as a whole. In brief, M&As have become one of the keys in shaping the location of economic activity and decision-making.

The spatial impact of M&As assumes many forms. First, a number of studies have highlighted the link between M&As and the spatial concentration of economic activity in core areas, with M&As reinforcing the role of cites as locations of power and control (e.g. Rodríguez-Pose and Zademach 2003; compare also Friedman 1986; Sassen 1991; 2000; Castells 1996; Taylor 2000; Duranton and Puga 2003). Second, given the aforementioned link, M&As contribute to exacerbate territorial disparities (Chapman and Edmond 2000) and lead to changes in urban hierarchies (Green 1990). Third, M&As foster functional links between cities with similar roles in a world economy, overcoming distance and generating a sort of "archipelago economy", by which the connection between distant cities is greatly enhanced, at the expense of the relationship between a region and its hinterland (Veltz 1996, 2000).

Yet, despite their increasing importance, comprehensive comparative empirical studies addressing the spatial impact of corporate takeovers – be it at aggregate, industry, or firm level – remain scarce. "Why [do] recent developments of enormous economic geographical impact such as … corporate mergers receive such short shrift"? (Markusen 2001, p. 2). The main reason behind the relative neglect of the importance of M&As in geographical location analyses has traditionally been limited data availability (Sachwald 1994; Chapman and Edmond 2000). Until

recently the data sets on M&As were scarce and/or unreliable. However, over the last few years corporate data sets have improved and the study of M&As has become more popular within economic geography. A great majority of recent studies, however, focuses explicitly on one industry (e.g. Ashcroft and Love 1993; Lagendjik 1995; Nuhn 1999a, 2004; Chapman and Edmond 2000; Lo 2000), or studies a single case of a firm or M&A transaction (e.g. Bathelt and Griebel 2001, Nuhn 1999b, 2001; Zeller 2003; see also Green and Mayer 1997 for a more comprehensive literature review). Though this type of research has delivered inspiring insights and empirical evidence about the motives driving M&As and about post-merger or acquisition restructuring processes, they unfortunately offer very little insight into the role played by location attributes in takeover activity, the extent to which place-specific advantages affect merger decisions, how takeover activity affects economic location, and particularly how sectoral structural characteristics relate to more general M&A patterns.

Industry characteristics, such as sectoral growth prospects, market structure and competition, have however a strong influence on corporate takeovers (OECD 2001, p. 30). This becomes manifest when the a priori distinct locational patterns of the ’old‘ (i.e. primarily mature manufacturing industries) and the globalised, information-based socio-economic formation (Martin 2002) of the ‘new economy’ are compared. On the one hand, the new economy is characterized by dynamic markets, networked organisation forms and digitisation as key technological driver (Kelly 1998; Gillespie *et al.* 2001; Martin *et al.* 2003). Its industries are specialized in the provision of fundamentally immaterial intellectual outputs, that can be transported online virtually without costs. New economy sectors fundamentally depend on processes of knowledge creation, interactive learning and innovation, in which human and social capital, R&D activity and the attraction of talent are key determinants for success. In order to survive and progress, new economy companies are often compelled to look for partners from whom such intangible assets can be obtained and absorbed.

On the other hand, old economy manufacturing firms rely on material goods, economies of scale, exports and physical capital as the main sources of value. The dominant technological mode of mature industrial sectors is mechanisation; job specific skills are therefore more important than broad skills, flexibility and adaptability, and R&D activities are of rather low or moderate importance. Although traditional sectors increasingly use new economy technologies such as ICT, costs and availability of labour and real estate, provision of space, access to road networks and transport infrastructure as well as proximity to markets are still key in their location decisions.

These two very diverse forms of industrial organisation could be expected to generate different location patterns. Old economy activities, given their need for extensive spaces, would look, following a Weberian tradition, for proximity to markets, raw materials, energy and labour, with transport costs having a capital role in their ultimate location. Restructuring of old economy activities through M&As is unlikely to alter this territorial pattern. New economy activities, in contrast, rely enormously on the distance-transcending capabilities of new technologies. This in theory allows for much greater flexibility in terms of location, with economic activity capable of emerging almost anywhere. Such a "weightless economy" (Quah 1996, 1997; Coyle 1997) and the "death of distance" (Cairncross 1997) in the new economy could result in a much greater dispersal of economic activity. Many of the characteristics of the new economy point, however, in an opposite direction. According to Leamer and Storper (2001), the new economy – while permitting a decentralization of certain routine activities – contributes to reinforcing urban concentration and agglomeration. Economic success in the new economy often hinges on the creation of networks, on social interaction, locally based tacit knowledge and personal contacts – factors whose genesis is significantly facilitated by geographical proximity. The emergence of strong clustering effects such as the concentration of 'dot.com' start-ups or multimedia industries in major cities like London, New York or Los Angeles is one spatial expression of the new economy (e.g. Scott 1996; Pratt 2000; Grabher 2001, 2002; Florida 2002; compare also Martin

and Sunley 2003). Many of the essential factors in the new economy are, in turn, central dimensions in M&A activity as well. Under these circumstances, M&As in new economy sectors could reinforce the agglomeration of economic activity, perpetuating core-periphery patterns.

The varying characteristics and location requirements of specific industrial sectors not only determine the spatial modes of production, but also the contextual dimension and social relations in which processes of decision-making about M&As take place. Against the background of the differing structural and locational features of the old and the new economy and the various strategic dimensions underlying the recent wave of M&As, corporate takeovers cannot merely be seen as the outcomes of atomistic utility maximisers. They are rather the result of decisions of individual economic actors involved in corporate strategy; these actors are embedded in structures of social relations through which they communicate their decisions and within which power relations shape their choices (Bathelt and Glückler 2002, 2003). Corporate M&As thus have characteristics of social processes. The choice of a M&A target depends on regular communication within and between firms and the decision-making process on a M&As builds on competencies that are distributed among a variety of different economic actors. This requires collective action and interactive problem solving. Consequently, corporate mergers constitute relational phenomena, taking place in the particular context of a specific location or industry (compare also Dicken and Malmberg 2001, Bathelt and Boggs 2003).

In addition to being contextual, M&As are also relational in that they are contingent and path-dependent: M&A activities are based on past, often irreversible actions that determine future corporate strategic decisions. In that way, a firm's target choice (or its attitude towards a takeover bid) relies on values emerging from previous transactions. That is, the trajectories of the firms involved affect their actions in a merger or acquisition; yet the way in which M&As shape future corporate strategy and interactions are at first open and undetermined. In addition, uncertainty represents a crucial factor in M&A activity.

This relational perspective has distinct consequences for the understanding of M&A decisions, the role of location-specific attributes in corporate takeovers and the spatial outcomes of corporate mergers. At first, contextuality implies that changes in the structure of M&A activity arise from strategic decisions which are path-dependent and contingent. The path-dependency and contingency of M&A decisions, in turn, causes different takeover patterns. Being bound to a particular set of locally embedded agents and institutions M&A decisions are context-dependent and vary therefore significantly across different locations and particularly industries. As the adjustment of dynamic conventions and relations requires the co-presence of agents, it is most efficiently conducted through co-location (Storper 1997), geographic proximity and agglomeration economies.

THE RESHAPING OF ECONOMIC ACTIVITY IN GERMANY BY MEANS OF M&A

Given the theoretical reflections about the strategic determinants and the role of location-specific attributes in M&A activity, their spatial implications and the conceptualisation of corporate takeovers as relational processes in the previous section, several hypotheses can be derived.

- First, the wave of M&As in Germany of the last decade should have led to a profound restructuring and relocation of economic decision-making and activity. This relocation is likely to have been considerably influenced by economies of proximity and agglomeration, with geographical distance probably playing a waning, albeit not insignificant, role.
- Second, the combination of a waning role of geographical distance with the increasing importance of proximity and agglomeration could have encouraged the formation of a landscape of ‘rising metropoli’ (Rodríguez-Pose and Zademach 2003) or an ‘archipelago economy’ (Veltz 2000), dominated by an increasing degree of metropolitan interconnectivity.
- In the third place, as outcomes of contextual and path-dependent strategic corporate decisions, the patterns of M&As should vary significantly across different industries, and most notably between the new economy sectors and the more traditional, mature manufacturing industries.

In the remainder of this section we will try to test the validity of the first and the second hypotheses, following a brief description of the data base and a concise exploration of the analytical instruments applied. The industry specific differences of M&A activities in the 1990s are subsequently addressed in section four.

Data and methodology – The M&A Review database is the most comprehensive record of recent M&A activity in Germany. It provides information on more than 29,000 M&As that took place in the 1990s, in which at least one German firm was involved, and classifies – whenever possible – each acquisition by location, industry and type.[3] As with all data sources on M&As (see e.g. Green and Mayer 1997; Chapman and Edmond 2000), there is unfortunately little information on the value of the transactions, i.e. a takeovers' economic significance. Nevertheless, frequency counts represent a good indicator of the overall level of M&A activity and its wide-ranging trends.[4]

From a methodological point of view, we follow a three step approach: first, a location quotient – standardized by regional GDP – is estimated, in order to identify the *relative* weight of M&As in each of the 40 German *Regierungsbezirke*, the administrative unit below the *Länder* (Appendix 1). 24,600 corporate takeovers between 1990 and 1999 in which the acquiring firm was German are used for the calculation of the quotient. The location quotient is then visualized in a series of maps, highlighting the main changes within the German geography of M&As during the period of investigation.

The second step consists of an analysis of the different markets of M&A across the various German sectors and focuses on a total of 19,034 intranational transactions, excluding the cases for which the dataset provides no industry-specific information. The aim of this part of the analysis is to set up basic classification of the spatial characteristics of sector-specific takeover activities. Ten different industries are covered in the analysis, in order to allow for a comprehensive illustration of how M&A specificities vary across sectors. These include financial services, insurance and transport industries, as well as media and IC/TC for the new

economy; and heavy manufacturing, automotive, energy, chemicals and textiles for the old economy. More than 11,000 intranational deals were conducted during the 1990s in these ten industries alone, making them the most dynamic sectors in Germany in terms of M&As activity[5] (Mergers & Acquisitions 2003).

In this second step a descriptive examination of the specifics of M&As across each selected industry is executed. Two criteria form the basis for the classification of types of M&As according to sector: *economies of proximity*, measured by the number of M&As that have been conducted within the same Regierungsbezirk (province), and *metropolitan interconnectivity* – as an indicator of the 'archipelago economies' in Germany – estimated as the proportion of transactions undertaken only within and between the six most important German centres of corporate M&As (Frankfurt, Düsseldorf, Hamburg, Munich, Berlin and Cologne).

The third and final step of the analysis is a multiple regression analysis that, in essence, constitutes the estimation of a gravity model[6]. In logarithmic form, the model is as follows:

$$M\&A_{ij,t} = \alpha + \beta_1 \ln GDP_{i,t} + \beta_2 \ln GDP_{j,t} - \beta_3 \ln Dist_{ij} + \varepsilon \qquad [1]$$

where the number of M&As that took place between region i (where the acquiring firm is situated) and region j (locating the M&A target) in each year of investigation t (1990-99) is a function of the regional GDP in the two *Bezirke* involved, indicating the respective level of agglomeration, as well as the geographical distance between the acquiring firm and its target.[7] The estimates of the economic effects are depicted by the correlation coefficients β_1, β_2 and β_3 respectively; finally, α denotes the constant, and ε the error term. As the regressions are conducted for every year in the database and for each of the ten industries included in the analysis, a dynamic picture of the processes at work in each of the considered sectors as well as the changing role of geographical distance in the geography of M&A emerges.

An emerging archipelago economy? – The German economic geography of M&As in the 1990s has three important features. First of all, corporate takeovers in Germany are economic

processes in which economies of proximity and agglomeration play a key role. By far the greatest share of M&As occured either within the same *Regierungsbezirk*, or among large metropolitan areas. In more than a third of all German M&As during the 1990s, the acquiring firm and its target were located in the same *Regierungsbezirk* (Rodríguez-Pose and Zademach 2003). Apart from localisation economies (external to the firm, internal to the industry) and urbanisation economies (external to the industry, internal to the local economy, i.e. skilled labour pooling, knowledge spillovers and scale economies in infrastructure provision, for instance), other factors, such as the role played by institutional investors deserve special attention as potential determinants of this huge geographical concentration of M&As. For financial intermediaries such as the *Länder*, banks and insurance companies – being particularly relevant in the "German model" of corporate governance, as the primary owners of companies on the local and regional level (Gorton and Schmidt 1996; Streeck 1997; Berndt 1998; Franks and Meyer 2001; Wójcik 2002; Clark and Wójcik 2003) – distance would be a significant obstacle in exercising control. Local embeddedness (Granovetter 1985; see also Glückler 2001; Hess 2004), characterised by the presence of locational assets, localised capabilities and, not least, by the possibility for frequent "personal or handshake" interaction, face-to-face communication and "emotional closeness" (Leamer and Storper 2001; Storper and Venables 2004), also contributes to explain the geographical concentration of M&As.

The significance of agglomeration economies for M&As in Germany is even more striking if only the most important German M&A metropoli are taken into consideration. Their intraregional transactions alone (i.e. not the M&As performed *between*, but only *within* them) account for close to a fifth of all intranational M&As. This figure climbs to 22.3%, if the top ten German agglomerations are taken into consideration (Stuttgart, Karlsruhe, Hanover and Bremen, in addition to the six key nodes already mentioned). Overall, more than 55% of all intranational transactions involved at least a firm located in one of the six most important German centres of

M&As; and if, again, the top ten German urban regions are taken into account, almost 70% of the overall German M&A activity is concentrated in large metropolitan areas.

The second key characteristic of the German M&A economic geography is the interconnectivity of the largest metropolitan areas. In line with Veltz's archipelago economy, 33% of all intranational M&As in Germany during the 1990s took place only within and between the six largest German metropolitan areas. And the share of intrametropolitan transactions kept on growing throughout the decade. If only the M&As conducted from the six key nodes are considered, the percentage rises to more than three fifths of all transactions. This can be taken not only as a strong indication of the increasing concentration of economic decision-making in a small number of agglomerations, but also of the strengthening of the interactions and linkages between these points of control, at the expense of their regional contexts.

The third important aspect of the spatial distribution of M&As in Germany is related to distance. Once agglomeration factors are controlled for, corporate transactions are more likely to happen between nearby, rather than distant cities (Rodríguez-Pose and Zademach 2003). This insight corresponds to the findings of Wójcik (2003), who also demonstrates that geography must be regarded as a crucial dimension in the German model of corporate governance:

> "… proximity breeds corporate ownership and control links, and corporate governance, even at the subnational level, is by no means spatially uniform." (*ibid.*, p. 1455).

Accordingly, companies tend to be financed and/or controlled by entities with nearby headquarters.

The territorial dynamics of M&As in Germany – These agglomerating and centralising trends are confirmed by the mapping of our location quotient of M&As. In the years around and immediately after Reunification (1990-94), the overall German geography of M&As was characterised by marked differences between the spatial distribution of acquiring and target firms (Figure 1). The restructuring and the reorganisation of production in the former German

Democratic Republic (GDR) triggered a significant number of intranational M&As between Western and Eastern firms, with Western firms as the main acquirers. Relative to the GDP of the region, firms in the *New Länder* became the primary target of Western firms. All East German *Bezirke* had more transactions per region than the German average. Leipzig (with a location quotient of 3.60), Dresden (3,05) and Chemnitz (2.64) (the three regions of Saxony), Magdeburg (3.44) and Halle (3.05) in Saxony-Anhalt as well as Thuringia (3.09) and Mecklenburg-Western Pomerania (2.88) were the main target regions during this period.

a.) Acquiring firms 1990-94 b.) M&A targets 1990-94

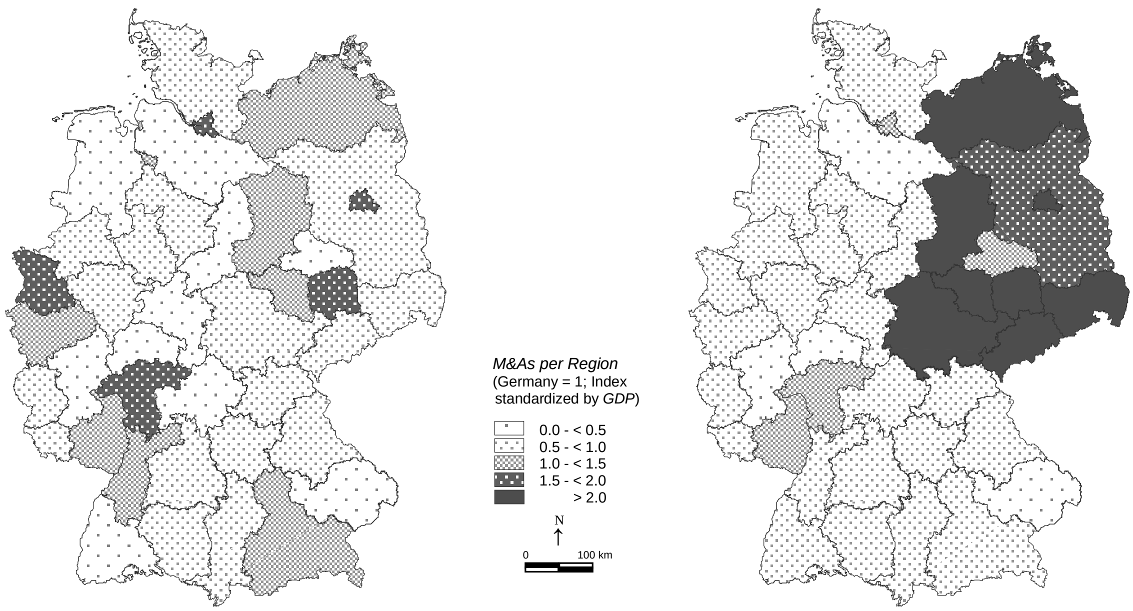


Figure 1. *Acquiring firms and M&A targets in Germany 1990-94.*

Acquiring firms, on the other hand, were primarily located in the large Western metropolitan areas. Berlin[8], with a location quotient of 1.79 was top, followed closely by Frankfurt (1.71), Düsseldorf (1.70) and Hamburg (1.70). Yet some eastern *Bezirke*, such as Mecklenburg-Western Pomerania (1.10), Magdeburg (1.24), Halle (1.28) and Leipzig (1.52) also had above average ratios. In spite of the performance of these four eastern regions, the post-Reunification period was characterised by a significant overall loss of corporate control in the whole of East Germany.

The second half of the 1990s represented a sharp turnaround in this process. The East-West dimension of the M&As market during the first half of the decade lost all relevance and was substituted for by a complete dominance by large urban areas (Figure 2).

a.) Acquiring firms 1995-99 b.) M&A targets 1995-99

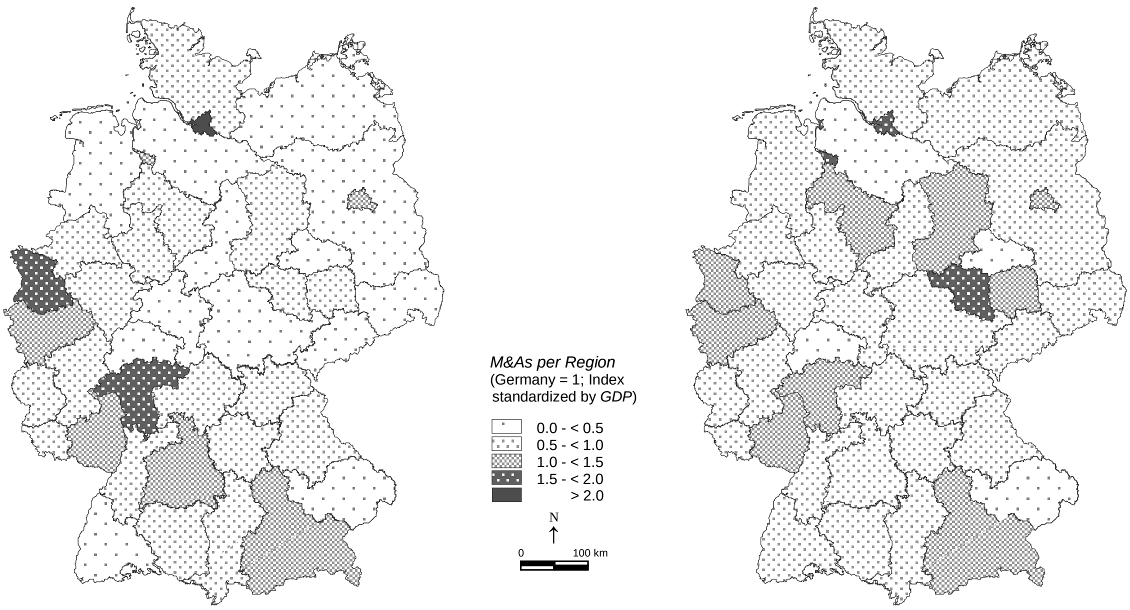


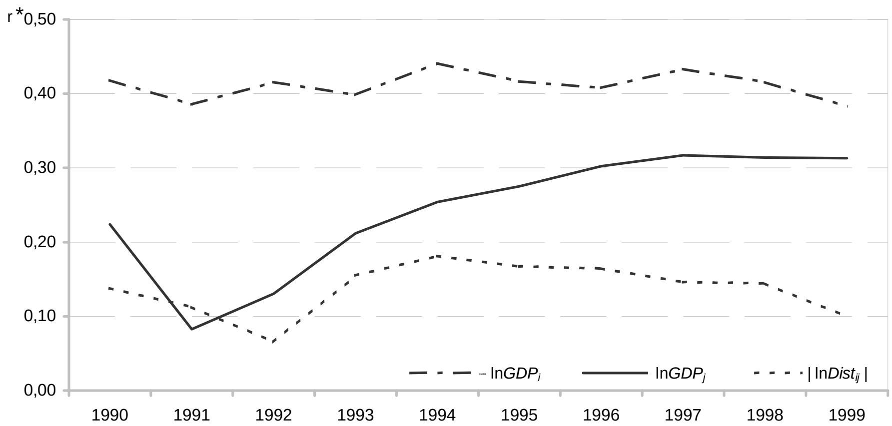
Figure 2. *Acquiring firms and M&A targets in Germany 1995-99.*

From the acquiring point of view, the panorama is one of continuity. Hamburg (2.02), Düsseldorf (1.80) and Frankfurt (1.73) represent the three most important acquiring centres, while Munich, Cologne, Berlin, Bremen, Stuttgart and Rhinehesse-Palatinate also punch above their economic weight. The only significant change is the increase in the relative share of the firms in these regions as acquirers. The picture changes radically, however, on the target side. With the sole exceptions of Halle, Magdeburg and Leipzig – remnants of the earlier East-West trend – M&A target firms become increasingly concentrated in large metropolitan areas. The greatest relative concentration of targets is found in the two city states of Hamburg (1.84) and Bremen (1.76). Frankfurt (1.41), Düsseldorf (1.34), Berlin and Munich (both 1.24) as well as Cologne (1.13) also score above the national average in this classification. During the second half of the decade, the largest German metropolitan areas had thus become the most dominant

locations both for acquiring headquarters and target firms, stressing the increasing emergence of an ‘archipelago economy’ or ‘rising metropoli’ scenario.

As already pointed out, the degree of metropolitan interconnectivity significantly changed over the last decade. Whereas in the early 1990s the share of M&A transactions within Frankfurt, Düsseldorf, Berlin, Hamburg, Munich and Cologne merely accounted less than 30% of all M&As, since 1995 the proportion has risen above this threshold, reaching levels of 34% by 1999. If the inter-city transactions between the six largest M&A centres are taken into consideration as well, there was an increase from 52.7% in 1991 to levels higher than 60% in the second half of the decade, with a maximum of 64,9% in 1999.

The panorama of an increasing overall relevance of, and interconnection between, large metropolitan areas is reinforced by the regression analysis. Figure 3 displays the year on year results of the standardised correlation coefficients for the independent variables included in Model [1][9]. The results highlight that whereas the early 1990s were characterised by a pronounced concentration of economic activity in large urban areas – i.e. the economic size of the regions where acquirers were located was typically much larger than that of the regions of target firms – the size gap diminishes considerably as the decade progresses. By 1999, although acquiring firms were still generally located in larger regions from an economic point of view, the agglomeration coefficient for target firms had become relatively similar. This finding is in accordance with the analysis of the location quotients, in which the size gap between the regions of acquirers and targets also declined significantly.



* Correlation coefficients as estimated in model [1]
(Dependent variable: M&A; exclusive of transactions in which acquirer and target are located in the same region; *Distance* represented in an inverted scale)

Figure 3. *The changing relevance of agglomeration economies and geographical distance in the German M&A economy*.

Figure 3 also denotes the extent to which the role of geographical distance in German M&As changed over time. Right after Reunification, when the dominant trend was for Western companies to acquire firms in the former GDR, geographical proximity counted for little. But after the early years of profound restructuring in East Germany, distance began to emerge as an important factor for the spatial distribution of M&As. Once the economic size of the region of the acquiring and the target firm is controlled for, proximity played an important role, with firms preferring other firms situated nearby rather than far away as targets. The magnitude of the proximity coefficient peaked, however, in 1994 and has since then gradually been eroded – although never turning statistically insignificant. The waning importance of the distance factor contrasts with the rising size and significance of the coefficients of the regions where target firms are located, underlining the fact that geographical proximity is increasingly being substituted by size or agglomeration as the determinant factor guiding M&As. Hence, the overall economic geography of M&As in Germany during the 1990s can be regarded as the product of essentially two overlapping dimensions: whereas in the early 1990s, the general restructuring of industrial production as a consequence of Reunification was characterised by processes of

intense economic concentration, in the late 1990s, a panorama of 'rising metropoli' clearly dominated.

INDUSTRY SPECIFICS IN GERMAN TAKEOVER ACTIVITY

The question that emerges at this point is whether these general trends prevail for all sectors or whether, as could be expected, there are significant differences between the old and the new economy. In the following section we address this issue by analysing the ten sectoral markets highlighted earlier.

Classifying the markets of M&As – Figure 4 classifies each of the ten sectors included in the analysis according to their M&A specific characteristics. The resulting industry clusters are determined by the role that geographical proximity plays in M&A decisions and the degree of metropolitan interconnectivity in an industry's takeover performance.

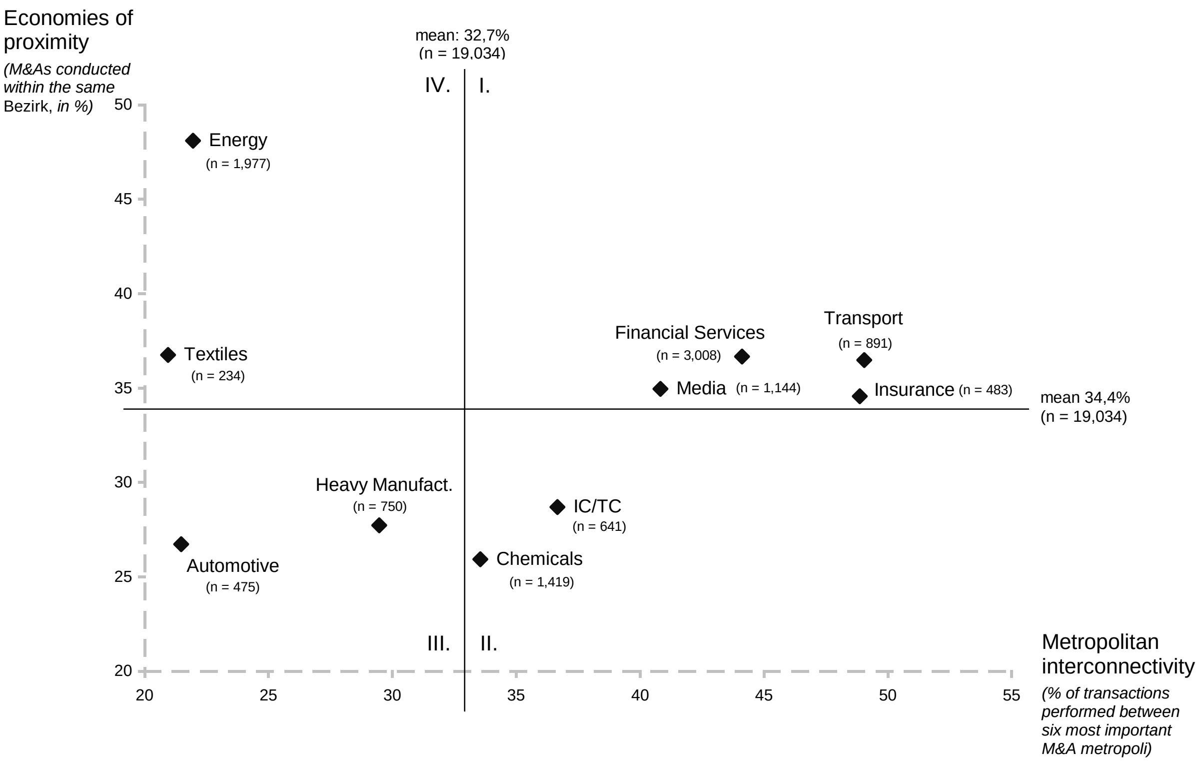


Figure 4. *M&A specificities across German industry sectors: economies of proximity vs. metropolitan interconnectivity*.

Industrial sectors are thus allocated to four quadrants. Media, financial services, transport and insurance are all in the first quadrant, showing above average relevance of both geographical proximity and metropolitan interconnectivity. In all four industries, the share of takeovers performed within the same region is close to 35%, while more than 40% of transactions takes place within or between the six German most important metropoli. The second quadrant comprises the chemical and IC/TC sectors. M&As in these sectors are featured by above average metropolitan interconnectivity, but spatial proximity plays a smaller part than in the four industries in Quadrant I. The heavy manufacturing and automotive sectors can be found in Quadrant III, indicating below average importance of proximity and metropolitan interconnectivity. M&As would thus have contributed to a greater relative dispersal of these activities, with respect to the concentration experienced in the majority of the other sectors. Finally, M&As in the textile and energy sectors have – with the automotive sector – the lowest proportion of intermetropolitan takeovers, but are heavily determined by proximity (951 of 1977 M&As in the energy sector in the 1990s took place within the same Regierungsbezirk).

The results of the gravity regression models for each sector (reported in Appendix 2) highlight once more the diversity among sectors which will be described in depth in sections 4.2 and 4.3. When the criteria reported in Figure 4 (economies of proximity and metropolitan interconnectivity) and the variables included in the regression analysis (tendency towards concentration and relevance of distance) are combined for each sector, an extremely variegated picture emerges (Table 1).

The results suggest that a straightforward new economy *vs.* old economy division would be a clear oversimplification of the sectoral M&As dynamics in Germany during the 1990s. Both within the new and the old economy, different factors distinguish sectoral corporate takeover activities and their spatial logics; a division of the ten sectors into four categories is thus more appropriate than a simple old *vs.* new economy division. These four categories are presented below.

Table 1. *The German markets of M&A: Classification of industries*.

	Economies of proximity		**Metropolitan interconnectivity**		**Tendency towards concentration**		**Relevance of distance**	
Industry sector	total relevance	dominant trend	total relevance	dominant trend	total relevance	dominant trend	total relevance	dominant trend
New economy								
Finance and transport								
Financial Services	+	→	++	→	+	→	+	→
Insurance	+	↓	++	↓	+	↑	=	→
Transport	+	→	++	↓	+	→	-	→
Creative industries								
Media	+	↑	+	↑	=	↓	insignificant	
IC/CT	=	↓	+	↑	=	↓	insignificant	
Old economy								
Traditional 'heavy'								
Heavy Manuf.	=	→	=	→	+	↓	+	→
Automotive	=	→	-	→	+	→	=	↓
Energy	++	→	-	↓	+	→	++	↑
Traditional 'light'								
Chemicals	=	→	=	→	+	→	=	→
Textiles	+	↓	-	→	-	↓	insignificant	

Legend: ++ particular important; + important; = low importance; - mostly irrelevant; ↑ increasing relevance; ↓ decreasing relevance; → stable relevance

New economy sectors I: Finance and Transport – The concentration of economic activity in metropolitan areas as a consequence of the wave of M&As in the 1990s is most noticeable in the German financial sector as well as the insurance and the transport industries. In almost three out of every four transactions in the transport sector, the acquiring firm had its headquarters in one of the six main German urban areas; and in finance and insurance, the share was slightly below 70%. These sectors also had – with the exception of energy – the highest levels of inter-city M&As among all examined industries (compare Figure 4, again). Firms in these sectors not only benefit from inter-metropolitan relations, but being located within the same urban agglomeration is an important feature of their takeover activity. Mergers such as those of Dresdner Bank in Frankfurt and the assurance company Allianz AG, Munich, or the Bavarian HypoVereinsbank, which emerged from Bayerische Hypotheken- und Wechelsbank and Bayerische Vereinsbank (both located in Munich) in 1998, may serve as examples illustrating the particular role played by economies of agglomeration and localisation in this category.

This pattern reflects the archetypical behaviour of the so-called ‘progressive’ services firms which depend first of all on accessibility and proximity to each other. These firms benefit from good physical access to customers, a vast range of other local business activities, and from large pools of qualified labour and educational achievements in urban areas. Readily accessible transport facilities, a competitive market environment as well as availability of high-quality telecommunications infrastructure and quality office accommodation are further location attributes of relevance in these industries. Once the fact that M&As have led to a greater geographical concentration of these sector in urban agglomerations is taken into account, distance also emerges as a significant factor. Especially in financial services – with more than 3,000 transactions in terms of M&As by far the most dynamic German sector in the 1990s – there is a greater chance that firms acquire a target in neighbouring rather than in far away urban areas.

New economy sectors II: Media and IC/TC – In contrast to what might have been expected, the wave of M&As in the media and IC/TC industries does not seem to have led to a considerably greater concentration of activity.[10] This is related to the fact that the great majority of the companies in these sectors tends to be small and do not benefit from significant economies of scale. Furthermore, these are the real sectors in the new economy: highly mobile, increasingly relying on telecommunications networks, and in general less dependent on R&D activity than sectors like automotive or chemical. And, in fact, distance appears as an insignificant factor for corporate takeovers; that is to say that M&A transactions at greater distances, such as the acquisition of a call centre in a rather peripheral region for instance (Graef 1998), are more likely to occur than in finance, energy or heavy manufacturing. This result points in the direction of Quah’s (1996, 1997) notion of a weightless economy, which emphasises the radical possibilities of an almost costless reproduction and distributions of e-goods, such as software or multimedia services, and where the importance of the availability of high-quality communication facilities seems to be growing perhaps to the detriment of close personal contacts. It would thus seem that

in these two sectors traded interdependencies would be gaining weight at the expense of untraded interdependencies.

This does not mean, however, that closeness and agglomeration do not matter for these sectors. Takeovers in media and IC/TC were also considerably affected by proximity and inter-metropolitan links – although to a slightly lesser extent than in finance and transport. In both industries, the relevance of interurban connections is above average, and close to a third of all M&As still took place within the same region. These characteristics stress the significance of social interaction, the importance of a creative environment, or handshake transactions and face-to-face communication, although these factors, in industries that make the maximum use of telecommunication technologies, may depend less on geographical distance and physical proximity than before. In sum, both traded and untraded interdependencies represent therefore significant factors shaping M&A activity in media and IC/TC.

Old economy I: Traditional 'heavy' industries – M&A activity in heavy manufacturing, automotives and energy is driven first and foremost by economies of scale. The completion of the liberalisation of the German energy market in 1998 provoked extensive changes in the German energy sector (e.g. Haas and Scharrer 1999) and the bulk of the more than 900 local, rather small energy distributors was acquired by one of the then eight German *Verbundsunternehmen* (transmission system operators), i.e. the companies active in the high-voltage dispatch sector, like EnBW, the RWE Group or EON.Net, the latter being created from the merger of PreussenElektra-Netz and Bayernwerk Netz. Potential benefits from size and consolidation have also led to profound restructuring in automotives (e.g. Hudson and Schamp 1995; Schamp 2000) and even more distinctively in heavy manufacturing. Though in this sector, the share of transactions conducted from the six main German centres of corporate control was a considerable 53% of the total (compared to 42% and 38% in automotives and energy respectively), overall, urbanisation and economies of agglomeration affect all three sectors to a rather small extent to other sectors.

It also seems that geographical distance and economies of proximity are relatively minor factors in the automotive and heavy manufacturing sectors. In energy, however, proximity and distance play a more important role, with companies either merging in the same region or acquiring others in nearby, rather than distant, areas. This picture has to be seen against the background of the need for large plants in these mature industries (in which headquarters still tend to locate close to their plants) and most notably the costs of space in large urban agglomerations. In the case of a heavily regulated sector, like the energy industry, the 'German model' of corporate governance, with its regional dimension (Wójcik 2002), enhances the role of proximity. In addition, proximity to and association with research centres and universities located in metropolitan areas seem to be less relevant in mature industries. In sum, the dominance of economies of scale can be seen as the major driving force behind the wave of corporate consolidation in these sectors. In particular with regard to energy and heavy manufacturing, location specifics have nonetheless proved to represent further significant factors. Proximity also influences the spatial outcomes of corporate takeovers in mature manufacturing industries.

Old economy II: Textiles and chemicals – Textiles and chemicals make up the last group. The German textile industry underwent a profound restructuring processes and most notably a significant decline even before Reunification (e.g. Hassink 2003). As a consequence, this sector shows by far the lowest number of M&As and has to be regarded the least representative in the sample. Plant size seems to be the dominant factor for textiles. Textile firms are mature traditional industries in which the importance of R&D is relatively low and design and marketing capacities are increasingly at the root of the success of firms. Textile plants are also likely to be very sensitive to the rising cost of space in large urban areas. Therefore the result is an industry that is less driven by urbanisation economies and much less prone to concentration. And although the importance of proximity for M&As is slightly above average, distance becomes virtually irrelevant.

The German chemical sector also underwent an extensive restructuring in the 1990s (e.g. Bathelt 1997). Chemical industries were also affected by the changing global environment, with transnational mergers becoming frequent (compare Zeller 2000; Bathelt and Griebel 2001). The outcome of intra- and international restructuring in the chemical sector was a distinct geographical concentration of company headquarters. Metropolitan interconnections, distance and proximity played, on the other hand, a relatively minor part in corporate takeovers in this sector. The overall M&A pattern of the chemical sector thus replicates an industry which simultaneously operates in both narrow local clusters and via complex relations between subcontractors, service providers and integrated corporate units across both the entire nation and the globe.

CONCLUSIONS

Corporate takeovers and mergers constitute a key expression of the information-based and globalised economy of the late 20th and early 21st centuries. They also reflect the ongoing restructuring of production processes in an increasingly competitive environment in a particularly expressive manner. Taking the German economy as our case study, this paper has analysed the dynamics of M&As and the extent to which the most recent wave of corporate consolidation led to a profound relocation of economic activity and to an increasing concentration of corporate power and control in large urban areas. Agglomeration economies and, to a much lesser extent, geographical distance seem to have been the main factors shaping the restructuring of the territorial distribution of economic power and activities in Germany. From this perspective, M&As represent both a symptom and a cause for the increasing concentration of economic decision-making in large urban areas and of the rise of the economic power of large metropolitan areas.

The analysis of M&As in ten industrial sectors has highlighted that the often mentioned distinction between the spatial implications of an old and a new economy is oversimplified and

misleading. The markets of M&As in sectors within the new and the old economies are affected by similar forces of economies of proximity, concentration and agglomeration, although in significantly different ways from one sector to another. Physical distance is another important factor, as there is relatively little sign – with the exceptions of the media and IT/CT sectors – of geography losing importance in economic transactions. Even in some new economy sectors, such as finance and insurance, proximity plays as important a part as ever, casting doubts on the much-publicised existence of general trends towards the emergence of a weightless economy or the end of geography.

The results of our research into the geography of M&As in Germany during the 1990s have in many ways provided insights that deepen our understanding about the interdependencies between takeover activities and their spatial implications and location-specific determination. Corporate takeovers and mergers seem to be relational, and contingent on industry-specific and geographical context-bound processes. Our understanding of the causes that drive M&As in Germany and elsewhere would, however, benefit from complementary approaches paying greater attention to the interactive and path-dependent nature of corporate takeovers. Against this background, more in-depth analyses of the role played by individual firms, on how geographical context influences their behaviour and on how they relate to other firms and institutions in a contingent environment would provide the perfect complement to the present analysis in order to deepen our knowledge of the key factors behind the dynamics of corporate takeovers across industrial sectors.

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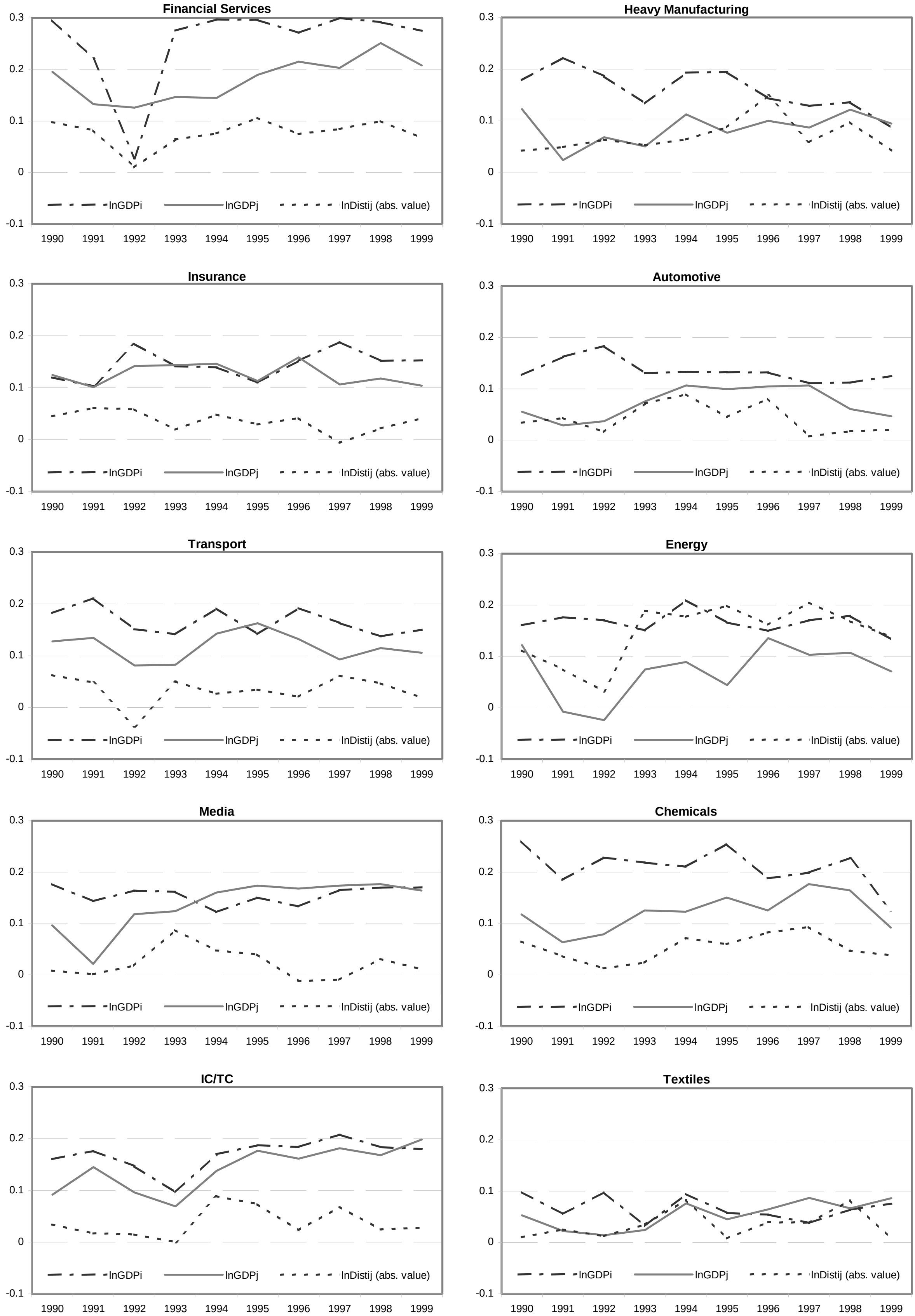
Appendix 1. *Administrative borders in Germany*.

1. *Weser-Ems*
2. *Lünebeurg*
3. *Hanover*
4. *Braunschweig*
5. *Magdeburg*
6. *Dessau*
7. *Halle*
8. *Düsseldorf*
9. *Münster*
10. *Detmold*
11. *Arnsberg*
12. *Köln*
13. *Kassel*
14. *Giessen*
15. *Darmstadt*
16. *Leipzig*
17. *Chemnitz*
18. *Dresden*
19. *Trier*
20. *Koblenz*
21. *Rheinhessen-Pfalz*
22. *Karlsruhe*
23. *Stuttgart*
24. *Freiburg*
25. *Tübingen*
26. *Unterfranken*
27. *Oberfranken*
28. *Mittelfranken*
29. *Oberpfalz*
30. *Schwaben*
31. *Upper-Bavaria*
32. *Lower-Bavaria*

Source: Bundesamt für Kartographie und Geodäsie (2002)

Appendix 2. *M&A specificities across industry sectors: results of the regression analysis.*



Notes

1. After 2000 the volume of transactions quickly waned to US$ 1,753 billion in 2001 and to US$ 1,230 billion in 2002 (UN 2003; Thomson Financial 2003).
2. Acquisitions (or takeovers) indicate the purchase of a company by transferring the control of assets and operations from one firm to the other, the former becoming an affiliate of the acquirer. A merger, on the other hand, implies the combination of the assets and operations of two firms to establish a new entity whose control resides in a team from one or both of the two. Despite these differences, M&As are usually bundled together for research purposes.
3. The database is maintained by the University of St. Gallen and can be accessed via the platform Genios Wirtschaftsdatenbanken (http://www.genios.de). Due to missing entries as well as for methodological reasons our study does not cover all 29,385 transactions contained in the database, of which 7,765 are transnational.
4. No distinction is made between mergers and acquisitions in this paper. Given international trends – 97% of all cross-border M&As included in the World Development Report were defined as acquisitions (UN 2000) – it can however be assumed that the great majority of transactions are in fact acquisitions or corporate takeovers.
5. In total, the M&A Review database contains 18 sectors. The remaining eight sectors are building and construction; general services; electronics and medical technology; retail; aerospace; precision engineering; food and luxury articles; and paper.
6. In human geography, gravity models evaluate or forecast the various kinds of flows of goods, people etc. between origins and destinations (spatial interaction). In basic Newtonian form, they are expressed as follows:

$$I_{ij} \quad = \quad k\, M_i\, M_j\, Dist_{ij}^{\,-\beta}$$

where I_{ij} denotes the interaction between two locations i an j; M_i and M_j represent the 'masses' measuring the strength of i and j (usually the population numbers of two settlements); $Dist_{ij}$ stands for the distance between i and j; and k and β are constants (e.g. Robinson 1998).

7. The data for GDP_i and GDP_j stem from the German *Statistisches Bundesamt* for each year during the period of analysis t (1990-99). The variable distance is linearly approximated via the spatial gravity centroids of the two regions concerned.
8. Note that the location quotients for the three German city states Berlin, Bremen, and Hamburg might be slightly overestimated, as within their administrative borders there is no hinterland.
9. The cases in which the acquiring firm and the target are located in the same Regierungsbezirk are excluded. An inclusion of these events would cause a profound overestimation of the variable distance.

10. Concerning the German media industry, it is noteworthy that – beside Hamburg, Cologne, and Munich – several important industry clusters have recently emerged in smaller agglomerations, like for instance Leipzig or Potsdam-Babelsberg (compare Bathelt and Boggs 2003; Krätke 2002, 2003).