



WISSENSCHAFTSZENTRUM BERLIN  
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**discussion papers**

FS IV 96 - 13

**State Aid, Industrial Restructuring and  
Privatization in the New German Länder:  
Competition Policy with Case Studies of the  
Shipbuilding and Synthetic Fibres Industries**

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July 1996

ISSN Nr. 0722 - 6748

**Forschungsschwerpunkt  
Marktprozeß und Unter-  
nehmensentwicklung**

**Research Area  
Market Processes and  
Corporate Development**

Final Report prepared for the European Commission, Directorate General  
„Economic and Financial Affairs“, DG II-B-3; Contract: CNS/95/83603.

Zitierweise/Citation:

Lars-Hendrik Röller, Christian von Hirschhausen, **State Aid, Industrial Restructuring and Privatization in the New German Länder: Competition Policy with Case Studies of the Shipbuilding and Synthetic Fibres Industries**, Discussion Paper FS IV 96 - 13, Wissenschaftszentrum Berlin, 1996.

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## ABSTRACT

### **State Aid, Industrial Restructuring and Privatization in the New German Länder: Competition Policy with Case Studies of the Shipbuilding and Synthetic Fibres Industries**

The industrial restructuring in the new Länder of Germany consisted of closing down production capacities created under the socialist regime. In turn, public and private investments were channeled into those departments of the former „factories of the people“ (VEBs) where new production capacities would be competitive on international markets. The Treuhandanstalt was the main agent of this process, providing both active management advice and enormous financial aids. As a result, this form of industrial policy in East Germany was in permanent conflict with the EC-competition rules, in particular articles 92 and 93 of the EEC-Treaty, which rules out state aid that distorts competition.

This paper analyzes the effects of state aids in East Germany on European competition. We first discuss the specificity of post-socialist industrial restructuring in East Germany, which consisted of the "enterprization" of socialist combines into capitalist enterprises. Second, we review the economic rationale for state aids in the East German context by distinguishing between static and dynamic arguments. Third, we apply these theoretical arguments for state aid to two concrete case studies: shipbuilding and synthetic fibres. We conclude from a static point of view that state aids can not be justified in both cases: large capacities were added to already existing overcapacities in Europe. Considering dynamic arguments, we assess the likelihood that the industrial restructuring may lead to the creation of new East German enterprises that are at the leading edge of technology and with a high productivity. While the East German cases of state aid were a novelty for European competition policy, there might be important implications for other post-socialist countries (e.g. Poland, Hungary, Czech and Slovak Republic) once they join the EU.

## ZUSAMMENFASSUNG

### **Staatliche Beihilfen, Industriereform und Privatisierung in den neuen Bundesländern -Untersuchung der Wettbewerbspolitik und Fallstudien des ostdeutschen Schiffbaus und der Synthesefaserindustrie**

Der industrielle Umstrukturierungsprozeß in den neuen Bundesländern bestand darin, alte sozialistische Produktionskapazitäten abzubauen und Investitionen in diejenigen Betriebsteile früherer VEBs zu lenken, in denen wettbewerbsfähige marktwirtschaftliche Produktionskapazitäten aufgebaut werden konnten. Von staatlicher Seite kam der Treuhandanstalt die Aufgabe zu, neben aktivem Management auch umfangreiche finanzielle Mittel für die Umstrukturierung zur Verfügung zu stellen. Damit stand die Industriepolitik in den neuen Bundesländern in ständigem Konflikt mit dem wettbewerblichen Regelwerk der Europäischen Gemeinschaft, vor allem mit Artikeln 92 und 93 EWG-Vertrag, die staatliche Beihilfen generell untersagen.

In diesem Beitrag untersuchen wir die wettbewerbspolitischen Auswirkungen der Industriereformen in den neuen Bundesländern. Eingangs wird die post-sozialistische Besonderheit dieses Prozesses erläutert, die in der "Unternehmisierung" sozialistischer VEBs in marktwirtschaftliche Unternehmen bestand. Im Anschluß daran werden statische und dynamische Kriterien zur Bewertung staatlicher Beihilfen entwickelt. Diese werden anhand von zwei Fallstudien getestet (Schiffbau und Synthesefasern). In beiden Fällen erscheinen die staatlichen Beihilfen aus statischer Sicht problematisch, da mit hohem finanziellem Aufwand neue Kapazitäten geschaffen wurden, die das Problem der europäischen Überkapazitäten noch verschärften. Bei dynamischer Sichtweise fällt das Ergebnis positiver aus, da die ostdeutschen Unternehmen bei erfolgreich abgeschlossener Umstrukturierung zu den europaweit produktivsten gehören könnten. Die Erfahrung in den neuen Bundesländern deutet auch darauf hin, daß bei einer EU-Erweiterung um mittel- und osteuropäische Länder erhebliche wettbewerbspolitische Probleme zu erwarten sind.

## ***Introduction***

Industrial restructuring in the post-socialist new German *Länder*, the former GDR, was the primary economic challenge of German reunification. The speed and complexity of the process greatly exceeded expectations, as did the total incompatibility of East German industry with West German, European and world-wide competition. Within several months after economic union, industrial production had fallen by 50%. In this context, the concept of state aid, as laid out in Art. 92 and 93 EC-Treaty, could not be applied in the same fashion as in cases of gradual restructuring, experienced by EU-industry over the last 20 years.

In this paper we analyze the economic rationale for state aid to newly emerging enterprises in the post-socialist new German *Länder* between 1990 and 1994. Restructuring and privatization took place in a very specific context, i.e., the passage from socialism to post-socialism. The institutional framework for restructuring was the German Treuhandanstalt (THA), an agency charged with an active industrial policy of recreating a maximum of new private enterprises from the ruins of the socialist combines. In early 1996, the results are mixed at best: 1.5 million new job creations in 15,000 enterprises, a deficit of 250 billion DM, many newly-created production sites on the leading edge of technology, and about 20% of the active population without regular employment.

In terms of competition policy, the THA's action was significant both on a German as well as a European level, since the GDR immediately integrated with the EU. Heavy state involvement and massive financial flows caused mixed reactions in German and European industry which were directly affected by East German restructuring. The compatibility of state aid in East Germany and its effect on European competition is one of the key issues of the surrounding policy debate.

We first describe the specificity of post-socialist restructuring in East Germany. The task was to transform multifunctional socialist industrial units, which were not developed with the objective of obeying capital constraints, into profit-oriented enterprises operating in a new, competitive environment (Section 1). We then discuss economic aspects of state aid focusing on competition policy aspects. (Section 2). These arguments are then applied to two industries where state aid and European competition issues are particular important: shipbuilding and synthetic fibers. We analyze the process of and obstacles to transforming socialist combines into a large number of new enterprises, the specific policy applied by the THA, and the effects of state aid on competition in the East German and European shipbuilding and synthetic fiber industries (Sections 3 and 4).

In sum, our conclusions are as follows: from a static perspective, we do not see any evidence in the two cases studied, that would justify the state aid on economic grounds. In particular, European competitors were hurt through the introduction of new, modern capacity on the market. When adopting a dynamic perspective, this result has to be somewhat weakened. For East Germany, the process of industrial restructuring means the creation of new capacities on the leading edge of technology and productivity. The direct and capital-intensive interventions of the THA might have rescued some industrial

enterprises in the new German Länder. As a consequence, industrial restructuring in East Germany may have succeeded in setting up several modern firms and new industrial tissue. Yet, when evaluating the process from a European perspective, the state aid channeled through the THA was hardly compatible with usual EC competition policy.

## ***1. The specificity of post-socialist industrial restructuring in East Germany: turning socialist combines into enterprises***

### **1.1 Difference between "classical" and "post-socialist" industrial restructuring**

When analyzing the reform process in East Germany, one has to take into account the very specificity of the case: that is, the post-socialist nature of industrial restructuring. When the reform process began in 1990, the understanding of this particular process was not yet developed; policy measures were defined in terms of an ordinary restructuring process of an ordinary EU-member state. We contend that the nature of the restructuring process in East Germany is very different from "classical" restructuring processes witnessed in the EU over the last 20 years. The latter has always consisted of gradual adaptation of industries or enterprises to gradually changing external conditions: demand, costs, technical progress, etc. In this case, state aid is provided to facilitate the structural change, either by lowering the barriers to exit for enterprises or by providing different types of operating or investment aid, if the enterprise is deemed capable of restructuring. Though the speed varies across countries and industrial sectors, standard restructuring processes in the EU as in other industrialized countries proceed gradually and, hence, take long time periods of up to several decades (e.g., textiles, shipbuilding, steel).

In post-socialist economies, there is no such thing. Socialism was an attempt to coordinate production and needs, without any reference to the role of money as a universal equivalent and, hence, a constraint to production or consumption (von Hirschhausen, 1995 a, b). In the socialist system, the very notion of prices, costs or profits did not exist. Decisions concerning investment and production were subordinate to the will of the Communist Party. Socialism has ended in Central and Eastern Europe with the abandonment of this non-monetary system, through the introduction of money as a universal equivalent and a certain liberalization of prices. We refer to this as the process of "monetarization" of an economy. Monetarization then revealed real costs for previously non-monetarized items, such as transport, energy, stocks, social services, labor, etc. Under socialism, production was not constrained by money; in post-socialist economies, however, questions of liquidity and cash-flow dominate the management of production (Bomsel, 1995, Rouvez, 1995).

In all countries of Central and Eastern Europe, including the GDR, abandoning socialism was a very rapid process. Monetary reforms and price liberalization were introduced within a very brief period of time.<sup>1</sup> Hence, industrial structures that had been developed

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1 Poland in January 1990, East Germany in July 1990, Czechoslovakia in January 1991, Russia in January 1992, etc.

over four decades (in Eastern Europe) or even seven decades (in the USSR), lost their internal logic from one day to the next. The immediate change of relative prices implied that the capital stock of the socialist combines, designed for one and only one technology and output ("putty-clay technology"), was immediately devalued (Akerlof, et al., 1991). Networks between combines fell apart due to the disappearance of COMECON, but also due to the drop in demand and the appearance of transportation costs. The institutional void further contributed to the dismantling of the old industrial structures: socialist institutions (planning system coordinated by the Party, informal barter trade, legislation, etc.) disappeared without being immediately replaced by the institutions of established market economies (e.g., labor and capital markets, financial intermediaries, contract law, etc. (see Schmieding, 1993)).

## 1.2 From socialist combines to capitalist enterprises

What does the post-socialist perspective imply for the process of industrial restructuring? On-site empirical research has shown that socialist industrial units <sup>2</sup> were not at all the "public enterprises" for which they were commonly held in the standard economic literature (Sachs, 1994); i.e., enterprises seeking to maximize profit or productivity under constraints fixed by the state. Instead, socialist industrial units were multifunctional units where the physical production of goods was just one activity among others and most often not the central one. Other functions fulfilled by socialist industrial units included the provision of social services to their members (housing, hospital, kindergarten, culture club, vacation homes, etc.) and the exercise of strict political control in the form of the Party nomenclature, union, para-military activities, prisons and individual repression. In this context, the optimization of any individual objective of production was simply not possible. Investment strategies were not geared toward the optimization of output, but toward maintaining the political and social balance within the industrial units, as well as between combines of a region, an industry, or an entire country.

Socialist combines were not "inefficient state enterprises", but rather multifunctional units whose structure did not correspond to any capital constraint. It follows that privatization can not be a sufficient measure for assuring efficient restructuring of these combines. No capitalist entrepreneur, whether private or public, can be interested in taking over a multifunctional industrial unit. The problem of industry restructuring turns out to be larger and more complex than unbundling the over-integrated industry structures (Aghion, et al., 1994). Instead, the very *raison d'être* of each production unit has to be redefined according to the new products and new industrial networks they are capable of integrating. Thus, two distinct questions make up the challenge of post-socialist industrial restructuring: one concerns the process of ownership change and privatization; the other, the transformation from socialist combines to capitalist

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2 The term "socialist industrial unit" here designates the smallest administratively independent unit in socialism, which was called "combinat" in most of the socialist countries. This term corresponds to the VEB ("factory of the people") in the GDR, the "predpriyatie" in the Soviet Union, etc. The term combinat must not be confused with the form of industrial coordination modeled in the 1980s according to the East German "Kombinat".

enterprises, i.e., the process of new enterprise creation, or "enterprization" (Bomsel, 1995). The institutionalization of this process, i.e., the framework in which new enterprises can be created, emerged as the single-most important issue of post-socialist industrial reform, from East Germany to Russia.

In practice, the process of "enterprising" socialist industrial combines proceeds in two steps. One is the decomposition of the socialist multifunctional structures, which were designed for the non-monetary exchange of goods. The second, is the creation of new enterprises, adapted to meeting market demand in a competitive environment and subject to a monetary constraint. Note that this process of "creative destruction" does not necessarily imply the physical destruction of old machinery, sites, and the shedding of former employees. Instead, it is the old network relations between productive units that are abandoned, and new ones that are created. The start-up of new greenfield enterprises also falls in the category of enterprization.

The post-socialist vision of industry reform implies that there can be no "restructuring" of capacities of a socialist industrial unit, in the proper sense. In other words, if the socialist productive network for which capacities were created disappears, the capacities of this network also disappear. What follows is the process of creation, i.e., the development of new capacities, serving a new market, with a new product, under a new brand name and competing with other firms in a new competitive environment. From an industrial economist's perspective, this is not a process of "restructuring" of capacity. Instead, it has to be regarded as the complete abandonment of the socialist capacities, and the creation of new productive capacities adopted to the capitalist market economy.<sup>3</sup>

This interpretation of post-socialist reform also has an important impact on the analysis of competition issues. In socialist times, combines did export to Western markets, but never under real conditions of competitive markets. Instead, exports were "planned", both in quantity and in price. In post-socialism, however, products from Central and Eastern Europe have entered new markets, both in Western Europe and overseas. These

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3 One example might clarify this point: until 1990, the socialist factory of the people "VEB Sachsenring Zwickau", employing 12,000, had a capacity of 160,000 units of the "Trabant": a strange combination between a fairground go-cart and a 2-period motor, fueled with a sulfurous  $C_nH_{2n+2}$ -containing liquid. The Trabant was delivered, not sold, to "deserving domestic citizens" with an average waiting list period of 10-12 years. The VEB Sachsenring Zwickau also ran a full program of social services, amongst them: housing, schools, a holiday resort, a polyclinic and a football team. The VEB was managed and controlled by the Party-nomenclature. This is what we have called capacity in a "socialist industrial unit".

In 1996, the situation has radically changed. The site, employing about 2,000, now features a production facility for the most recent Volkswagen "Polo" model, with a capacity of about 250,000 a year. The model successfully competes with the European automobile markets. The organization of production is "just-in-time", which means that the largest possible number of tasks is outsourced. This corresponds to what one would call capacity in a capitalist enterprise.

The point is the following: would anyone still seriously contend that the change from the socialist facility producing the Trabant to the JIT-production facility for the VW-Polo has anything to do with the "restructuring of capacity"? Or should it not be regarded as the shedding of old capacity (for the Trabant) and the creation of new (VW-Polo) capacity?



products have undergone either a complete change, or at least significant innovation, in order to become competitive on these markets. Hence, the capacity created in post-socialist enterprises has to be considered as new capacity from the Western point of view. By enterprizing the East German combines, the Treuhandanstalt implicitly added new capacity to the EC-market to which the East German producers now belonged.

### **1.3 The East German solution: industrial policy of active, local restructuring by the Treuhandanstalt**

Though East Germany is certainly a special case due to the peculiar context of German reunification, economic reforms have to be considered as a case of post-socialist reform. Radical economic reform was only enacted in July 1990: this was the economic, monetary and social union between the GDR and the FRG. As one of the earliest and most radical cases of post-socialist reform, the East German case offers important insight for other reforming countries in Central and Eastern Europe.

The institutional setting for industrial reform in East Germany was unique as well: the responsibility for managing the process of new enterprise creation and for privatization was carried by one single institution, the Treuhandanstalt (THA). Originally, the THA was created as the privatization arm of German unification, only. However, after the poorly anticipated collapse of East German industry following monetary union of July 1990, the THA had to change its strategy: accepting to "assume full responsibility as the owner of its enterprises, including restructuring" (the so-called common declaration of March 1991). Two major policy implications were derived from this reorientation: first, the THA created 15 decentralized and largely independent regional agencies all over the country; second, it put its own personnel directly into the main executive positions of its combines. To this end, it accelerated the integration of West German and European managers - up to a maximum of 5,000 in 1992. Thus, rather than simply selling off combines from its Berlin headquarters, the THA could attack the restructuring of each factory directly on-site. The THA managers were in charge of

- \* evaluating all technical alternatives to convert a maximum of the productive functions of the combines into new enterprises,
- \* combining a local approach with sectoral considerations,
- \* coordinating restructuring activities with the separation and closures of nonproductive functions (housing, infrastructure, transport),
- \* facilitating the conditions for Management Buy-Outs of individual departments of the former combines,
- \* negotiating with local administration over the integration of the new industrial structures into regional development plans (highways, electricity, etc.).

The results of this effort are quite remarkable: between 1990 and 1994, the THA achieved the split-up of 2,500 socialist combines, and actively pursued the creation of about 14,000 new enterprises. 1.5 million new jobs were created.<sup>4</sup> The price of the operation was high: instead of an expected profit of DM 600 billion, the THA has accumulated a loss of about DM 250 billion.<sup>5</sup> Yet the financial aspects and the continued monetary support from West Germany and the EU are but one aspect. Another specificity of the East German case is the fact that the THA was the major institutional innovation of post-socialist East Germany, whereas other state structures were simply taken over from the old Federal Republic. This also distinguishes the East German case from other post-socialist countries, where the economic, legal and institutional framework of restructuring have to be built from scratch.

#### 1.4 Implication for the nature of aid

The EC-Treaty of 1957 could not possibly include anything related to post-socialist industrial restructuring. How could the situation in East Germany, which became part of the EC in July 1990, be treated within that framework? How should state aid be dealt with in a country where, from one day to the next, almost all industrial enterprises needed some form of state aid in order to survive ?

From the beginning, the European Commission accepted the specificity of post-socialist restructuring in East Germany. Though maintaining Art. 92 of the Treaty of Rome as its legal basis, the Commission conceded rapidly "that the task of the THA - i.e., support the transformation of a socialist planned economy into a market economy - is without precedent."<sup>6</sup> Henceforth, the Commission redefined the nature of the aid provided to East German industry according to the following principles:<sup>7</sup>

a) Before any privatization, the THA could provide guarantees and even loans to those enterprises willing to engage in restructuring. Even though the ratio of bad debts was very high for the THA enterprises, most of them had no other security and were therefore unable to obtain any bank credit. Therefore, THA guarantees and even loans to those enterprises were not to be considered as state aid. The support provided to enterprises in sensitive branches (steel, shipbuilding, synthetic fibers, motor vehicles, fishing, agriculture) had to be reported to the Commission according to Art. 93,3 of the EC-Treaty.

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4 The combines employed 3.4 million at the time of the GDR. The initial shock of reunification on the East German labor market is only slowly subsiding. In April 1995, the shortfall of "regular employment" was still 24%, down from 30% in the first half of 1993 and 34% in the first half of 1991. They are composed of 1.040 million unemployed, and 1.039 million "persons in labor market measures" (reconversion, technical education, early retirement, etc.) (Employment Observatory East Germany, 1995).

5 This sum is equal to total East German GDP in 1994; see Brücker (1995).

6 SG (91) D/17825.

7 Defined in the Commission decision on the notification procedure for privatization by the THA (SG (91) D/17825).

b) The annulation of old debts dating from before July 1, 1990 by the THA was not to be considered as state aid either, as long as they originated "exclusively on arbitrary decisions of the former socialist planned economy."

c) The THA could provide financial support for cleaning up environmental hazards caused by its enterprises before the July 1, 1990 deadline.

d) As for the practice of auctioning, no case in which the THA sold off an enterprise to the highest bidder or a single bidder - after having conducted an international call for tender - was supposed to include state aid. This point turned out to be important, since the value of THA enterprises, when offered to the European market, turned out to be very low, if not negative. Only in those (few) cases where an enterprise was not sold to the highest bidder, did the Commission reserve the right to inquire into the compatibility of the sale with Art. 92 (2) of the EC-Treaty.

The very flexible treatment of THA action towards its enterprises turned out to be a crucial instrument in the day-to-day supervision of East German restructuring. Later, as the list of THA enterprises diminished, the Commission hardened its position on state aid, but continued to treat all cases with much flexibility.<sup>8</sup>

Retrospectively, one observes that the Commission went way beyond the strict limits associated with "classical" restructuring, as defined most recently in the "Guidelines on state aids to the rescuing and re-structuring of firms in difficulty".<sup>9</sup> Had one considered the case of the East German combines as "classical" cases of restructuring, one would have had to strictly apply Articles 92 and 93 of the EC-Treaty. This, in turn, would have meant the immediate end to practically all East German industry. The East German case had forced the Commission to bend Articles 92 and 93 EC-Treaty as it had never done before and, most likely, will never have to do again.

### **1.5 Implications on industrial restructuring in other post-socialist countries associated with the EU**

Post-socialist industrial restructuring is increasingly attracting the attention of researchers and policy makers (Portes, 1994). Whereas macroeconomic stability was rapidly achieved in all Central and Eastern European countries, the task of transforming socialist combines into market oriented enterprises is a long-term process. Privatization

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8 SG (92) D/17613 of December 1992 clarified and modified four points on which a dispute with the German government had emerged during the course of 1991 and 1992: THA was required to report cases of continued financing for enterprises with more than 1,500 employees and with financial obligations exceeding DM 150 million. Second, "packages" of a "good" and a "bad" enterprise which the THA offered in order to get rid of the "bad" enterprise, had to be reported whenever they exceeded 1,000 jobs. Third, in cases of re-privatization, the Commission defined precise criteria to limit the compensation the THA could provide to former owners for the loss of value. Finally, sales to the highest bidder had to be reported whenever the price was negative and employment in the enterprise concerned exceeded 1,000.

9 OJ 94/C/368/12.

is a necessary but insufficient condition for succeeding structural change. The East German case is an ideal type of privatization and restructuring carried out simultaneously.

In many respects, the East German experience has important implications for the restructuring process in other post-socialist countries; in particular, the countries approaching EU-membership (Poland, the Czech and Slovak Republics, Hungary, Romania, Bulgaria, Slovenia, Lithuania, Latvia, Estonia). These countries cannot and probably should not adopt the same institutional framework. In post-socialist countries other than the GDR, the process of restructuring can not be handled by one state institution and foreign investors. The peculiarity of the East German case was that restructuring and privatization were managed by the same institution, equipped with unlimited resources. The separation of productive and social assets coincided with the implementation of investment projects. Regional and sectoral aspects of restructuring were coordinated.

Other post-socialist countries are searching for other institutional settings adapted to their situation. Today, a variety of corporate governance structures is emerging for setting up new enterprises (Gray, Frydman, Rapaczinski, 1995, von Hirschhausen, 1996b). Basically, two patterns can be identified so far:

- 1) the "classical" approach with a central agency, controlling privatization, formally, but lacking control over its large number of enterprises;
- 2) the mass-privatization approach of diversifying and diluting ownership and control, favoring informal holding companies and insider control.

The centerpiece of the "classical" standardized approach is an ambitious privatization law and an agency charged with carrying out the so-called large-scale privatization: first, through corporatization (i.e., the definition of legally defined state-owned enterprises), and second, by selling these enterprises - as such - to the highest bidder.<sup>10</sup> The condition underlying this approach is the capability of state institutions to evaluate the restructuring potential of "their" enterprises and exert owner-like control. Both conditions have only partially been fulfilled as one observes, for example, in Poland, Hungary and Estonia.

The second type of corporate governance in post-socialism has emerged in countries where mass-privatization was the dominant characteristic. The unorthodox method of mass-distributing ownership rights to the entire population was preferred on the following grounds: the populist appeal and considerations of "fairness and equity", the speed of operation, the simplicity of administration, and finally, the understanding that "classical" privatization - carried out for example with the speed it was done in the UK - would take "at least 2,000 years" (Sachs, 1994). Although, technically, mass privatization succeeded and lead to high rates of privatization, it can not be concluded that the emerging governance structures were clear and efficient. Instead, one observes

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<sup>10</sup> This approach is called classic because it is based upon the standard privatization programs in Western Europe, notably in Great Britain, during the 1970s and 80s.

the concentration of ownership rights in the hands of employees and/or managers and a few investment funds; the degree of insider control exceeds expectations. In most cases, a peculiar form of ownership-control emerged, the "post-socialist industrial holding company".

## **2. *Economic rationale for state aid***

It is clear that political aspects regarding German unification and the integration of the new German Länder into the EU have played an important role in the debate about state aid to the former combines. The magnitude of the task at hand became apparent by 1991 when the "sudden death" of East German industry seemed eminent. The rationale put forth by the German government can be summarized as relatively strict state intervention in order to prevent the new Länder from vanishing from the economic map.

Whether subsequent measures taken by the THA have been economically efficient is still very much under debate and possibly too early to judge since many of the measures put in place have not fully unfolded. Despite the fact that decisions are based on political and social considerations, it is important to judge those policy decisions on economic grounds. Below we shall analyze the restructuring of East German industry from the point of view of *competition policy*. To be sure, we will not consider any political or social aspects of restructuring that might explain the actions of the THA, but merely focus on the economics of the situation and how it affects competition at the European level. In this sense, our analysis is normative, rather than descriptive. The approach we are taking is one where we begin outlining the economic arguments under which state aid could be justifiable from an economic efficiency perspective. In particular, we specify the market and firm specific conditions which need to be present for the arguments to follow through. If the conditions of an economic rationale for state aid are not met, state aid must be termed as economically wasteful. The *presence of these* conditions is then *assessed* empirically in the context of two important cases, which we believe have relevance over and above their immediate industries: the shipbuilding industry and the synthetic fiber industry. Before we turn to these cases we next summarize the economic rationale for state aid.

### **2.1 Increase competition in the case of oligopolistic demand or supply structures: static arguments**

State aid *can* be economically meaningful if it used to increase competition in an otherwise imperfectly competitive market. Policies to foster competition can take a variety of forms, one of which is direct state aid (reducing entry barriers is another prominent policy). Clearly the economic argument in favor of state intervention in this case is based on the rationale that a relatively small amount of aid can create a viable competitor, increase competition, lower prices, increase innovation, and consumer welfare.

It is clear that the above argument rests on various assumptions which need to be present. We shall spell out four of them explicitly. The first assumption is that the

amount of aid necessary to increase the number of players is relatively small. In other words, the deadweight loss created by imperfect competition is reduced by an amount larger than the aid. This, in turn, depends on the demand elasticities, the number of competitors in the market, and the efficiency differential between the subsidized and the unsubsidized firms. For instance, increasing the number of competitors by one through state aid in a market which is not concentrated is unlikely to satisfy this criterion. Furthermore, if the efficiency gap is large, the cost of fostering competition is too high to justify. A second assumption implicit in the argument in favor of state aid is that firms do not collude. If competition is increased by keeping another competitor in the market, it is necessary to assume that competition actually takes place. Tacit or explicit collusion would merely consume the aid, without passing the benefits on to consumers. It is thus imperative to have an effective competition policy in order to give economic merit to an efficient industrial policy. Next, there is an assumption regarding the production technology: economies of scale must not be too high. This well-known argument refers to the intrinsic trade-off between economies of scale and competition. Clearly, if economies of scale are present, a limited number of firms might be desirable. An extreme case of this would be a natural monopoly. Increasing competition through state aid would be undesirable in such cases. Finally, and perhaps most importantly, the argument rests on the assumption of imperfect competition. In particular, there should be no supply or demand substitutes available (i.e., there is market power). Moreover, the existence of overcapacities, though one could justify them as evidence of market power<sup>11</sup>, is indicative of excessive competition.

In sum, state aid *can* be economically justified in a static framework, whenever a market is imperfectly competitive. It is worth emphasizing that the economic efficiency of state aid is not automatically satisfied for all imperfectly competitive markets. In general, the implications for economic efficiency rest on the careful weighing of the several forces discussed above. The final rationale for state aid is determined by the relative magnitude of these forces and has to be done through a case by case analysis. Examples of such an evaluation of an active European industrial policy has been done recently by Neven and Seabright (1995) for the European Commercial Aircraft industry, as well as by Neven, Röller, and Waverman (1993) for the European Satellite industry.

## **2.2 Temporary aid for potentially viable enterprises: dynamic arguments**

Note that the argument in the previous section does not depend on the enterprise becoming more productive over time. A second argument in favor of state aid is that an enterprise might increase its efficiency and/or productivity after its survival has been guaranteed for a certain time through state aid. In this case, limited support to an enterprise can result in establishing an efficient competitor over the long run. Clearly this argument can be (mis)used in many instances where the resulting state-aid does nothing to increase the productivity of the receiving firm (in fact one could argue that productivity falls as a result of state aid). In any event it is imperative that the aid is

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<sup>11</sup> Excess capacities can be used by an incumbent monopolist to deter entry, by credibly threatening to expand production in the face of entry.

committed to for a limited amount of time in order to prevent an inefficient firm from asking for more and more subsidies.

As mentioned above, the value of the "capital" inherited from socialism can be regarded as low or even negative. This is consistent with the fact that (almost) no western entrepreneur has been willing to pay a positive price for a socialist combine. In this context, state aid for short-term survival can be justified on the grounds that it increases the medium-term capital value of some enterprises. The key question is, of course, why a state institution, and not private investors, would have the knowledge to select such enterprises. Following is a list of possible reasons.

### **2.2.1: Separation of productive and social assets as a prerequisite for successful restructuring**

As long as the socialist industrial units remain multifunctional, the real value of their productive assets can not be known. Temporary aid can be justified if it enables the former socialist factory to proceed with the unbundling of social functions. These should be transferred to new state institutions, taken over by private institutions, or simply be closed. As long as it is uncertain which parts of the multifunctional units are available for restructuring, there can be no competition for them. Whether one centralized state institution is more efficient in achieving the process of unbundling than a decentralized auction, remains an open question. But as long as kindergartens, schools, public transport, energy, etc., are at the charge of the enterprise, no market-oriented capital value can be determined for the factory. During that period, state aid can be justified: transaction costs to the state for transferring the social functions are well below those of a new private investor.

### **2.2.2: Limiting the risk of short-term disappearance of enterprises**

Independent of the question of social assets, the risk of severe destruction of the industrial base is a serious problem that has not been given sufficient attention in the early phase of post-socialist reform. Price liberalization and the end of socialist pricing mechanisms result in a radical change in relative prices. Yet, these prices are not stable in the short-run, thus making it difficult to make large-scale restructuring decisions in an uncertain environment. Enterprises can benefit from windfall profits if their products' prices rise. It is more likely, though, that a fall in prices results in a "windfall loss" to an enterprise. The latter is particularly true for enterprises in heavy industry, whose products were systematically kept high under socialism, and whose costs (in particular energy) were kept low. In eastern Germany, the shock of the change in relative prices was extreme in July 1990. As a result, about 5,000 of the 8,000 enterprises that THA owned became illiquid by late 1990 (Webber, 1994). In this situation, there is no direct correlation between the financial result of an enterprise in 1990, and its real, medium-run capital value. Even though price expectations in the former GDR stabilized rapidly - as a result of economic union with West Germany - no operational indicator existed for evaluating enterprises. Capital markets, that might have played such a role in developed capitalist market economies, did not yet exist. In the East German case, the risks associated with the unstable environment was so large that only the government could

provide the necessary insurance: no private investor would have been willing to assume the short-term risk of such a large number of enterprises. By keeping several thousand enterprises afloat, the state could "buy time" for the enterprises concerned. As the information base improved, potential investors benefited from this policy.

### 2.2.3: Positive externalities

Another role for government is one of credible commitment, thereby (indirectly) increasing the chances of other private enterprises engaging in the restructuring process. In other words, externalities might exist from regional or sectoral investment. Whenever such externalities are present a coordination problem can arise, leading to basically two types of outcomes: one, where no one invests (i.e., investment is done in other regions), and the other, where everyone invests. Which of the two outcomes materializes depends crucially on the expectations of the parties involved. To put it differently, if everybody expects that others will not invest, no one will invest, and the expectation is indeed fulfilled. Alternatively, if everyone expects that others will invest, then it is financially attractive to invest (because of the externality), and again, the expectations are fulfilled. In the language of game theory, there are multiple equilibria which are self-fulfilling. Clearly, in such cases, the better outcome is accomplished by government moving first, triggering a "band wagon" of other investors.<sup>12</sup>

In sum, the case for state aid can be made by taking a dynamic perspective. As in the previous section, state aid has to be carefully justified, and certain conditions have to be satisfied: 1) firms will increase their productivity beyond other competitors in a reasonable amount of time, and 2) the financial aid can not otherwise be provided through the financial sector. If these two conditions are met then the positive medium-run effect of aid to some firms might outweigh the negative short-run effects.

On the other hand, there are also considerable dangers that can cause well-intentioned state aid to fall short of its goal. The most obvious shortcoming of state aid in the dynamic context is the ability of governments to pick winners. It is often convincingly argued that private sources are in an equal or better position than government to assess the potential for profitable investments (Vickers and Yarrow, 1991). Indeed, the evidence for government to target so-called strategic industries or national champions is not inconsistent with this assertion. Another problem is the issue of credible timing when aid is supposed to be phased-out over time. Governments need to set firm deadlines for reducing or terminating financial assistance so that enterprises have the correct incentives to restructure. The difficulty here is one of time (in)consistency: given that the enterprise has not achieved viability by the agreed upon date, it is unlikely that government would

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12 Two recent examples from the East German steel industry can illustrate this point. In 1990, there was a tacit understanding among West European enterprises, facing another overcapacity crisis, **not** to invest in East German capacities for long products (Maxhütte Unterwellenborn) or flat products (EKO Stahl AG Eisenhüttenstadt). Only when THA showed its determination not to abandon the two sites did the cartel of refuseniks break up, and a "rush" on the two sites began: four candidates for the Maxhütte, three four EKO (see Hirschhausen, 1995a, Chapter 7).



abolish the aid. If firms are aware of this, the incentive to restructure is severely dampened.

### 2.3 Rent Shifting: A National Perspective

The final argument in favor of state aid is, strictly speaking, not an economic efficiency rationale. The argument is often made in the context of the case of Airbus vs. Boeing. It can be shown that an active industrial policy on the part of one country can be used to shift some rent from the foreign competitor to the domestic enterprise.<sup>13</sup> The outcome of this is that welfare for the domestic market increases. In general, the above argument depends on a variety of assumptions. Most importantly for our purposes, a crucial prerequisite for this reasoning is the existence of a highly concentrated market structure. Oligopolistic competition is necessary for the existence of rent which can then be transferred from one firm to another.

For example, state aid to East German producers can be efficient from a German point of view if it succeeds in creating and allocating rents to German producers, that would not have benefited otherwise. In other words, depending upon which perspective one adopts, the results of the analysis will differ.<sup>14</sup> In the interpretation of the case studies, we will have to make that distinction. A situation where the EU loses in terms of social welfare may still be a winning game for an individual nation, or an enterprise.

We now turn to the empirical evidence presented by THA-cases. In the following sections, we shall apply the above mentioned hypothesis to two concrete cases: shipbuilding and synthetic fibers. The two cases were chosen for several reasons: In both branches, the former GDR had developed considerable capacities, and seemed, in 1989, to be at least partially competitive on the European level. Both industries' capacities corresponded to an important market share in Western Europe (12% in chemical fibers, 14% in shipbuilding). Whereas the chemical fiber plants were spread all over the territory of the GDR, shipbuilding was concentrated on the Baltic seashore in only one Land (Mecklenburg-Vorpommern); it was the only significant industrial activity in the GDR north of Berlin. Finally, from an EU point of view, both shipbuilding and synthetic fibers fall under special legislation regulating state aid in the difficult process of restructuring these industries: the code on aid to the synthetic fiber industry<sup>15</sup> and several Council Directives on shipbuilding, the latest being the 7th.<sup>16</sup>

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13 This is referred to as "strategic trade policy", see also Neven and Seabright (1995).

14 In the Airbus-Boeing case, state aid was efficient from a European point of view, whereas it seems to have been inefficient from a US point of view.

15 92/C 346/02.

16 90/684/EEC, prolonged through 93/115/EEC and 94/73/EC.

### **3. *The enterprization of the East German shipbuilding industry***

#### **3.1 From one socialist combine to five new shipbuilding enterprises**

The restructuring of the East German shipbuilding industry is representative of the East German process in several aspects: None of the socialist shipyards of the former "VEB Schiffbau Kombinat" was economically viable after the monetary union of July 1990. Without massive THA intervention, the seven would have perished altogether. Also, in no case did any "classical" restructuring take place; instead, old capacity, mainly designed for mass production of low value-added ships, was gradually removed and new capacity was built and put on international, mainly Western European markets. Between July 1990 and summer 1992, the THA was the only major actor in the process of restructuring.

In 1990 the East German shipbuilding industry consisted of one large combine in which production was coordinated according to "socialist work-sharing" principles. Each of the seven sites was designed as a multifunctional unit in which the production of ships was but one activity; other functions were the provision of social services to employees (such as housing, education, child care, health care, vacation, cultural activities, access to consumer goods, transport, etc.) and the maintenance of political activity. Already in early 1990, West European industrialists voiced concern about the financial viability of the seven yards. With the monetary union, these concerns materialized even more dramatically than foreseen: under the price shock of July 1990 and deprived of their former clients in the Soviet Union, all seven producers ran losses in 1990 and 1991.<sup>17</sup>

In the first instance, the THA decided that the socialist combine was to be transformed into a large holding company, called DMS (Deutsche Maschinen- und Schiffbau AG). This large holding company combined not only all the shipyards of the former GDR, but also the departments for mechanical construction, equipment and engineering.<sup>18</sup> A consultant study concluded that, after the necessary capacity reductions and spin-offs, "the viability of the East German shipyards was never seriously in doubt."<sup>19</sup> Hence, the

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17 The losses amounted to several hundred million DM. Dr. Ken-Peter Paulin, Director of the Treuhandanstalt for vehicle construction, expressed the situation (ex-post) as bluntly as this: "We should have liquidated all shipyards, immediately, in order to limit the losses stemming from the <loss-making> contracts already signed." (cf. Treuhandanstalt Dokumentation 1990-1994, vol. 5, p. 196)

18 The only units that were immediately separated from the former VEB were the production of civil goods (camping-car elements, refrigerators, furniture), social assets (hospitals, holiday resorts), and the thrust of the former combine: several commercial market gardens (cf. Treuhand Dokumentation, vol. 5, p. 105 ff).

19 *ibid.*, p. 108.

Holding DMS started operation in January 1991, financed through liquidity credits from the THA, already amounting to DM 900 million by July 1991.

However, the concept of a state holding company turned out to be politically unwanted, as it did not correspond to the THA strategy of splitting up combines rapidly. Also, the risk that substantial financial resources of the THA would be channeled through the holding was unacceptable to the THA Board. After one year of operation, in March 1992, the DMS Holding company was dissolved, and a strategy of partial privatization started. The THA approached virtually every large Western European shipbuilder, promising substantial operating and investment aid. Yet most large Western shipbuilders hesitated to take over supplementary capacity at a time when capacity utilization rates in Europe were below 4/5. In this first instance, the general tendency among the large shipbuilding groups was not to engage in the development of new overcapacities in East Germany.

Nevertheless, the THA's determination to save a large part of the industry remained unbroken. It gradually improved the conditions for potential investors, until the retention of some Western yards broke. The two largest European groups conceded to integrate the three large East German shipyards: Bremer Vulkan (Germany), fully taking over the MTW and a majority of the Volkswerft; while the Kvaerner Group (Norway) selected the Warnow Werft from the Warnow-Neptun package it was initially offered.<sup>20</sup> Thus, both groups increased their world market share significantly (from 1.6% to 2.8% and from 2.9% to 3.5%, respectively). Besides the increase in market share, the takeovers allowed the groups to widen the scope of their existing yards.<sup>21</sup> The deals, negotiated during 1991/92, were finally signed between late 1992 and mid-1993.

During this period, it was the THA alone, that engaged in the physical and financial restructuring of the East German yards. With regard to financial restructuring, the THA took over old debts, financed liquidity credits, and took over losses. On the real side, it decided on the splitting up of the former structures into smaller pieces, creating new, independent shipyards, each of them specializing in a particular market segment (from small fishing boats to large petroleum tankers). Thus, the THA carried out an active strategy of restructuring for each of the combines concerned, according to a "Master-Plan" conceived for the entire shipbuilding industry. This first phase consisted of restructuring only, and had nothing to do with privatization. Though negotiations with potential investors had started earlier, privatization first took place in 1992/93, i.e., 2-3 years **after** the start of the restructuring by the THA. The task of the private investors, then, was the re-organization of business administration and the carrying out of investment schemes, which were largely financed by the THA as well. Thus, a new industrial structure emerged in the form of five new, independent enterprises, with a new

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20 cf. Treuhand Dokumentation. For a case-study of the Neptun-Warnow-Werft, see also Damaris and Wolff (1993).

21 Bremer Vulkan owned four other yards at the time; Kvaerner, even eight (among them, Europe's second largest, the Masa Yards, with a capacity of about 300.000 CGT, alone).

product mix, integrated into West German or European industrial groups, and engaging in a radical conversion of their capital equipment.

Table 1 shows a representative case of enterprization. Under socialism, the Mathias These Werft VEB ("factory of the people ") was part of the Schiffbau-combine. It had two small building berths, producing a standardized product range. Its main client was the Soviet Union. At a total employment of 6,000, the shipyard featured 135,000 CGT of what we have called "socialist" capacity (left column). In contrast, once enterprization and restructuring have succeeded, a completely new shipyard will emerge, featuring a new dry dock, one of the most modern "compact yards" in Europe, and a new product range (right column). As a result, one has to consider that 135,000 CGT of "socialist capacity" have disappeared, and about 100,000 CGT of "new" capacity have been installed, i.e., market economy oriented capacity.

Table 2 provides general basic data on the restructuring of the East German shipbuilding industry between 1990 and early 1996 <sup>22</sup> (the financial collapse and liquidation of the Bremer Vulkan and its dismantling in 1996 are not yet taken into account).

Two key ratios can be derived from Table 2 that will be used in the evaluation of state aid. One is the private investment/public expenditure ratio (PPR), which measures the ratio of private investment over the total expenditures incurred by the THA and other state institutions, i.e., expenditures before privatization, and the different kinds of state aid falling under Art. 92. This ratio is an indicator for the "efficiency" of state intervention in attracting new capital.<sup>23</sup> In a certain sense, PPR measures the opportunity benefits from not having closed former socialist industrial units, an (hypothetical) alternative for which the expenditure is supposed to have been 0.

In the shipbuilding case, the PPR is very low, indicating a weak return of public expenditures. The THA expenditures and Art. 92 aid amount to about DM 6.3 billion (approx. ECU 3.5 billion, see Table 2<sup>24</sup>), which implies, at DM 350 billion private investment, a PPR of only 0.055. The ratio of private investment over state aid is still very small, at 0.09, implying a ratio of state aid over private investment at about 11/1. In

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<sup>22</sup> In this table, and for the remainder of the paper, we do not account for the alleged misuse of state aids, that may have been committed by the Bremer Vulkan. We assume that - independently of the outcome of the ongoing legal processes - the restructuring of the yards will go according to the announced plans. Indeed, the Bundesanstalt für vereinigungsbedingte Sonderaufgaben (the successor organization to the Treuhandanstalt) and the Land of Mecklenburg-Vorpommern have pledged their support to the East German yards, and have announced that they will continue to finance their restructuring projects after the liquidation of the former owner, the Bremer Vulkan Group.

<sup>23</sup> Note that the PPR is not at all a "legally sound" definition; in particular, it does not correspond to the concept of "investment aid intensity" used as a criterion in the testing of Art. 92 and 93.

<sup>24</sup> Not all of these are real costs to the THA (e.g., some of the old debts of other THA-enterprises may have simply been canceled, or payments covering environmental damage may take years to be used).

other words, for each DM of state aid about 0.09 DM of private investment was attracted.

Another useful ratio is expenditures over jobs created (EJC). Again this can be considered as the opportunity cost for not having created jobs through immediate factory closures. If one calculates the expenditure per job saved, the East German shipbuilding industry used a sum of about DM 6.3 billion (including expenditure before privatization, state aid, and private investment) for about 6,500 permanent jobs in the shipyards, or approximately DM 1 million (ca. ECU 550,000) for one job created.

### **3.2 The nature of competition in the European shipbuilding industry**

#### **Market structures and overcapacities before 1990**

In the 1970s, European shipbuilding entered a permanent state of crisis, due to badly anticipated demand and the slow pace in which restructuring proceeded in the structurally weak shipbuilding regions. The EC Council Directives on state aid to the shipbuilding industry gradually reduced the level of aid to the shipyards from 27% to 9% (7th Directive, 1991-1995). Still, in the early 1990s, each ship built in an EC country could benefit from state aid of up to 9% of the sales value. Japan and Korea, the two largest shipbuilding countries in the world, also practiced different forms of state aid.

As a result, the European as well as the world shipbuilding industry were characterized by a considerable level of overcapacities in the late 1980s, and almost perfect competition reigned among the large number of players in the market. World-wide, the completion of merchant ships decreased from 20.2 m CGT (1975) to 11.7 m CGT in 1990; a decrease of 44%. In 1988, it had even been as low as 8.6 m CGT, only 42% of the 1975 level. Available capacity was also reduced during that time, but less than production: from 22 m CGT (1975) to 15 m CGT (1990), i.e., by 32%. Thus, overcapacity, which was already identified as a structural problem in the late 1970s, remained high during the 1980s, and particularly so in the 1986-88 crisis. In 1990, overcapacity was at 27%, in 1991 even 33%. An identical situation prevailed in Western Europe. Capacity utilization was at only 73% in 1987, and slightly recovered at 77% in 1988 and 84% in 1989, to fall back to 82% in 1990. The Council Directives had not succeeded in reducing overcapacity significantly. When the East German yards joined the EU, the latter had already 22% overcapacity (see Tables 3 and 4).

When considering different market segments, the judgment of overcapacities needs to be slightly modified, but still holds true. As a result of increasing competition from East Asian low-cost producers in the lower value-added segments, European shipbuilders went through a period of upgrading capacities and developing a broad range of higher value-added ships. Thus, in 1992, European shipbuilders still held dominating market shares in passenger ships and ferries (79.2%), fishing vessels (46.6%), full container ships (33.0%) and refrigerated cargo ships (34.9%). In contrast, the segments of oil

tankers (10.2%), bulk carriers (8.9%), Ro-Ro vessels (6.1%) and LNG-tankers (0.0%) were largely abandoned.<sup>25</sup> Table 5 shows the European market shares for the main segments of the shipbuilding industry.

Turning to the competition aspects of the industry it is important to realize that there is a high degree of product flexibility. A yard can relatively easily modify its product mix within the range of low value-added ships, high value-added ships, and passenger boats which compose a market segment in and of themselves. The limiting factors of a yard are the size of the dock, the capacity of the cranes, the block and unit assembly areas, and the flat panel lines. Thus, product differentiation is difficult. As a result, the supply structure in European shipbuilding is one of intense competition. In Europe alone, approximately 25 yards of similar capacity and product range compete with each other; strategic alliances are not (yet) systematically observed. Competition is on price, delivery time, and quality (value of reselling); but it is close to "pure" competition without any particular market power on the side of any yard.<sup>26</sup>

### **Static arguments: state aid was not efficient**

We have now assembled the necessary elements to evaluate the impact of state aid on European competition in the shipbuilding industry. Table 4 already showed the overcapacities prevailing in the European market before East Germany joined the EC, i.e., before 1990. If one accepts the premises that through enterprization, "new" capacity was created in East Germany, one has to consider this as additional capacity from 1991 onwards. The capacities can not be analyzed for particular market segments, as the high substitutability within shipyards makes it impossible to determine overcapacities for specific market segments. Moreover, this seems irrelevant for competition policy, since the relevant market definition is not the segment but the industry as a whole. What one can do, though, is analyze the contribution of East German shipyards to the overcapacity problem on a national level. This can provide an indication of how harmful state aid for new East German yards may have been to competitors.

Table 6 provides an estimation of the "overcapacity-effect" of the East German shipbuilding industry.

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25 Source: COM (95) 38 final, AWES annual reports, authors' calculations.

26 The main European shipbuilding groups, sometimes encompassing several yards, were: Kvaerner (Norway), Bremer Vulkan Group, Howaldswerke Deutsche Werft Group, Blohm & Voss, Mayer, Flender (Germany), Hellenic, Eleusis and Avlis Shipyards (Greece), Chantiers de l'Atlantique, Aterliers & Chantiers du Havre (France), Fin Cantieri (Italy), Odense Stee Shipyard, Danyard, Burmeister & Wain (Denmark), Astilleros Espanoles (Spain), Boelwerf Vlaanderen (Belgium), v.d.Giesen de Noord (Netherlands), Swan Hunter (UK), Finnyards (Finland), Oskarshamn Varv (Sweden).

Two observations can be made from the analysis of overcapacities:

- New capacity in East Germany did not fundamentally alter distribution among the large European shipbuilding countries, i.e., Denmark, Spain and Italy. Between 1990 and 1994, the European market shares of Denmark and Italy increased; for 1993 this is true also for Spain. Hence, the smaller shipbuilding countries may have suffered more from the additional East German capacity.
- The main loser of the 1990s, in terms of market shares, was West Germany. Contrary to other shipbuilding countries, West Germany never recovered from the 1990 output decline, when its market share fell from over 30% to the 21%-range.

One other way to analyze the impact of state aid is to check whether the **degree of competition** has been increased. State aid might have been justified on the grounds that it increased competition. The criteria for this test were developed in Section 2. The analysis yields the following results:

- The amount of state aid is very high, so as to bear no relation to the potential gain in competition stemming from the new yards under development in East Germany. The market is in overcapacity, and the efficiency gap between the former East German yards and the Western European yards is rather considerable. Under these conditions, the reduction of deadweight losses would appear marginal compared to the ECU 3.5 billion in public expenditure;
- Scale economies played no role in the process, and hence, cannot be used as an argument for state aid. Scale economies do exist in the shipbuilding industry: they are estimated at 5-10% for the first four ships, and 15-30% for the first ten ships of one series. But potential scale economies gained through extended series in the East German yards can hardly outweigh the costs of keeping them open.
- Finally, the market structure in the shipbuilding industry must be considered as highly competitive. As explained above, there is a high degree of supply substitutability; on the demand side, no particular market power can be detected either. Hence, none of the static arguments for increasing the level of competition, spelled out in Section 2, applies to the case of the East German shipbuilding industry.

### **Dynamic arguments: too early to judge**

When adopting a dynamic perspective, things may become somewhat less evident. The strategy of the THA in the new German Länder had prevented the complete disappearance of the 540,000 CGT capacity (1990), and would create several hundred thousand CGT of modern capacity by 1997/98, when restructuring of all East German yards would be completed. State aid to East German yards may have triggered a restructuring process that the European shipbuilding industry was due to begin anyway. The necessity of restructuring the industry has been generally accepted now for several years, if not decades. With the phasing out of state subsidies of the 7th Council Directive

on aid to shipbuilding, and the beginning of the OECD Shipbuilding Agreement in 1996, the European industry faces a profound process of reorganization.<sup>27</sup> In this respect, the events in East Germany and the strategy followed by the Western European group that succeeded in East Germany (Kvaerner) may provide an impetus for the rest of the industry: this concerns the concentration of capacities, mergers, and product specialization, and the coordination of production among several yards.

The takeover of the three largest East German shipyards has allowed Kvaerner, and initially, Bremer Vulkan as well, to concentrate production activities and increase specialization in individual yards. Yard specialization would improve productivity and yield economies of scale, both in design and assembly. Second, the takeover of yards facilitates the reduction of capacity within a group, as the closure of any one yard can be gradually prepared; it is not - as in the case of single-yard firms - "an all-or-nothing" decision. Finally, the East German case also points in the right direction of international mergers, a rarity so far in this nationally oriented industry.<sup>28</sup>

Let us examine the dynamic arguments for state aid, assuming temporary support only for potentially viable enterprises. The arguments presented in sections 2.2.1 and 2.2.2 were already discussed. Under the assumption that THA wanted to save the shipyards from disappearing, it had to engage in the separation of productive and social assets, and make sure that the productive assets would not disappear due to short-term illiquidity. As for the argument in Section 2.2.3, positive externalities were weak. State aid succeeded in triggering a series of private investments, but the anticipated "bandwagon" effect of investment has so far not taken place.

Two other reasons indicating that the dynamic effects of state aid may have been more positive than it seemed from the static perspective. One is simply that it is too early to say. As most of the decisions made in 1991/93 are carried out only today, it is impossible to judge the dynamic outcome of shipyard restructuring at this time. The other argument is that the available empirical evidence implies that the productivity gains of East German yards might indeed be large. Two or three years from now, the East German yards are likely to be among the most productive shipyards in Europe. Their average productivity, in terms of CGT/employee year, could be amongst the best in Europe, and thus, come close to the best world productivity figures (see Table 7).<sup>29</sup>

A close look at the data shows that in reality, the so-called capacity "reduction" in East Germany from 540,000 CGT to 327,000 CGT does not correspond to any significant reduction in output from East German yards, as compared to their output in the late

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27 See Kurth, D. (1995): The Shipbuilding Industry in the Years Ahead. Hansa, vol. 132, No. 7, 6-8.

28 The developments described here correspond roughly to the concept of horizontal industrial restructuring aid developed by the Commission, in particular, DG-III. Among the instruments are the Maritime Forum, R&D, and standardization policies (cf. COM (93) 526 final: On the way to conducting a global policy for the maritime industry: first concrete results).

<sup>29</sup> Once again, it is assumed that the restructuring of the East German shipyards will be completed according to the projects that were accepted by the European Commission.



1980s. In 1994, the restructured East German yards produced exactly the same gross output as in 1988 (303,000 GT, as compared to 305,000 GT in 1988). Instead, since the quality of the ships produced increased during that period, one can conclude that the restructuring of East German shipyards led to an increase in capacity in terms of CGT (see Table 8). It comes as no surprise that in 1994 East German yards already produced 360,000 CGT of ships, a figure that already exceeds the 327,000 CGT limit demanded by the Commission.

### **Rent-shifting: the question of perspective**

Finally, the question of the effects of state aid depends on the perspective adopted. If, on the one hand, we conclude that state aid was inefficient from a European point of view, this might not be the case from an "East German" point of view, on the other hand. From a European perspective, the market conditions and overcapacities worsened. That East Germany benefited from state aid seems plausible. Once restructuring is finished and employment reduced, the East German yards could belong to the lowest-cost suppliers in the European Union. Job creation, though limited, is taking place and industrial cores are developing.

In contrast, other European competitors may be indirectly hurt by the revival of East German shipbuilding capacity. This is particularly the case for higher-cost producers in neighboring countries, that are in direct competition with the new yards. It is difficult to establish a causal link between state aid to East Germany and yard closures in other European countries. But it seems reasonable to suspect that the 1.6-1.7 m CGT of ships constructed in East German yards since 1991 have crowded out competitors in other countries.

### **3.3 Lessons for other post-socialist countries of Central and Eastern Europe**

Leaving competition issues aside, the case of the East German yards can be indicative of possible developments in other post-socialist countries, whose shipbuilding capacities are large and relatively modern. Since 1991, the Polish shipyards have overcome the post-socialist crisis and are more active on the West European and world markets. Already, Polish ships are among the world price leaders for capsized bulks, Panamax bulk carriers, factory fishing vessels and small containers (1,900 TEU). Other traditional shipbuilding countries follow right behind: Croatia, Ukraine, Romania, Bulgaria. The East German experience teaches three things:

- First, the closure of certain yards must be possible. One central problem of the THA was its obligation to keep alive, and to modernize, all East German shipyards.
- Second, privatizing a multifunctional shipyard is not a sufficient public policy. Restructuring can only succeed when the state is capable of imposing the isolation of productive assets on the former combines.

- Third, contrary to the East German case, massive capital flows are neither needed nor possible in Eastern Europe. In East Germany, all steps of restructuring were "planned" by the THA, and investment projects preceded market demand. Instead, in Eastern Europe direct access to solvent demand and the integration with shipping companies will precede restructuring, and be the key determinant of success in the restructuring of any yard.

#### **4. *The enterprization of the East German synthetic fiber industry*<sup>30</sup>**

##### **4.1 From a socialist combine to several independent synthetic fiber enterprises**

In 1990, the chemical fiber industry of the GDR consisted of one large Kombinat, the "VEB Chemiefaserkombinat Herbert Warnke" in Schwarza-Rudolstadt; a collection of 8 local factories with close vertical links.<sup>31</sup> Though the production of 330 kt of chemical fibers corresponded nominally to 10% of Western European output, both the equipment and the product range were outdated by Western standards:

- \* the equipment dated largely from the 1960s and had only been marginally updated in the 1980s,
- \* over 50% of total output consisted of Cellulosics; the production of which was decreased in Western economies due to environmental reasons and decreasing demand (down to 10%, as compared to 90% synthetic fibers),
- \* the percentage of specific filaments was largely below that of generic staples,
- \* production was concentrated on low value-added acrylic and polyamide fibers, but few high-tech fibers (microfibers, PP, Elastan, Aramid),
- \* 80% of total production was geared to East German and Soviet Union clients, another 10% to other socialist countries, and only 10% sold to hard-currency countries,
- \* coordination of raw material supplies, know-how and production was difficult among the eight combines of the Kombinat; the three dominant combines (Schwarza, Premnitz, Guben) tried to achieve maximum autarchy, whereas the five small units were for the most part limited to one product.

All in all, the 330 kt were typically what one would call "socialist" capacity.

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30 Synthetic fibers are made from oil or gas: polyester (PES), polyamide (PA), acrylic (PAN) and polypropylene (PP). Together with cellulosic fibers (made from renewable raw materials, mainly wood) they make up the category of man-made fibers, or chemical fibers. In this section, we are concerned with the synthetic fiber industry, only, regulated by the European "Code on aid to the synthetic fiber industry."

31 Chemiefaserwerke Schwarza-Rudolstadt, Chemiefaserwerk Premnitz, Chemiefaserwerk Guben, Kunstseiden Pirna, Kunstseidenwerk Elsterberg, Zellstoff- und Zellwollewerke Wittenberge, Sächsische Zellwolle Plauen, Spinnstoffwerk Glauchau.

With the currency union between East and West Germany (July 1990) it became evident that none of the factories in the chemical fiber industry would be competitive under the new conditions. The sudden increase in input prices (mainly labor, but also raw materials) and a shift in domestic demand towards Western products dealt a blow to the industry. The January 1991 disintegration of COMECON - followed one year later by the breakdown of Russian demand for foreign intermediary products - had a drastic impact on output and profitability. Whereas production in 1990 was down by "only" 15% from 1989, the industry produced 40% less in 1991; and still, a large part of the 200 kt of production went on stock. In 1990, none of the eight producers of the former socialist VEB Chemiefaserkombinat made a profit.<sup>32</sup>

### **The Treuhandanstalt strategy to rescue some parts of the industry**

As in the shipbuilding industry, the THA pursued an active rescue strategy right from the beginning. Contrary to the shipbuilding case, though, there was no need for a global master plan. First, because the interdependency of existing capacities was lower; and second, because the multifunctionality of the industrial units was less complex, making it easier to identify potentially viable production capacities. The chemical fiber industry was also less capacity-intensive than shipbuilding, and finally, much less sensitive politically.

In a first instance, the THA strategy of individual restructuring and subsequent privatization of some units of the former combine seemed to pay off. Though none of the big European synthetic fiber producers could be attracted, the THA found a couple of industry "outsiders" willing to invest in the newly established enterprises. Within 1.5 years, the THA completed the first round of sales. Already by early 1992, the three large producers (Schwarza-Rudolstadt, Premnitz, Guben) were partially privatized, and the three smallest ones (Wittenberg, Plauen, Glauchau) prepared for liquidation. Synthetic fibers thus seemed to have been a "success story" for THA's industrial strategy.

Yet four years later, none of the privatized enterprises has fully succeeded in its restructuring project; hence, the probability is high that some of them will need further restructuring. Contrary to the shipbuilding case - where evidence of some success of restructuring is becoming visible - the synthetic fiber industry has yet to overcome the errors resulting from over-optimistic assumptions regarding the external conditions of restructuring and from unrealistic demand projections.

By sketching out the trajectories of the three most important former socialist VEBs, we point to different types of difficulties in the enterprization of the East German synthetic fiber industry.

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32 Cf. Treuhandanstalt Dokumentation, Panorama of European Industry (1994), CIRFS-Statistical Yearbook, IVC, Business Reports of chemical fiber companies.

#### 4.1.1 Märkische Faser AG: difficulty of core-privatization when there is no core

When the THA took over the "VEB Chemiefaserwerke Friedrich Engels", the VEB-owned machinery, including a brand new acrylic fiber line (Acrylfaserstraße), was considered powerful. The combine's capacity of 100 kt of synthetic fibers corresponded to roughly 15% of total European capacity in that market segment; mainly PAC and PES staple fibers, destined for the East German and Soviet markets. The Treuhand steering committee, a group of experts in charge of evaluating the enterprises and counseling the THA, recommended a quick privatization of the company. The steering committee estimated investment requirements at about DM 300 million, and the necessary reduction of the labor force at 50-60%. It was then decided that the THA should guarantee the survival of the factories by financing at least half of the investment, directly.

The "core"-business of the company, renamed "Märkische Faser AG" in 1990, was offered to the chemical fiber industry around the world (promotion activities took place in Germany, France, the US and even Japan). The "non-core" parts were sold separately: The largest among them, Novoktan GmbH - a factory for the treatment of gasoline, with 220 employees - was given away to Alcor Chemie AG for a price below the DM 2 million nominal capital. Not a single company, however, showed any interest in the core of Märkische Faser AG. In October 1991, the Treuhandanstalt sold the synthetic fiber activities of Märkische Faser to the trading company that had already bought the Novoktan subsidiary, Alcor AG.<sup>33</sup>

In January 1992, the demand for synthetic fibers from Soviet Union business partners dropped dramatically, causing severe liquidity problems at Märkische Faser. The THA continued to fill up the financial bottlenecks of the "privatized" company. But Alcor, the new owner, refused to put down the promised investment funding, arguing that the commercial basis for the contract, i.e., markets in East Germany and the Soviet Union, was no longer valid.<sup>34</sup> In October 1994, Alcor officially withdrew from the privatization contract, and the THA had to look for another investor. As large Western European firms continued to be disinterested, the THA convinced a public bank, the West-NBL, a subsidiary of the WestLB, to act as an "intermediary" investor; once more, in order to gain time. Between mid-1994 and mid-1995, the only concrete cooperation proposal came from the Russian Rostextil AG, a consortium of textile companies, several of which were former clients of the East German combine. While waiting for negotiations to progress, the West-NBL agreed to invest another 35 million DM into Märkische Faser.

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33 In order to coax Alcor AG into this deal, Treuhandanstalt not only took over DM 175 million of old debts, but also offered an industrial site of 3 million m<sup>2</sup>. Alcor, in turn, promised to keep 1,700 jobs and invest at least DM 100 million.

34 Whereas the Treuhandanstalt and the land of Brandenburg continued to provide liquidity support to Märkische Faser, Alcor showed interest only in the use of the power plant, on site, which also furnished the Novoktan chemical plant. It thus seems the motivation for Alcor was simply to obtain control of the power plant.

#### 4.1.2 Thüringsche Faser AG: Continued splitting-up of a combine

The restructuring of the "VEB Chemiefaserwerke Schwarza-Rudolstadt" is a case in which a socialist VEB was split up several times in order to attract investors. In 1989, Rudolstadt was the second largest producer of synthetic fibers in East Germany, employing 6,500, with a production of about 80 kt of fibers (20 kt PA-6 filaments, 33 kt viscose staples, 30 kt PA-granulates). Over-staffed and badly equipped, Rudolstadt was classified a "critical" case by the Treuhandanstalt in mid-1990. The THA received its only valid offer in mid-1991 from an Indian Textile- and Trading House, Dalmia. Since Dalmia considered the real capital value of Rudolstadt low, it demanded that the THA and the Land of Thuringia contribute substantially to its modernization.<sup>35</sup> While Dalmia took over three main departments of the former combine, the fourth department, producing fibers for carpets, was separated and sold to another West German company, "Odenwald". In addition, several auxiliary departments - furnishing both productive and social services to the combine in socialist times - were leased or sold to their respective management. Thus, an industrial park developed around the privatized hard core.

In the early stage of privatization things seemed to work out well. Dalmia proceeded with the creation of three largely independent profit centers, the first two of which were supposed to grow at a fast rate:

- \* Viscose staples, whose share in turnover grew to 42% in 1993,
- \* Plastics (PA-granulates), increasing their share rapidly to 35% of turnover,
- \* PA-6 polyamide filaments, already operating at a loss in 1991, continued to suffer, declining to 21% of turnover.

In November 1992, the EC-Commission approved aid by the THA of DM 127 million, in exchange for a further reduction in capacity.

Yet the move to profitability through increased sales on international markets failed to materialize, delivering a blow to Dalmia's expansion plans. In 1993, almost half of the production was still being sold in East Germany; with only 15% being exported to Western Europe (10%) and overseas (5%). Losses continued to be significant in 1991 (DM -95 million) and 1992 (DM -20 million). As a result, Dalmia threatened to cancel its obligations unless the THA and the Land of Thuringia provided further aid. In summer 1993, Dalmia withdrew definitely, and Thüringsche Faser was quickly declared bankrupt and sent into liquidation.

The splitting up of the former combine then continued:

- A West German firm proposed to take over the polyester activities;

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<sup>35</sup> The Treuhandanstalt then decided to fix the following conditions for privatization of the hard-core of the combine: Dalmia had to procure DM 150 million in investment over three years, and maintain at least 1,000 jobs; whereas the Land of Thuringia and the Treuhandanstalt were to contribute approximately DM 400 million and DM 127 million of investment subsidies, respectively.

- machinery and equipment was sold individually;
- the Regional Development Agency of Thuringia took over the 70 ha of land.

By late 1995, about 600 jobs had been created in chemical fiber activities; and it is hoped that the industrial park will employ another 300-400. The split-up of the former VEB continues.

#### **4.1.3 Chemiefaserwerke Guben: partial privatization but continued losses**

The VEB Chemiefaserwerk Herbert Warnke in Guben, the third largest in GDR until 1990, produced over 60 kt of fibers in 1989 (PA-filaments: 35kt, PES-filaments: 27 kt). Already in early 1990, Hoechst AG of West Germany identified Guben as a potential customer for its machinery; only after some initial delay did it develop the project to use the site for serving the growing East German market. From 1991, Hoechst outsourced the production of polyamide filaments to Guben, providing its own second-hand machinery. In 1991, the Guben site was split into two new companies. Hoechst AG took over the polyamide filament section, while the filaments for carpets were bought by a former client, the Lausitzer Teppiche. The department for polyester filaments was closed. Hoechst guaranteed employment of 1,000 (out of 7,100 in 1990!) and new investments of DM 126 million, 23% of which were to be provided by the Land of Brandenburg. The rest of the former factory was sold through management buy-out, or closed.

The restructuring of the fiber production facilities at Guben turned out to be a costly operation for Hoechst, but even more so for the THA which had given a guarantee for taking over losses during the first years of operation. Faced with a crisis of the European fiber industry and the unexpected disappearance of Soviet Union and Eastern European markets, Guben became a permanent loss-maker: In 1992, turnover decreased to DM 86 million, losses were as high as DM 64 million. Consequently, polyamide production was discontinued in 1993; and instead, a new production line for airbag filaments was put under construction. In 1993, losses of DM 75 million exceeded turnover (DM 73 million). The restructuring of the Guben site was completed in 1994 with the transfer of a 6kt yarn-production from Berlin to Guben; which was part of the restructuring of Hoechst's European fiber production activities. Still, losses remained high: DM 64 million in 1994, at a turnover of DM 107 million. Thus, in the end, all production capacities inherited from the socialist combine had been closed by Hoechst, with two new production lines created at Guben. Today, the Hoechst Guben GmbH no longer has anything to do with the VEB Chemiefaserwerke Herbert Warnke.

The three cases in the synthetic fiber industry imply that the formal act of privatization is not the central issue for the success of industrial restructuring. Inefficient corporate governance structures have delayed restructuring and investment. It is not certain whether the splitting up of the unsold units will continue, whether THA and the Land can continue to save these enterprises, or whether large synthetic fiber companies have a future in East Germany. Table 9 provides the basic data on the restructuring of the East German synthetic fiber industry between 1990 and 1995.

Once again, we can calculate the two key ratios to obtain quantitative evidence for the evaluation of the process. The private investment / public expenditure ratio (PPR) is more favorable than in the shipbuilding case, at 0.12, yet it is fairly low. If one calculates private investment over approved state aid only, things already look better: with state aid of about DM 343 million, THA was able to attract private investment of about DM 171 million, i.e., a ratio of exactly 0.50.

Consequently, the ratio of expenditures per job created (EJC) is relatively favorable, i.e., low, at DM 390.000 (ECU 215.000) per job. Again, if taking into account state aid only, the ratio of aid over job creation is still more favorable: for DM 343 million of state aid, 3.495 jobs were created, i.e., DM 100.000 (ECU 54.000) per job. These figures also support our hypothesis that synthetic fibers were a less important restructuring process than was shipbuilding.

## **4.2 The nature of competition in the European synthetic fiber industry**

### **Market structures and overcapacities before 1990**

Synthetic fibers is another EU-industry in recurrent crisis since the 1970s. Among the reasons for this are: high capital-intensity, increasing international competition, substantial overcapacities due to badly anticipated demand, inadequate market growth and increasing delocalization of the industry. Since 1977 the Commission, the Member States and industry tried to curb the spiral between state aid to industry and overcapacities. A "Code on aid to the synthetic fiber industry", called the synthetic fibers "Discipline", was enacted in 1977 and extended several times since.<sup>36</sup> The "Discipline" is supposed to ensure transparency of aid given to synthetic fiber producers, to prevent subsidization of capacity increases, and to link modernization aid to capacity reductions.<sup>37</sup>

Despite some success, the Discipline did not bring about the expected results. It succeeded in increasing capacity utilization from an all-time low of 62% (1975) to 86% (1985). However, overcapacities again increased in the second half of the 1980s. In 1990, the year of German economic and monetary union, capacity utilization in Western Europe had fallen to 80%. One year later, when the restructuring of the East German synthetic fibers industry started, it stood at only 77%. Table 10 provides evidence on the continuous overcapacities in the West European synthetic fibers industry.

### **Static arguments: state aid seems to have been inefficient**

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36 The latest regulation is the 1992-96 "Discipline", Document 92/C 346/02.

37 Panorama of European Industry, CIRFS-Briefing note: The Synthetic Fibers "Discipline". Brussels, February 1995.

Once again we make a distinction between the static and the dynamic perspective. From a static perspective, the impact of the East German synthetic fiber industry on European competition needs to be analyzed. Just as in the shipbuilding case, we shall consider the capacity created in the East German factories after 1990 as "new" capacity, i.e., new in terms of adaptation to the capitalist market economy. This new capacity completely replaced the "socialist" capacity. The case studies have indeed shown that almost all of today's production is "new" production, in terms of products and production technology.

Table 11 indicates the development of market shares in the European synthetic fiber industry before and after the entry of East German producers.

Once again, the static analysis of market shares does not hint at a direct relation between the new East German capacity and reduced market shares of the main competitors. Between 1990 and 1994, the three largest synthetic fiber countries, other than Germany, either increased their European market shares (Spain, Benelux) or kept it constant (Italy). Instead, the main loser seems to have been the West German producer, whose market share decreased significantly in this period.

According to the synthetic fibers discipline ("Code on aid to the synthetic fiber industry", Document 92/C 346/02), the Commission is supposed to "oppose any public financial support which would result in the installation of new capacity or even in the maintenance of existing capacities in the synthetic fiber industry". The granting of aid is conditional on a "significant reduction in the production capacity of the assisted company". In the post-socialist context of East Germany, the shedding of "socialist" capacity can **not** be considered a significant reduction, since it did not represent any market-relevant capacity at all. On the other hand, aid can be justified for the support of less-favored regions.<sup>38</sup> This is clearly the case for all East German producers. Hence, the synthetic fiber "Discipline" does not provide any conclusive guidance on this particular case.

Finally, we shall analyze whether state aid to East German producers might have been beneficial to competition within the sector. Here the analysis is straightforward: the data suggest that the ratio between state aid and the reduction of deadweight losses is much smaller than in the shipbuilding case. Yet, the absolute level of state aid, i.e. DM 343 million, does not seem justified. The number of competitors in the market was relatively large, and demand elasticities high. Second, the risk of collusion between incumbents was low; state aid can not be justified with reduced collusion among competitors. Third, scale economies again play no major role in the industry structure. Most of the European companies are multi-product producers, i.e., they produce more than one of the main synthetic fibers (PA, PES, PP, PAN). Economies of scope exist from producing more than one fiber (purchase of raw materials, energy, stocking, sales and marketing).

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38 "The Commission is generally sympathetic to investment aid granted to overcome the structural handicaps of the Community's less-favored regions"; synthetic fiber code, cited above.



In sum, the market structures in the industry can be considered highly competitive. On the supply side, more than 30 firms produce synthetic fibers in the EU alone.<sup>39</sup> In the late 1980s, a process of product specialization began in Europe, triggering several exchanges of production sites between producers.<sup>40</sup> Yet, as of today, none of the strategic moves towards product differentiation and specialization have led to a significant rationalization of capacity.<sup>41</sup> On the demand side, the synthetic fiber industry depends mainly on the development of downstream sectors; in particular, textiles and clothing. The delocalization of the downstream sectors implied a delocalization of synthetic fibers, too. The number of clients for the synthetic fiber industry is practically unlimited; no individual consumer has any market power. Given the overcapacities and the atomistic supply and demand structures in the European synthetic fiber market, there is no reason to believe that the entry of new East German producers has benefitted competition.

We conclude, from the point of view of static competition analysis, that there is no economic justification for the state aid provided to East German synthetic fiber producers.

### **Dynamic arguments: dependent upon the success of pending cases**

When checking the three dynamic arguments for state aid (separation of productive and social functions, avoidance of premature liquidation, positive externalities), the first two seems to hold. The THA aid certainly prevented the producers from immediate collapse, and thus limited the danger of an immediate devaluation of capital assets. As shown in the Thüringsche Faser and Guben cases, the only way to save some parts of the industry was to split up productive assets, and continue doing so until some of the pieces found an investor. On the other hand, positive externalities were hardly attained in the synthetic fibers industry. The strategic value of East German plants for Western producers continues to be low. In the restructuring processes of the entire synthetic fiber industry, only two Western groups showed some interest (Hoechst and Rhône Poulenc), and still their contribution remained limited.

Contrary to the shipbuilding industry, the future of the East German synthetic fiber industry is difficult to assess. Three relatively small units are currently being developed, which may become European leaders in a small number of niche products. But the future

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39 See CIRFS-Yearbook; in alphabetical order: Azko Nobel, Allied Signal, Aquafil, BASF, Bayer, Brilen, Courtaulds, Du Pont de Nemours, Enichem/Montefibre, Fabelta Ninove, Filanda, FISIFE, Hoechst, INACSA, Inquitex, Kemira, Lenzing, Miroglio, Moplefan, Novaceta, Novalis, Nurel, Nylstar, Rhône-Poulenc, La Seda de Barcelona, SNIA, SNIACE, Svenska Rayon, Textile Produkte, UNIFI, Val Lesina, Wellman International.

40 This process led in 1992/93 to several direct exchanges of companies between large chemical fiber groups. For example, ICI sold its acrylic-production to DuPont and BASF; each in turn received a polyamide and a polypropylen unit, respectively. Allied Signal and Azko, Rhône-Poulenc and SNIA, respectively, joined their activities in polyamide production.

41 Panorama of European industry, 1994, p. 6-66.

of capacity and production in the two largest combines (Märkische and Thüringsche) is still unclear. If the current projects succeed, the East German synthetic fiber industry will be small, but competitive. If the projects do not succeed, the new East German capacities pose no serious threat to the rest of the European synthetic fiber industry. This is, again, in contrast to the shipbuilding case discussed above: first evidence implies that the restructuring of the West European synthetic fiber industry, which in any event seems to be inevitable, is not significantly hampered by aid to East Germany. Table 12 provides a scenario for the East German chemical fiber industry for the year 1996/97, when restructuring is supposed to have ended.

The rent-shifting argument does not apply here fully. Certainly the "big winners" of state aid were the East German enterprises, that may boast Europe's most modern capacities in a few years. From a European perspective, chances that the aid had some negative impact are high. The synthetic fibers industry continues to operate on very small margins and relatively high capital intensity. European producers already operating on the verge of market-exit may have been driven out of the market. However, clear-cut evidence of this does not exist.

The restructuring in East Germany could be used as an opportunity for reorganizing business structures, as the Hoechst-Guben case has shown. But no immediate adverse effects on European industry can be detected from the state aid provided to East German synthetic fibers. The future will tell whether the large cases pending will pay off for public and private investment.

## ***Conclusion***

State aid, restructuring and privatization in the new German Länder should be analyzed in a perspective unknown to European competition policy before 1990: post-socialism. The transformation of socialist to capitalist industrial structures required a specific grid of analysis, that was rapidly developed for East Germany. It remains relevant to other post-socialist countries in Central and Eastern Europe, as they approach EU-membership. Articles 92 and 93 of the EC-Treaty were bent to their extremes in order to cope with state aid in a country where almost no producer would have withstood EU-competition without support. In a rapid learning process, the THA lived up to the task of splitting up former socialist industrial units, until the last part had found an investor, or was closed.

It is difficult to judge the outcome of East German industrial restructuring today, as most of the decisions made in 1991/93 are currently being carried out; in particular, with respect to investment projects. Econometric modeling of the impact of East German restructuring on European competition is impossible, since the results of the restructuring have not yet fully come to the fore.<sup>42</sup> Nonetheless, qualitative analysis can

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42 Also, data on East German enterprises is not easily obtained, since THA-owned enterprises are not obliged to publish business reports nor financial statements.

be done for the most important sector in which the THA-intervention was massive, such as: shipbuilding, metal, coal and potash mining, steel and non-ferrous metals, chemistry and refining, chemical fibers, mechanical engineering, automobiles and electronics.

We conclude from a competition policy point of view that the results of five years of the THA's efforts in the shipbuilding and synthetic fibre industries have to be judged as negative in a static perspective, and as questionable in a dynamic perspective. The THA's aid created "new" capacity, i.e. capacity directed towards Western European and world markets. This is the case for both the 327,000 CGT capacity in the East German shipbuilding industry, and about 150,000 t in synthetic fibers. In neither case did state aid contribute to an increase of European competition. Instead, the problem of overcapacities worsened.<sup>43</sup>

In a dynamic perspective, the outcome of state aid to East German enterprises is still open. Though public expenditures were very high (i.e. the THA expenditures before privatization and state aid according to Art. 92 *stricto sensu*), dynamic restructuring processes were triggered that may have some positive impact on the European industry at large. In both cases, shipbuilding and synthetic fibers, the outphasing of EC-regulation is a contribution factor to industry dynamics in the early 1990s. Product specialization, extended use of scale economies, and cross-country mergers and capacity management were triggered in East Germany, possibly indicating future developments in the European industry.

We also stress the point that what looks like a losing game from the European perspective may be a winning game from a regional perspective. This is certainly the case for the new Länder of East Germany, that - without massive state aid - would have perished from the economic map. Thus, new East German industrial sites benefited in the form of a huge qualitative push, both in terms of equipment and in labor productivity.

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43 Quantitative analysis for other sectors indicates similar results. Take the **steel industry**, for example, where Western Europe had just featured two overcapacity crises, in the mid-1980s (capacity utilization of 67% in 1986/87), and again, in the early 1990s (72%, 71%, 69% in 1990/91/92, respectively): East German capacity was reduced from 8mt (1989), modern capacity of 3mt (1995) was built, one third with significant state investment aid. Market structures in the steel industry were slightly oligopolistic in the late 1980s, but the arrival of mini-mills has led to fully competitive structures since. In **lignite mining**, competition between producers and between energy sources was also high. The output decline of East German lignite was spectacular: in a sector in which East Germany, the world's largest producer, was considered to have had a comparative advantage, production fell by 69% (from 301 million t in 1989 to 94 million t in 1992; i.e., a 69% reduction). The modernization of the remaining capacities did not lead to an increase in competition in European mining. **Chemistry and refining** features probably the most striking aid/capacity relations; the new refinery in Leuna, if it ever goes on line, will have cost about DM 6-10 billion for production in a sector that already features full competition and excess capacities of about 4-5 million t/year; i.e., over 10% of production in the region (excluding light benzene; see Helie, Marie-José (1994): Perspectives sur les raffinage européen. Ecole des Mines de Paris). The same analysis holds for **automobile** production as well: the factories of the "Trabant" and "Wartburg" (still featuring models of the 1950s/60s) could not but perish immediately; the new capacities built on site, several hundred thousand car units (VW and Opel) could have been installed in other European plants.

With massive state aid, some large enterprises have been developed that are on the leading edge of Europe or even world-wide. When the investment projects underway are finished in a couple of years, the East German industry will boast a qualitative jump towards the most modern production facilities and organization. Shipbuilding and synthetic fibers are but two examples of this. Other branches in which modernization led to leading-edge technologies developed in East Germany are the optical industry, steel, chemical refining, semiconductors, and automobiles. Whether these units will remain "cathedrals in the deserts" (Grabher, 1993, term chosen because the high-tech factories are not backed by an industrial Hinterland) or whether they are the industrial cores of flourishing, self-sustaining industrial landscapes remains an open issue.

While the East German cases of state aid were a novelty for the EC-competition policy, they should also be considered as a forerunner to the integration of other post-socialist countries into the EU. These countries' industries are already in the process of changing the competitive situation in the new Europe: for example in shipbuilding, automotive steel, energy or food processing. Central and Eastern European countries will not follow the capital-intensive East German pattern of industrial restructuring. But in almost all sectors, state aid will play a significant role in the recovery process of these industries. EU politics and research will need to cope with the post-socialist specificities in order to handle these newly emerging challenges to competition policy.

**Table 1:** From the socialist Mathias Thesen Werft VEB to the MTW Schiffswerft GmbH: - A case of creating "new" capacities

	<b>Under Socialism (1989)</b>	<b>After Restructuring (1997/98)</b>
<b>Name</b>	Mathias Thesen Werft VEB (factory of the people)	MTW Schiffswerft GmbH
<b>Owner</b>	Schiffbau-Kombinat Rostock, controlled by the Communist Party and its "Plan"	Taken over by the BvS (ex- Treuhandanstalt) and the Land of Mecklenburg-Vorpommern, after the liquidation of the former owner, the Bremer Vulkan Group
<b>Berths</b>	2 small open building berths for shipsizes 87x25 m (5,000 t) and 206x32 m (8,000 t)	New dry dock, 340x67 m; "compact yard 2000"
<b>Product Range</b>	Fishing vesels and refrigerator ships; multi-purpose transport vessels; containerships	Very large crude carriers, specialized container vessels, passenger vessels, chemical tankers
<b>Maximum Size Ships</b>	40,000 dead weight tons	300,000 dwt
<b>Markets, Competition</b>	Bartered with USSR; competition: none	Mainly European markets, competition with West European, and, increasingly Polish shipyards
<b>Employment</b>	6,000 (including social functions)	1,388
<b>Capacity</b>	135,000 CGT "socialist" capacity	ca. 100,000 CGT "new" capacity

**Table 2:** Basic data on the restructuring of the East German shipbuilding industry, 1990-1995 (as of December 1995)

NEW ENTERPRISE	TAKEN OVER BY	MARKET SEGMENT(S)	CAPACITY (APPROX.)	TREUHANDANSTALT EXPENDITURES BEFORE PRIVATIZATION **	STATE AID FALLING UNDER ART. 92 (1992-1995)	PRIVATE INVESTMENT	EMPLOYMENT (FROM 1990 => 1994)
<b>1) MTW Schiffswerft GmbH, Wismar (MTW)</b>	taken over by the BvS (ex-Treuhandanstalt) and the Land of Mecklenburg-Vorpommern, after the liquidation of the former owner, the Bremer Vulkan Group (BV)	<ul style="list-style-type: none"> <li>• crude carriers</li> <li>• large products/chemical tankers</li> <li>• PANMAX containers</li> <li>• passenger vessels</li> </ul>	100,000 cgt <ul style="list-style-type: none"> <li>• new dry dock, 340x67 m (for ships 300,000 dwt)</li> </ul>	686.5 Mill. DM	Total Aid: 997.4 Mill. DM of which: <ul style="list-style-type: none"> <li>• operating aid: 597.2 Mill. DM (losses to be covered: 458.8 Mill. DM; injection of fresh capital: 57.7 Mill. DM; write-off part of old current liabilities: 80.7 Mill. DM)</li> <li>• investment aid: 337.2 Mill. DM</li> <li>• closure aid: 18.0 Mill. DM</li> </ul>	Bremer Vulkan Group: ca. 50 Mill. DM	6,000 => 1,388
<b>2) Volkswerft GmbH, Stralsund (VW)</b>	taken over by the BvS (ex-Treuhandanstalt) and the Land of Mecklenburg-Vorpommern, after the liquidation of the former owner, the Bremer Vulkan Group (BV)	<ul style="list-style-type: none"> <li>• container ships (700-3,000 teu)</li> <li>• product tankers (45,000 dwt)</li> <li>• bulkers (48,500 dwt)</li> <li>• passenger vessels (23,000 Gt)</li> <li>• fishing vessels (970 dwt)</li> </ul>	85,000 cgt <ul style="list-style-type: none"> <li>• old launching dock (213x37 m)</li> <li>• new treatment and preparation shop</li> </ul>	665.3 Mill. DM	Total Aid: 1,087.7 Mill. DM of which: <ul style="list-style-type: none"> <li>• operating aid: 680.5 Mill. DM (40% of old current liabilities: 108.5 Mill. DM; injection of fresh capital: 50.0 Mill. DM; loss compensation during restructuring: 522.0 Mill. DM)</li> <li>• investment aid: 398.7 Mill. DM</li> <li>• closure aid: 8.5 Mill. DM</li> </ul>	BV and others: 88.3 Mill. DM	5,532 => 1,800
<b>3) Kvaerner Warnow Werft GmbH, Warnemünde (NWW) *</b>	Kvaerner Group (Norway)	<ul style="list-style-type: none"> <li>• gas and oil carriers (up to 160,000 dwt)</li> <li>• bulk carrier (up to 180,000 dwt)</li> <li>• PANMAX-container (up to 3,000 TEU)</li> </ul>	85,000 cgt <ul style="list-style-type: none"> <li>• new dry dock: 320x54 m, for 40,000 dwt, steel-cutting line, panel line hall</li> </ul>	989.6 Mill. DM	Total Aid: 1,247.7 Mill. DM of which: <ul style="list-style-type: none"> <li>• operating aid: 745 Mill. DM (40% of old current liabilities: 82.4 Mill. DM; injection of fresh capital: 105.0 Mill. DM; loss compensation during restructuring: 557.6 Mill. DM)</li> <li>• investment aid: 474.9 Mill. DM</li> <li>• closure aid: 27.8 Mill. DM</li> </ul>	Kvaerner: 100.1 Mill. DM	2,700 => 1,800



**Table 3:** The state of the European and world shipbuilding industry, 1980-1994

Production - Ships completed (1,000 CGT)		1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
EU	BELGIUM	130	96	83	173	102	124	45	26	47	36	72	22	98	5	66
	DENMARK	382	344	329	339	355	444	351	194	277	287	306	351	415	354	307
	FRANCE	268	443	353	357	357	164	145	208	63	199	114	171	182	65	103
	GERMANY /1	673	1270	1182	1268	1165	1143	1067	765	885	847	1002	810	958	853	961
	GREECE	13	5	62	36	40	44	25	7	12	13	46	6	0	7	0
	IRELAND	3	17	0	19	0	0	0	0	0	0	0	0	0	0	0
	ITALY	346	359	156	217	182	124	61	225	120	285	328	424	289	496	440
	NETHERLANDS	250	342	390	416	259	310	263	146	153	172	264	357	271	236	319
	PORTUGAL	35	6	31	125	19	40	61	26	23	46	65	39	64	62	17
	SPAIN	441	557	587	489	346	400	230	328	326	306	365	301	428	365	233
	UNITED KINGDOM	459	243	394	319	305	164	142	162	113	157	145	171	140	148	139
TOTAL EU-12		2999	3682	3568	3757	3131	2959	2388	2088	2020	2346	2703	2651	2845	2592	2585
OTHER	FINLAND	372	408	441	503	419	283	260	145	263	321	379	212	210	191	123
AWES	NORWAY	324	342	448	278	175	222	163	181	155	79	158	249	311	203	195
	SWEDEN	335	421	253	294	180	127	116	123	72	34	45	46	32	24	0
TOTAL WESTERN EUROPE (EU-15 + NORWAY)		4029	4853	4709	4832	3906	3591	2927	2537	2510	2781	3285	3158	3399	3010	2902
JAPAN		5207	5581	5811	4908	6951	6498	5085	3795	2953	3664	4456	4417	4379	4854	5177
KOREA		446	512	880	986	1015	1633	1971	1194	1505	1389	1564	1730	1995	1835	2104
CHINA		n.a.	28	105	170	298	172	215	207	253	230	304	255	282	446	481
POLAND		498	346	370	277	382	358	340	300	344	238	177	223	306	264	402
ROMANIA		n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	126	147	72	22



Production - Ships completed (1,000 CGT)		1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
BULGARIA		n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	71	62	71	79
USSR		425	600	504	475	690	274	170	44	56	227	482	365			
	RUSSIA													22	156	97
	UKRAINE													119	153	210
YUGOSLAVIA		171	225	221	217	237	281	188	3	230	328	293	240	21		
	CROATIA													238	104	165
REST OF WORLD		1860	1696	1989	1687	1520	1361	1242	1165	747	1024	1095	941	1150	1415	1378
TOTAL WORLD		12635	13841	14588	13552	14998	14189	12139	9245	8598	9881	11656	11526	12118	12380	12636
1/ From 1990, data includes production from Ex-GDR yards																
Sources: EEC Report of the Commission to the Council on the state of the shipbuilding industry, COM (95) 38 final, table 5a																

Sources: EEC Report of the Commission to the Council on the state of the shipbuilding industry, COM (95) 38 final, Table 5a<sup>44</sup>

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44 1/: Data includes production from GDR-yards.

**Table 4:** Overcapacities on the European and world shipbuilding market

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
TOTAL WORLD CAPACITY (1,000 CGT)	18400	18600	18800	18400	18000	17300	16000	15500	15200	15000	14800	15300	15800	16200	16700
WORLD CAPACITY UTILISATION	69%	74%	78%	74%	83%	82%	76%	60%	57%	66%	79%	75%	77%	76%	76%
WORLD OVERCAPACITY	45%	34%	29%	36%	20%	22%	32%	68%	77%	52%	27%	33%	30%	31%	32%
EUROPAN CAPACITY (1,000 CGT)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	3484	3255	3304	3493	3561	3739	3524	3546
EUROPEAN CAPACITY UTILISATION	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	73%	77%	84%	82%	83%	90%	86%	81%
EUROPEAN OVERCAPACITY	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	37%	30%	19%	22%	20%	11%	16%	23%
Sources: AWES annual reports; COM (95) 38 final; CSCN (1995): La situation internationale; author's calculations <sup>45</sup>															

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<sup>45</sup> Data for European capacity: EU-15 plus Norway.



**Table 6:** Market shares in European shipbuilding (production), 1987-1994

	1987	1988	1989	1990	1991	1992	1993	1994
<b>East Germany</b>	0.0%	0.0%	0.0%	0.0%	12.3%	7.4%	8.2%	12.0%
<b>West Germany</b>	30.1%	35.3%	30.4%	21.7%	21.2%	19.3%	21.8%	21.5%
<b>Denmark</b>	7.6%	11.0%	10.3%	9.3%	11.1%	12.2%	11.8%	10.6%
<b>Spain</b>	12.9%	13.0%	11.0%	11.1%	9.5%	12.6%	12.1%	8.0%
<b>Italy</b>	8.9%	4.8%	10.2%	10.0%	13.4%	8.5%	16.5%	15.2%
<b>Rest of Western Europe</b>	40.5%	35.9%	38.1%	47.9%	32.5%	40.0%	29.6%	32.7%
<b>Western Europe (AWES)</b>	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Sources: AWES annual reports; COM (95) 38 final; VSM Jahresberichte								

**Table 7:** Future productivity estimates for the East German yards: compared to European and world standards

		<b>Employment</b> (plans for 1997)	<b>Capacity</b> (1.000 CGT)	<b>Productivity</b> employee years/CGT
<b>East German</b>	MTW Werft	1,300 - 1,500	100	ca. 0.018 - 0.020
<b>shipyards</b>	Volkswerft Stralsund	1,800 - 2,000	85	0.022 - 0.025
	Kvaerner Warnow Werft	1,800 - 2,000	85	0.02 - 0.025
	Peene-Werft	750 - 850	35	0.02 - 0.025
	Elbwerft	330 - 400	22	0.017 - 0.02
<b>East German average</b>				0.019 - 0.024
<b>Good European</b>				0.022 - 0.028
<b>Good World</b>				0.011 - 0.017
Sources: AWES Statistical Yearbooks; VSM Yearbooks; Treuhand-Dokumentation; author's calculations				

**Table 8:** Completion of East German shipyards, 1985-1994<sup>46</sup>

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
<b>Number of ships completed</b>	69	65	47	38	37	33	31	33	35	42
<b>1.000 GT</b>	361	387	331	305	300	263	285	221	246	303
<b>1.000 CGT</b>	n.a.	n.a.	n.a.	n.a.	n.a.	409	387	252	311	360
<b>Value (in Mill. DM)</b>	n.a.	n.a.	n.a.	n.a.	n.a.	1351	1255	1012	1389	1700
Sources: AWES annual reports; VDM annual report 1994; Treuhandanstalt-Dokumentation										

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<sup>46</sup> Sources: AWES annual reports, VDM annual reports, Treuhandanstalt Dokumentation.

**Table 9:** Basic data on the restructuring of the East German chemical fibers industry, 1990-1995

NEW ENTERPRISE	TAKEN OVER BY	MARKET SEGMENT AND CAPACITY (APPROX.)	TREUHANDANSTALT EXPENDITURES BEFORE PRIVATIZATION**	STATE AID FALLING UNDER ART. 92 (1992-1995)	PRIVATE INVESTMENT	EMPLOYMENT
<b>1) Thüringsche Faser AG (Schwarza-Rudolstadt) *</b>	Allied Signal Deutschland GmbH (takeover from the State of Thuringia (LEG) after failed privatization to Dalmia-Group, India)	<ul style="list-style-type: none"> <li>polyester filaments: 15 kt</li> <li>polyamide granulate: 6 kt</li> <li>polyester granulate: 6 kt</li> <li>viscose fibers: 45 kt</li> </ul>	<ul style="list-style-type: none"> <li>takeover of old debts: 200 Mill DM</li> <li>liquidity credits: 210 Mill DM</li> <li>capital provision: 40 Mill DM</li> </ul>	Total Aid: 127 Mill. DM (N 553/92) <ul style="list-style-type: none"> <li>Aid Intensity: 23% (Gemeinschaftsaufgabe)</li> <li>Investment Aid: 8%</li> </ul>	Dalmia: 0,5 Mill. DM potential investor: Zipperling-Kesler & Co KG (polyester): 20 Mill. DM (estimate)	6.500 => 600 (+300-400 in industrial park)
<b>2) Märkische Faser AG (Premnitz) *</b>	West NBL (subsidiary of the public Westdeutsche Landesbank (West LB), after failed privatization to Alcor Chemie AG (Switzerland))	<ul style="list-style-type: none"> <li>acrylic fibers: 35 kt</li> <li>polyester fibers: 38 kt</li> <li>viscose silk: 3.3 kt</li> </ul>	<ul style="list-style-type: none"> <li>takeover of old debts: 75 Mill. DM</li> <li>liquidity credits: 143 Mill. DM</li> <li>free transfer of 300 ha of land</li> <li>repurchase of land: 20 Mill. DM (no aid, IF it is a "market price")</li> </ul>	Total Aid: 80. 2 Mill DM (N 468/92) of which: <ul style="list-style-type: none"> <li>Grant: 39.2 Mill. DM</li> <li>Guarantee: 41.0 Mill. DM</li> </ul>	WestNBL pledged 35 Mill. DM (June 1995)	6.700 => 1.150
<b>3) Hoechst Guben GmbH (Guben)</b>	Hoechst AG (taken over one fourth of the former plant)	<ul style="list-style-type: none"> <li>PA-filaments: 5 kt</li> <li>PES-filaments: 17 kt</li> <li>PA/PES high-tenacity fibers 5 kt</li> </ul>	<ul style="list-style-type: none"> <li>takeover of losses for 1992-94: 204 Mill. DM</li> </ul>	Total Aid: 38.5 Mill. DM of which: <ul style="list-style-type: none"> <li>Gemeinschaftsaufgabe 29 Mill. DM</li> <li>Investment aid (12% / 8%): 9.1 Mill. DM</li> <li>Creation of High Quality Employment: 0.4 Mill. DM</li> </ul>	Hoechst: 87.5 Mill. DM until 1997	7.200 => 1.050



**Table 10:** Capacities and overcapacities in the West European (EU-15 + Switzerland) synthetic fibers industry

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
<b>Capacity (1,000 t)</b>	3.211	3.202	3.089	3.017	3.025	3.087	3.126	3.161	3.218	3.350	3.488	3.615	3.616	3.625	3.634
<b>Production (1,000 t)</b>	2.168	2.359	2.190	2.362	2.516	2.662	2.632	2.671	2.701	2.735	2.798	2.788	2.892	2.781	2.991
<b>European share of world market</b>				22%	22%	22%	21%	21%	20%	20%	21%	20%	20%	19%	18%
<b>Capacity utilisation</b>	68%	74%	71%	78%	83%	86%	84%	84%	84%	82%	80%	77%	80%	77%	82%
<b>Overcapacities</b>	47%	35%	41%	28%	20%	16%	19%	19%	19%	22%	25%	30%	25%	30%	22%



**Table 11:** Market shares in the European synthetic fiber industry (production), 1988-1994

	1988	1989	1990	1991	1992	1993	1994
<b>East Germany</b>	0.0%	0.0%	0.0%	4.4%	4.1%	4.1%	2.6%
<b>West Germany</b>	26.9%	26.6%	26.2%	21.4%	21.5%	23.6%	22.8%
<b>Italy</b>	21.5%	20.4%	21.1%	21.1%	21.1%	22.7%	20.8%
<b>Benelux</b>	5.7%	7.6%	0.8%	8.9%	8.5%	8.6%	9.4%
<b>Spain</b>	8.8%	8.5%	8.3%	8.2%	8.5%	8.6%	9.1%
<b>Rest of Western Europe</b>	37.1%	36.9%	43.6%	36.0%	36.3%	32.4%	35.3%
<b>Western Europe (incl. Turkey)</b>	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

**Table 12:** Changing capacities in the East-German chemical fiber industry (synthetic and man-made), 1989, 1993, 1996/97

<b>Product</b>	<b>Capacity 1989 (in 1000 t)</b>	<b>Capacity 1993 (in 1000 t)</b>	<b>Capacity 1996/97 (in 1000 t, estimates)</b>
Polyester Staples	44.4	44	20 - 30
Polyester Filaments	27.4	26	15 - 30
Polyamide Staples	6.3	0	0
Polyamide Filaments	54.6	21	19 - 25
Polyacryl Staples	58.6	59	20 - 30
PP Filaments	0	7	7
PVC Staples	1.6	0	0
Viscose Staples	120.7	98	36
Viscose Filaments	23.7	12	10 - 15
Polyurethane Filaments	0.4	0.4	0 - 1
Polyester Granulates	0	6	6 - 10
<b>GRAND TOTAL</b>	<b>337.7</b>	<b>264.4</b>	<b>134 - 184</b>

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