THE LISTING OF GERMAN FIRMS ON THE NEW YORK STOCK EXCHANGE: A CORPORATE GOVERNANCE PERSPECTIVE

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Introduction

The German corporate governance system is a bank-oriented system. Historically, German firms have relied extensively on banks for their financial needs and seldom sought external debt or equity capital. German financial markets, relative to Anglo-American markets, are relatively illiquid and opaque and German law offers relatively weak protection to public shareholders. Ownership of German firms is highly concentrated with the majority of shares owned by other firms (cross-ownership) and banks. Public ownership—either directly or through pension funds and/or mutual funds—is relatively small (Kaen and Sherman, 1994).

Throughout the 1980s and into the early 1990s, this German bank dominated system (along with the Japanese corporate governance system) was frequently described as being superior to the Anglo-American corporate governance system - a market oriented system with widespread public ownership of common stock and a focus of shareholder concerns. The German and Japanese systems were touted as a solution for curing the perceived ills of the American economy, thought to arise from the myopic behavior of investors forcing Anglo-American managers to adopt a short-term perspective and forgo the long-term interests of the firm for the immediate gratification of public investors in order to fend off hostile takeovers (Porter, 1992).

Bank ownership of debt and equity was seen as a way of reducing agency costs associated with bondholder-shareholder conflicts of interest leading to a lower cost of capital for German firms. Banks were touted as delegated monitors who had superior information about a firm's financial situation and could intervene early and selectively when firms encountered financial problems. And, cross ownership of companies by other companies was seen as a means for developing relational contracting and reducing the agency and moral hazard costs associated with making firm specific investments in the manufacturing supply chain.

So, with all of these so-called advantages of the German system, why have some of the largest German corporations chosen to discard the German bank-oriented governance structure in favor of a market-oriented governance structure and, as part of the transformation process, listed themselves on the New York Stock Exchange (NYSE)? Our paper examines the reasons why the German firms chose to leave the German system for the American system and compares their market and operating performance before and after their NYSE listings.

In Section 2 we review the reasons commonly offered for using ADRs and assess the governance and organizational implications of these explanations for firms operating in a bank dominated governance structure. We describe the seven German firms who chose to issue ADRs and list themselves on the New York Stock Exchange (NYSE) in Section 3. A detailed analysis of each company follows in Sections 4 through 10. Section 11 contains our overall analysis and Section 12 our conclusions.

We find that the German firms chose to list themselves on the NYSE for primarily organizational architecture reasons. These reasons include the ability to engage in major restructuring transactions

and to permit the firm to adopt operating and financial policies and structures that make the firm competitive in global markets. We also find that investors priced out the companies differently after they listed themselves on the NYSE. The stock prices of the companies in the post-listing period are more sensitive to changes in the NYSE Index and less sensitive to changes in German market stock indexes than in the pre-listing period.

2. Reasons for Issuing ADRs and Listing on the NYSE

From a financial valuation perspective, the purpose of issuing ADRs and listing the stock on the NYSE is to increase the market value of the company. This increase in market value results from a reduction in the company's cost of capital and/or an increase in operating cash flows. Listing a company's common stock on more than one exchange should have no effect on the company's cost of capital in a world of globally integrated and perfect financial markets. However, once perfect capital market assumptions are dropped, multiple exchange listings could affect a company's cost of capital. These changes - positive and negative - could result from changes in transaction costs, market liquidity, operating and financial market transparency, legal protections afforded public shareholders, increased opportunities for investor diversification and changes in ownership structure.

Operating cash flows, in world of perfect capital markets, should also not be affected by financing decisions, decisions that include the location and currency of the financing. However, market imperfections again may cause operating cash flows to be affected by financing decisions. The connections between financing decisions and operating cash flows arise out of potential bankruptcy and financial distress costs as well as conflicts of interests between shareholders and other stakeholders. Beyond these connections, visibility of the firm in a country's financial markets may improve the visibility of its image, brands and products in the product and labor market (and vice versa). We next consider the linkages between valuation and financial market imperfections.

2.1 Transaction and market liquidity effects

Transaction costs are the costs associated with the initial sale of securities and the cost incurred by investors who purchase the securities. While these costs include initial underwriting and regulatory costs, emphasis is typically placed on the cost savings to investors associated with trading in local capital markets. With respect to ADRs, the major benefit is that U.S. investors do not incur the transaction cost of converting dollars into foreign currency in order to buy the shares of the issuing company.

Liquidity effects refer the ability of investors to transact large blocks at prices virtually identical to previous prices. In effect, prices from one transaction to the next are continuous and no discount is needed to absorb large volume transactions. Furthermore, bid-ask spreads are narrow so that the buying and selling price is virtually identical.

2.2 Transparency gains

Conflicts of interest between firm stakeholders arise when informational asymmetries exist and individuals act in their own self interest. These conflicts of interest create agency costs that reduce the value of the firm. Increased transparency reduces informational asymmetries among all stakeholders, suppliers and customers as well as investors, and thereby leads to a reduction in the cost of capital for the firm as well as an increase in operating cash flows.

The primary cause of increased transparency is financial disclosure. The NYSE requires substantially more financial disclosure as does the U.S. Security and Exchange Commission (SEC) with respect to selling new security issues than do many other security markets and countries. Although firms could voluntarily disclose the same information without listing on the NYSE, failure to conform to the rules would carry no costs or penalties. So, formal listing serves as a bond put up by the firm to guarantee it will faithfully disclose financial data.

2.3 Investor protection

A firm that lists itself on the NYSE and sells securities in the United States must abide by U.S. securities law and the investor protection requirements imposed by the NYSE. Recent work on the relationship between investor protection and the use of external capital markets, especially equity markets, suggests that protection of public investors is necessary for efficient external capital markets (La Porta, et al.)

Bessler, Kaen and Sherman (1997) have examined the relationship between the pricing of initial public offerings (IPOs) and measures of investor protection developed by Shlieffer and Visney (1996). Bessler, Kaen and Sherman find that the greater the protections afforded public investors, the less is the under pricing of the IPO. So, for a company seeking to raise equity capital for the first time, an IPO in an investor friendly legal system is likely to be less expensive than in a jurisdiction with limited protection for public and minority investors.

2.4 Investor diversification opportunities

Investors may be able to reduce the systemic risk of their domestic portfolios by adding ADRs of companies previously unavailable to them or available only at a high cost. This added demand for the foreign company's equity causes an increase in the price of its shares and thereby reduces its cost of equity capital.

2.5 Ownership structure

Contemporary financial theory considers ownership structure an important factor for explaining and predicting investment and financing decisions. Ownership structure is also an important factor in distinguishing bank from market oriented governance structures. Under bank dominated systems, firms are typically owned by banks, families and other corporations (cross ownership). While such ownership structures may solve or mitigate some agency problems, other problems are created.

Advocates of bank systems claim that cross ownership of shares along with bank and concentrated non-bank ownership permit managers to take a long-term perspective and build the long-term competitive position of the firm through capital investments. The bank system advocates criticize market systems for focusing solely on shareholder wealth maximization and short-term profits at the expense of other stakeholders in the firm. From a political economy perspective, bank system advocates are likely to find the bank system superior in terms of balancing the interests of all stakeholders and controlling shareholder self interests and greed. However, the very characteristics of the bank system admired by its advocates are why the market system advocates reject the bank systems.

By placing control of the firm in the hands of undiversified stakeholders who have vested interests in the survival and expansion of the firm, managers are able to make negative net-present-value investments and grow the firm at the expense of the public shareholders. As a result, scarce resources are used inefficiently at an economy-wide level. Furthermore, firms not subject to the discipline of financial markets can continue to operate and invest in declining products and industries rather than re-deploying assets in other areas, restructuring operations and returning capital to shareholders who will reinvest the funds in firms facing increasing demand for their products and services. In fact, the very ability of bank-dominated firms to ignore public shareholders makes them even more susceptible to the pressures of organizational stakeholders for making unprofitable investments so as to retain jobs within the firm and, with respect to political stakeholders, within the political jurisdiction where the firm is located.

As for the political economy arguments regarding the trustee role supposedly played by the banks, families and other concentrated shareholders; market system advocates would express concerns about the ability of these groups to engage in oligopolistic practices such as price-fixing, market sharing and creating barriers to entry. Furthermore, concentrated ownership is inherently bad

because political power flows from economic power and the concentrated ownership of bank systems leaves too much political power in the hands of an economic oligarchy (crony capitalism).

So, market system advocates would argue that the market system is superior in a dynamic sense because it is: (1) more effective in focusing managerial attention on economic efficiency concerns and making effective use of economic resources; (2) more likely to lead to early restructuring of firms and redeployment of assets in the face of major structural changes in the economy; and, (3) more conducive to supporting the development of new technologies and the emergence of competitors. Market advocates would also say that managers or wealthy members of an economic elite are no more to be trusted with the interests of society than others and that this role must be played collectively through a pluralistic and democratic political process.

The operative implications of the market system advocates position for our study is that if the market system advocates position with regard to dynamic advantages is correct, firms operating under a market system will gain a competitive advantage in the long-run in open global markets. Investments will be made in promising new technologies and products and not in preserving the status quo or growing the firm for the sake of growth. Market system firms will respond more quickly to changing economic fundamentals through organizational restructurings and redeployment of assets. And, market system firms will create rather than destroy shareholder value in the long-run as result of their public-investor-forced-focus on efficient use of resources.

3. The Firms

The seven German firms that chose to list themselves on the NYSE are: Daimler-Benz, Pfeiffer Vacuum, Fresenius Medical Care, Deutsche Telekom, SGL Carbon, Hoechst and Veba. All seven are also traded on German exchanges. All the listings involved voluntary restructuring of corporate operations, a refocusing of the corporation's activities on core competencies and/or a explicit decision to move away from (or reject) a bank-oriented governance structure in favor of a market-oriented system. Daimler-Benz, SGL Carbon, and Hoechst were outright voluntary reorganizations. Pfeiffer Vacuum and Fresenius Medical Care were "going public" initial public offerings (IPOs) on the NYSE and Deutsche Telekom was a privatization carried out with an IPO and a listing on the NYSE. Why did this happen and continue to happen (the latest German firm to list on NYSE is SAP)?

Moving toward a market-oriented governance structure means accepting the verdicts of public investors about managerial decisions and performance and exposing management to the consequences of those verdicts - in particular, loss of control of the firm. Logue and Seward (1997) suggest that the existence of such discipline, which translates into an active market for corporate control is a vital, if not necessary element, for undertaking substantial corporate restructuring and enhancing the firm's economic performance by keeping management focused on the core competencies of the firm. Logue and Seward make this argument in the negative by claiming that the lack of an active corporate control market or a liquid stock market impedes the implementation of restructuring events such as asset sales, leveraged buyouts, leveraged recapitalizations, equity carve-outs and spin-offs. They further argue that the lack of a well-developed capital and corporate control market hinders the implementation of transactional and organizational reforms, thus encouraging firms to remain excessively large and diversified (unfocused).

Kaen and Sherman (1994) had anticipated elements of the Logue and Seward position in their 1994 Tokyo Club paper, *German Banking and German Corporate Governanc*e. In that paper Kaen and Sherman concluded that:

> "Our major concern with the German corporate governance system is that it thwarts the interest of public shareholders. Therefore, the amount of equity capital for investment in growth opportunities and intangible assets as well as ordinary expansion may be less than would otherwise be the

> case. There is anecdotal evidence that such limitations exist and that pure public equity investors are unhappy with the current situation."

Complementing the suggestions of Logue and Seward and Kaen and Sherman are those of Kaplan (1997) and Carney (1997). Kaplan argues that market-oriented systems provide better incentives to managers of firms that perform well and, as a result, discourage managers from overinvesting in unrelated and non-core activities by implementing diversification programs to grow the firms for the benefit of organizational stakeholders and banks with credit exposures in the firm. Carney, along lines similar to Kaplan, suggests that German banks have actually blocked the growth of active capital markets with the result that German firms have been subject to inefficient monitoring, thereby leading to a deterioration in profitability, excessive bank borrowing and reductions in corporate growth rates (presumably associated with low profitability and an inability to tap capital markets).

The observations of Logue and Seward, Kaen and Sherman, Kaplan, and Carney suggest that the motives of the German firms for moving toward a market-oriented governance structure by listing themselves on the NYSE went far beyond objectives of reducing the company's cost-of-capital in what could be described as a purely financing decision event. Instead, these decisions were designed to change the "heart and soul" of the company and fundamentally change the corporate culture by focusing managerial attention on shareholder wealth concerns by making managers accountable to the concerns and discipline of public investors.

We now turn to a detailed analysis of the changes in financial performance, organizational structures and market performance of these firms. We are especially interested in the following: (1) Organizational changes leading to greater focus on core competencies and away from diversification strategies along with changes in managerial compensation programs. (2) Financial market performance relative to broad market indexes and changes in how investors priced out the companies as they listed themselves on the NYSE. (3) Changes in financial structure (and, hence, governance structure) and performance as measured by financial ratios. We take the firms in order of their listing.

4. The Daimler-Benz Story

4.1 Organizational Issues

Daimler-Benz is one of the largest German industrial companies. In 1987, under the leadership of Edzard Reuter, Daimler embarked on a diversification strategy to become an integrated technology company. According to its *1993 Annual Report*, Daimler was "an integrated technology group with extensive competence in the field of transportation and traffic systems. [It] was also active in fields interlinked by common technologies and system structure." (*1993 Daimler Benz Annual Report*, p.1) Daimler was organized into four corporate units that, in turn, oversaw a wide range of activities. These corporate units and respective activities as of 1994 are listed in Exhibit 1.

Exhibit 1: 1994 Group Organization of Daimler-Benz

Mercedes-Benz Group	AEG Daimler-Benz Industrie Group	Daimler-Benz Aerospace (DASA) Group	Daimler-Benz InterServices (debis) Group
• Passenger Car Division • Commercial Vehicle Division	• Rail Systems • Microelectronics • Diesel Engines • Energy Systems Technology • Automation	• Aircraft • Space Systems • Defense and Civil Systems • Propulsion Systems • Other	• Systemhaus • Financial Services • Insurance Brokerage • Trading • Marketing Services • Mobile Communication Services • Real Estate Management

The companies acquired by Daimler during its diversification era (1985 through 1994) cost the firm over DM 8 billion. However, during the same period, the market value of Daimler's stock fell from DM 53 billion to DM 35 billion.

In May, 1995, Edzard Reuter retired and Juergen Schrempp took over as its chief executive officer. Schrempp immediately discarded the diversification-integrated-technology strategic vision; reorganized the company and brought shareholder and profitability objectives to the forefront. During his first eight months as CEO, Schrempp announced plans to breakup and sell portions of its AEG unit and stopped funding NV Fokker, a Dutch aerospace unit that Daimler had acquired in 1993 and in which Schrempp had played a major role. The emphasis on shareholder concerns is evident in news reports that had Schrempp saying that "those businesses which, after adjusting for risk, fail to earn a pre-tax return of 12% on capital employed will be dumped."

And, dumped they were! In its *1996 Annual Report*, Daimler notes that:

> "1996 was a successful year for Daimler-Benz. Group operating profit under U.S. GAAP was DM 2.4 billion. The Group's commitment to return to profitability and refocus its commercial activities on transportation, traffic and services was achieved in very large part. In order to meet its goals Daimler-Benz took decisive action and it made a number of tough decisions. It implemented a thorough overhaul of its business portfolio. What was once a broad assortment of 35 separate areas of commercial activity has now been trimmed and combined into 23 business units. This was mainly the result of **eliminating businesses which could not meet requisite earnings and return targets or did not fit within the core activities** (our emphasis). Highlights of this effort included:
>
> - Withdrawal from Fokker's and Dornier's regional aircraft businesses
> - Disposition of the energy systems technology business
> - Disposition of the industrial automation business
> - Withdrawal from debis' marketing services activities
> - Sale of the Group's recognition and sorting systems business
>
> Daimler-Benz Group now has a much stronger commercial foundation with which to proceed into the future. The Group's business portfolio has been significantly streamlined. In addition, far-reaching measures to

> improve competitiveness have been introduced in all of the operating units. "

Along with this restructuring came substantial changes in managerial compensation plans. As also noted in its *1996 Annual Report*, Daimler proposed a stock option plan for tying managerial pay to performance and said it eventually wanted to extend the plan to lower levels within the company. Indeed, Schrempp was very explicit about reorienting thinking within the Company toward shareholder value concerns and compensation plans for so doing in his *1996 Letter to the Stockholders and Friends of Our Company*. In it he says:

> "[The] concept of value-creation requires different thinking on all decision levels; it not only requires bottom-line orientation, but also efficient structures, processes and - not least - a totally new approach to personnel management. …. We plan to involve employees more directly in efforts to improve earnings…Employees should be rewarded according to the contribution of value they make to the company."

Schrempp also reiterated his commitment to a 12 percent hurdle rate by saying that:

> "…our top priority continues to be the achievement of a minimum return of 12 percent on capital employed. While we have recently come a good deal closer to this goal, we cannot rest on our laurels. The profitability of the world's best competitors set the business unit."

Presumably, this reference to "world's best competitors" reflects the strategic priority for the company of "generating returns in every business unit demanded by international standards." These international standards are set by investors who price out the company's stock, or at least these investors are important parts of the process because Schrempp, in his Letter, says:

> "1996 marks the first time we have prepared our accounts in accordance with U.S. accounting principles which gives our investors worldwide the transparency they require. This means that our shortcomings will be reported with new clarity. The terms operating profit, return on capital employed and cash flow have become part of the language of the entire company and part of our corporate philosophy.“
>
> "At Daimler-Benz, we view the increase in market value of our company, as reflected in its stock price, as an expression of expectations that our shareholders have of us and our work."

Restructuring, reorganization, shareholder value creation and transparency themes continue in Daimler's *1997 Annual Report* and Schrempp's shareholder letter. Airbus activities were combined into a single corporate entity. The sale of semiconductor activities let Daimler focus its energies in this area on the automotive electronics market, consistent with group strategy objective of "focus[ing] on transportation, traffic and services."

The 12 percent hurdle rate remains in place and now "the group will disclose performance against this target." This policy is consistent with Daimler's attempt to link incentive schemes to financial performance targets and to convince "employees that capital and assets are not available for free and that they, therefore, have a responsibility for helping us to manage them properly."

4.2 Daimler-Benz Performance

Were the statements by Daimler management merely rhetoric or was there also a change in the operating and financial performance of the company? With respect to Daimler, substantial

improvements in both operating and financial performance have paralleled its transition to a market-oriented governance structure. Exhibit 2 contains selected financial statement data about Daimler.

Net income to total assets and net income to shareholders' equity have substantially improved since 1993 as has net income to sales. Total and fixed asset turnover has remained fairly steady although some reductions in these ratios in 1997 and 1997 appear. Particularly noteworthy in the financial ratios is the reduction in total-bank-debt-to-assets from almost 40 percent in 1993 to 28.7 percent in 1997, indicating that other sources of capital have been substituted for bank debt with the resulting change in financial governance structure.

But, what about returns to the investors? Was the NYSE listing associated with improved or superior returns to the owners of Daimler - the shareholders?

Exhibit 2: Daimler-Benz Financial Ratios

	1997	1996	1995	1994	1993	1992	1991	1990	1989	1988
Assets as % of total assets										
Cash and marketable securities	4.3	4.1	3.1	14.3	10.8	10.5	10.2	13.3	14.3	16.3
Current assets	62.1	59.4	59.5	61.0	60.5	59.3	59.2	63.0	66.3	64.6
Fixed assets	29.9	31.7	31.1	28.1	38.9	39.0	38.6	34.8	32.0	33.4
Equity and Liabilities as % of total assets										
Shareholder equity	25.6	23.5	22.4	21.7	20.0	22.9	25.7	26.5	27.0	21.8
Provisions										
Pension obligations	n.a.	12.0	12.8	14.1	14.0	14.2	14.3	16.1	16.1	26.2
Other provisions	n.a.	20.0	22.8	24.0	25.4	26.1	22.8	24.6	26.5	23.7
Debt	28.7	40.1	39.9	39.8	39.9	36.2	36.6	32.3	29.9	28.1
Bank debt long-term	28.7	5.4	2.8	3.5	4.5	3.2	2.9	2.3	2.7	2.3
Bank debt short-term		34.7	37.1	36.3	35.4	33.0	33.7	30.1	27.3	25.7
Profitability/Turnover Ratios										
Sales/Total assets	0.90	0.95	1.01	1.11	1.07	1.14	1.25	1.27	1.22	1.42
Sales/Fixed assets	3.03	2.98	3.25	3.97	2.76	2.93	3.25	3.65	3.80	4.24
Operating income/ Sales [1]	0.03	0.01	-0.08	0.02	-0.01	0.02	0.04	0.04	0.12	0.06
Operating income/ Sales [2]	0.03	0.02	-0.07	0.02	0.01	0.03	0.04	0.05	0.13	0.07
Net income/Sales	0.06	0.03	-0.06	0.01	0.01	0.01	0.02	0.02	0.09	0.02
Net income/Assets	0.06	0.02	-0.06	0.01	0.01	0.02	0.03	0.03	0.11	0.03
Net income/Equity	0.23	0.10	-0.25	0.04	0.03	0.07	0.10	0.10	0.40	0.15

Notes: [1]Before interest and taxes. [2]Before taxes.

Our preliminary results are ambiguous. The NYSE listing announcement, itself, was associated with negative but statistically insignificant DAX 100 market-adjusted abnormal returns on Daimler stock as reported in Exhibit 3. However, this listing may have been anticipated prior to the announcement or expected based on comments made by Daimler management about becoming an international company. Furthermore, looking only at announcement day abnormal returns provides no information about whether Daimler management, by focusing attention on shareholder concerns, was able to generate returns to investors superior to other firms and other German firms in particular. To evaluate this question, one needs to examine the performance of Daimler stock over a longer time period. To do so, we compared the price performance of Daimler shares to the price performance of the DAX 100 Index and the NYSE Composite Index during pre- and post-NYSE listing periods. Our results are reported in Exhibits 4 and 5.

Exhibit 3: NYSE Listing Announcement Dates Daily Stock Price Abnormal Returns

Stock price abnormal returns are market adjusted abnormal returns. They were calculated by subtracting the daily percentage return on the CDAX Index from the daily percentage return on individual stock.

	Day -1	Day 0	Day +1	Day +2	Cumulative Total
Daimler Benz	0.0065	-0.0033	-0.0144	-0.0129	-0.0241
SGL Carbon*	0.0709	0.0178	-0.0396	0.0121	0.0612
Hoechst	-0.0107	-0.0940	-0.0073	0.0172	-0.0948
VEBA	-0.0244	-0.0386	-0.0276	0.0167	-0.0739

Notes: The abnormal returns are associated with the dual announcement that Hoechst would divest itself of its remaining interest in SGL Carbon and list the shares on the NYSE.

Exhibit 4: Performance of German ADR Companies Relative to CDAX and NYSE in Pre- and Post Listing Periods

Price relatives were computed by comparing the ratio of price changes for the respective companies to the ratio of price changes for the respective stock indexes over the pre- and post listing time periods. A price relative of 1.0 means that the company's stock performed identically to the Index. A price relative of greater than 1.0 means the company's stock outperformed the Index. A price relative of less than 1.0 means that the company's stock under performed the Index.

	Price Relatives in DM		Price Relatives in U.S. Dollars	
	Pre-Listing vs CDAX	Post Listing vs CDAX	Pre-Listing vs NYSE	Post Listing vs NYSE
Daimler-Benz	1.097	0.932	0.748	0.923
SGL Carbon	NA	1.513	NA	1.253
Pfeiffer Vacuum	NA	3.518	NA	3.613
Fresenius Medical Care	NA	0.503	NA	0.759
Deutsche Telekom	NA	0.999	NA	1.099
Hoechst	1.243	0.778	1.013	0.780
VEBA	1.097	0.797	0.882	0.947

Exhibit 5: BETA Adjusted Performance of German ADR Companies Relative to CDAX and NYSE in Pre- and Post Listing Periods

Beta adjusted price relatives were computed by comparing the ratio of price changes for the respective companies to the ratio of price changes for the respective stock indexes adjusted by the company's beta over the pre- and post listing time periods. A price relative of 1.0 means that the company's stock performed identically to the Index. A price relative of greater than 1.0 means the company's stock outperformed the Index. A price relative of less than 1.0 means that the company's stock under-performed the Index.

	Beta Adjusted Price Relatives in DM		Beta Adjusted Price Relatives in U.S. Dollars	
	Pre-Listing Versus CDAX	Post Listing Versus CDAX	Pre-Listing Versus NYSE	Post Listing Versus NYSE
Daimler-Benz	0.881	0.859	0.882	1.195
SGL Carbon	NA	2.286	NA	3.132
Pfeiffer Vacuum	NA		NA	8.481
Fresenius Medical Care	NA	2.0618	NA	18.0866
Deutsche Telekom	NA	1.498	NA	1.269
Hoechst	1.016	0.754	4.053	1.0182
VEBA	0.997	0.861	3.974	1.748

Exhibit 4 contains price relatives for Daimler (and the other companies) that compare the ratio of changes in Daimler's stock price to the ratio of changes in the DAX 100 and the NYSE Index. The pre-listing period for Daimler runs from January 2, 1990 through October 4, 1993. The post-listing period runs from the listing date, October 5, 1993, through June 30, 1998. The price relatives, *PR*, were calculated as:

$$PR_{DAI} = \left[\frac{\left(\frac{EndPRICE_{DAI}}{BegPRICE_{DAI}} \right)}{\left(\frac{EndPRICE_{Index}}{BegPRICE_{Index}} \right)} \right]$$

where:

PR = price relative;

DAI = Daimler; and,

Index = the respective stock index.

The price relative of a company that "outperformed" the benchmark index would be greater than 1.0; the price relative of a company that "under-performed" the benchmark index would be less than 1.0. So, we would expect companies that emphasized shareholder interests to exhibit price relatives greater than 1.0; and, we would expect to observe a higher price relative in the period after a company announces a reorientation toward shareholder interests compared to a period prior to the announcement.

Daimler's pre-listing DAX 100 raw price relative was 1.097, meaning that Daimler stock "outperformed" the typical German company represented by the DAX 100 between 1990 and 1993. Since its NYSE listing, however, Daimler stock, denominated in German marks, has "under-performed" the DAX 100 as evidenced by the 0.932 post-listing price relative.

The opposite pre- and post listing outcome is observed for Daimler stock prices denominated in U.S. dollars. The pre-listing NYSE raw price relative is 0.748 and the post-listing NYSE relative is 0.923.

Raw price relatives, though, assume the company has a beta of 1.0 relative to the benchmark index, meaning the company exhibits the same systematic (non-diversifiable) risk as the typical stock in the benchmark index. So, we calculated beta adjusted (risk adjusted) price relatives as well as raw price relatives. The betas were estimated with an OLS regression model with the market portfolio being the respective DAX 100 and the NYSE indexes. The betas are reported in Exhibit 6. The beta adjusted price relatives are reported in Exhibit 5 and were calculated as follows:

$$PR_{DAI} = \left[\frac{\left(\frac{EndPRICE_{DAI}}{BegPRICE_{DAI}} \right)}{\left(\frac{(EndPRICE_{Index})(IndexBeta_{DAI})}{(BegPRICE_{Index})(IndexBeta_{DAI})} \right)} \right]$$

where *IndexBeta* is the Daimler (*DAI*) beta for the respective benchmark index.

The substantive change for Daimler is that its post-listing NYSE price relative increases to 1.195 compared to a pre-listing NYSE beta of 0.882. So, on a risk-adjusted basis, Daimler stock has "outperformed" the typical stock listed on the NYSE. Of course, any price relative measure is sensitive to the selected benchmark. To gain further insights into Daimler's performance, we also estimated Jensen's performance alpha (Jensen, 1968) for Daimler (and for the other stocks).

Exhibit 6: Pre and Post Listing Betas and Correlations with Market Indexes
DM-Denominated Prices Versus the CDAX Index

	Pre-listing Beta vs CDAX	Pre-listing Correlation with CDAX	Post-listing Beta vs CDAX	Post-listing Correlation with CDAX
Daimler-Benz	1.244	0.890	1.081	0.731
SGL Carbon	NA	NA	0.662	0.304
Pfeiffer Vacuum	NA	NA	-0.019	0.006
Fresenius Medical Care	NA	NA	0.224	0.130
Deutsche Telekom	NA	NA	0.669	0.448
Hoechst	1.223	0.613	1.0322	0.561
VEBA	1.100	0.726	0.926	0.722

Dollar-Denominated Prices Versus the NYSE

	Pre-listing Beta vs NYSE	Pre-listing Correlation with NYSE	Post-listing Beta vs NYSE	Post-listing Correlation with NYSE
Daimler-Benz	0.655	0.276	0.772	0.376
SGL Carbon	NA	NA	0.400	0.169
Pfeiffer Vacuum	NA	NA	0.426	0.109
Fresenius Medical Care	NA	NA	0.042	0.0195
Deutsche Telekom	NA	NA	0.866	0.396
Hoechst	0.250	0.105	0.766	0.363
VEBA	0.222	0.122	0.542	0.315

Jensen's performance alpha (hereafter alpha) is based on the Capital Asset Pricing Model (CAPM), or any asset pricing model that relates a security's return to a risk free interest rate and risk premiums driven by nondiversifiable risk. The CAPM, in its elementary form, expresses the expected return on a security, *Rj*, as a function of the risk free interest rate (*RF*) and a premium for systematic (nondiversifiable) risk. The systematic risk premium is measured relative to the systematic risk of a fully diversified portfolio of assets, called the market portfolio, *RM*, and is measured by a statistic called beta, *B*. The risk premium on the market portfolio is the difference between the expected return on the market portfolio and the risk free interest rate. Notationally, the model is:

$$R_j = RF + B_j\left(RM - RF\right)$$

This equation can be rearranged to:

$$R_j - RF = a + B_j\left(RM - RF\right)$$

and then estimated in the form of:

$$R_{j,t} - RF_t = a + B_j\left(RM - RF\right)_t$$

In equilibrium, the estimated *a* (Jensen's alpha) should equal zero if the returns are risk-adjusted expected returns. However, if the security has generated returns in excess of its required risk-adjusted expected returns, *a* (the alpha) will be greater than 1.0; if less than its required risk-adjusted returns, *a* (alpha) will be less than zero. An alpha of greater than zero means that the stock has outperformed the benchmark portfolio. An alpha of less than zero means that the stock has underperformed the benchmark portfolio.

We calculate alphas for the German ADRs for both pre- and post-listing periods. We first calculate monthly returns on the stock and the respective indexes. We then adjust these returns by subtracting monthly one-month Euromark interest rates from the mark denominated returns and monthly one-

month Eurodollar interest rates from the dollar denominated returns. The alphas are reported in Exhibits 7 and 8.

Exhibit 7: Pre- and Post-Listing Jensen's Performance Alphas: Performance Versus CDAX Index

The performance alpha is estimated from by subtracting the monthly (one-month) Euromark interest rate from both the monthly return for the stock and the CDAX Index and then regressing the returns in excess of the Euromark monthly interest rate on the CDAX returns in excess of the Euromark interest rate. If the intercept term (alpha) of the estimating equation is greater than 0, the stock has outperformed the Index; if less than 1.0, the stock has underperformed the Index. Underperformance and outperformance refer to the stock generating a risk-adjusted return less than or greater than expected given the systematic risk of the stock as measured by its estimated beta.

	Pre-Listing Alphas			Post Listing Alphas		
	Alpha	CDAX Beta	R^2	Alpha	CDAX Beta	R^2
Daimler-Benz	0.0010	1.0443*	0.572*	-0.0019	0.9687*	0.507*
SGL Carbon				0.0206	0.7053*	0.097*
Pfeiffer Vacuum				0.0565	1.2438	0.053
Fresenius Medical Care				0.0104	-0.2371	0.018
Deutsche Telekom				-0.0059	0.8448*	0.223*
Hoechst	0.0054	1.2357*	0.517*	-0.0346	1.608*	0.523*
VEBA	0.0050	0.7951*	0.547*	-0.0131	0.8991	0.207

Note: * = Statistically significant at the 0.05 level.

Exhibit 8: Pre- and Post-Listing Jensen's Performance Alphas: Performance Versus NYSE Index

The performance alpha is estimated from by subtracting the monthly (one-month) Eurodollar interest rate from both the monthly dollar return for the stock and the NYSE Index and then regressing the returns in excess of the Eurodollar monthly interest rate on the NYSE returns in excess of the Eurodollar interest rate. If the intercept term (alpha) of the estimating equation is greater than 0, the stock has outperformed the Index; if less than 1.0, the stock has underperformed the Index. Underperformance and outperformance refer to the stock generating a risk-adjusted return less than or greater than expected given the systematic risk of the stock as measured by its estimated beta.

	Pre-Listing Alphas			Post Listing Alphas		
	Alpha	NYSE Beta	R^2	Alpha	NYSE Beta	R^2
Daimler-Benz	-0.0045	0.8432*	0.160*	0.0003	1.097*	0.232*
SGL Carbon				0.0218	0.3746	0.016
Pfeiffer Vacuum				0.0663	1.5292	0.0049
Fresenius Medical Care				-0.5344	0.0029	0.037
Deutsche Telekom				0.0056	0.4323	-0.029
Hoechst	0.0032	0.9258	0.176	0.0089	0.1395	0.002
VEBA	-0.0015	0.8829*	0.278*	0.0029	0.5674	-0.040

Note: * = Significant at the 0.05 level.

We find no evidence that Daimler has either under performed or outperformed the DAX 100 or NYSE indexes in either the pre- or post listing periods. Again, though, we must add that any alpha measure will be sensitive to the period over which it is estimated and more work is necessary to reach firm conclusions.

4.3 The Globalization (Americanization?) of Daimler Stock

Did the listing of Daimler on the NYSE change the way in which Daimler stock was "priced out" by investors? Did Daimler become more of a "global" company in investor's eyes after the NYSE listing? The evidence we have compiled so far suggests the answer to both questions is "yes."

Exhibit 6 contains correlation coefficients for the daily returns of Daimler stock with daily returns for the DAX 100 and NYSE indexes in both pre- and post-listing periods. Prices denominated in German marks were used for the German indexes; prices in U.S. dollars were used for the NYSE index.

The correlation of Daimler stock price daily returns with the DAX 100 fell from 0.890 during the pre-listing period to 0.731 during the post-listing period. But, in terms of movement with the NYSE index, the correlation of daily Daimler returns increased from 0.276 to 0.376. In other words, Daimler stock prices behaved less like those of a German firm and more like those of an American firm after the company was listed on the NYSE. Whether this outcome also means that behaving more like an American firm is equivalent to behaving more like a "global" firm remains problematic.

We believe a stronger indication of the extent to which Daimler stock was priced out differently in the post-listing period is the results of regression models reported in Exhibit 9. The regression model we estimated was:

$$\%CHGCOMPANY_t = a + B_{COMPANY}(\%CHGINDEX)_t + B_{POST}[(IND)(\%CHGINDEX)]_t + e_t$$

where:

$\%CHGCOMPANY_t$ = daily percentage change in company stock price;

$B_{COMPANY}$ = estimated beta for company against benchmark index;

$\%CHGINDEX_t$ = daily percentage change in benchmark index;

B_{POST} = estimated coefficient for post-listing period; and,

IND = indicator variable taking on the value of 1 in the post-listing and 0 in the pre-listing period.

The second independent variable, *(IND)(%CHGINDEX)*, in the regression model is a slope shift indicator variable. Its regression coefficient, B_{POST}, measures whether the company's stock price beta changed in the post-listing period relative to the pre-listing period.

Exhibit 9: Post-Listing Changes in Sensitivity of Common Stock Prices to CDAX and NYSE Indexes

$$\%CHGCOMPANY_t = a + B_{COMPANY}(\%CHGINDEX)_t + B_{POST}[(IND)(\%CHGINDEX)]_t + e_t$$

DM Daily Returns Against CDAX

	Intercept, *a*	CDAX *Beta*	Post-NYSE *Beta*	R^2
Daimler-Benz	0.0000	1.2406	-0.2626*	0.616*
Hoechst	-0.0001	1.2257	-0.2023*	0.354*
VEBA	0.0000	1.0989	-0.1344*	0.526*

U.S.$ Returns Against NYSE

	Intercept, *a*	NYSE *Beta*	Post-NYSE *Beta*	R^2
Daimler-Benz	0.0001	0.6552	0.1186*	0.107*
Hoechst	0.0007	0.2516	0.5126*	0.049*
VEBA	0.0005	0.2235	0.3159*	0.0428*

Note: * = Statistically significant at the 0.05 level.

When we regressed Daimler-Benz mark denominated returns against the DAX 100 Index and the DAX 100 slope indicator, B_{POST} was negative (-0.2626). In other words, Daimler stock was less sensitive to changes in the DAX 100 Index in the post listing period than in the pre-listing period (an outcome consistent with the lower correlation of Daimler prices with the DAX 100 index in the post listing period). The regression coefficient was statistically significant at less than the .01 level.

The opposite outcome was obtained for the regression of Daimler dollar denominated daily percentage price changes against the NYSE and the NYSE slope indicator variable. The slope coefficient is positive (0.1186) indicating a greater sensitivity of Daimler prices to NYSE price changes.

We infer from these results that Daimler was being priced out differently by in the post-listing period. It was behaving less like a German company and more like a global company.

5. SGL Carbon

5.1 Background

SGL Carbon evolved from the merger of three companies in 1993 and was controlled by Hoechst until 1996 when Hoechst sold off its remaining position. Hoechst divested itself of SGL Carbon in three tranches.

The first tranche involved the sale of shares on April 6, 1995, in Germany and the United States where 20 percent of the offering was distributed. Then, on September 7, 1995, Hoechst announced that it would sell off an additional twenty-three percent of its stake in SGL Carbon, thereby reducing its ownership to fifty percent. This announcement was greeted positively by investors with SGL Carbon's price increasing by 8.59 percent over the next three days. On May 8, 1996, Hoechst announced it would sell its remaining 50 percent interest in SGL and on May 9, 1996 announcing it would seek to list SGL Carbon shares on the NYSE. The cumulative two-day return for these announcements was 8.87 percent. Listing on the NYSE took place on June 5, 1996, accompanied by a 10 percent increase in SGL Carbon stock on its stock during the previous day. So, the evidence suggests that investors were pleased about the restructuring of SGL Carbon and its conversion into a publicly traded company.

Note that SGL Carbon is only stock with positive NYSE listing abnormal returns. Most likely these positive abnormal returns were caused by the announcement that SGL would become an independent company not controlled by Hoechst but, instead, by public shareholders. In the case of SGL, a major change in ownership structure was announced simultaneously with security sales in the United States.

The Bank of New York, which sponsors SGL Carbon's ADR program, describes the company as having undergone a restructuring and reorientation program that transformed SGL into the world's largest supplier of carbon and graphite products. Furthermore, a key element of this restructuring program was the implementation of a management compensation system specifically "designed to align management ambitions with shareholder concerns."

Financial ratios for SGL Carbon are reported in Exhibit 10. As was the case with Daimler, it appears that the NYSE listing was accompanied with a reduction in bank debt, a governance change - especially from 1994 and 1995 levels. Some improvement in operating income as a percent of sales is evident; otherwise, the ratios are about the same over the five year period.

Exhibit 10: SGL Carbon Financial Ratios

	1997	1996	1995	1994	1993
Assets as % of total assets					
Cash and marketable securities	1.3	0.8	1.0	1.9	1.7
Other current assets	53.9	59.3	56.5	58.2	53.2
Current assets	55.2	60.1	57.5	60.1	54.9
Fixed assets	44.3	38.5	40.7	38.1	44.0
Equity and Liabilities as % of total assets					
Shareholder equity	43.2	42.6	40.9	22.1	13.8
Provisions					
Pension obligations	12.9	15.6	19.7	21.1	21.4
Other provisions	9.4	9.4	11.5	12.1	10.6
Debt	34.5	32.3	27.9	44.6	54.1
Bank debt long-term	0.1	0.2	0.2	1.8	0.6
Bank debt short-term	34.5	32.1	27.7	42.8	53.5
Asset turnover/profitability ratios					
Sales/Total assets	1.01	1.07	1.22	1.21	1.06
Sales/Fixed assets	2.28	2.78	3.01	3.16	2.41
Operating income/Sales [1]	0.18	0.18	0.15	0.10	0.00
Operating income/Sales [2]	0.15	0.16	0.15	0.10	0.00
Net income/Sales	0.09	0.11	0.10	0.08	0.00
Net income/Assets	0.10	0.12	0.12	0.10	0.00
Net income/Equity	0.22	0.29	0.30	0.45	-0.01

Notes: [1]Before interest and taxes. [2]Before taxes.

5.2 Stock Price Performance

We can evaluate only the post-listing performance of SGL Carbon because the company came into existence simultaneously as a German and an American IPO. We begin with a consideration of its raw price relative post-listing performances as reported in Exhibit 4.

SGL's raw post-listing CDAX price relative is 1.513. It's raw post-listing NYSE price relative is 1.253. Thus, without regard to risk, SGL Carbon stock has outperformed our two benchmark indexes since going public on April 6, 1995. This "better-than-average" performance is actually quite unusual for an IPO in both countries, although strictly speaking the SGL deal was a sell-off by Hoechst. On average, both German and American IPOs underperform benchmark indexes for up to three years after the initial offering (Bessler, Kaen and Sherman).

When we adjust SGL Carbon's stock price performance on the basis of its respective index betas, the company's stock price performance looks even better. As shown in Exhibit 5, the CDAX price relative is 2.286 and the NYSE price relative is 3.132.

Weak confirmation of SGL Carbon's superior stock price performance is evident in its performance alphas (Exhibits 7 and 8). The post listing alphas are positive for both the CDAX and the NYSE indexes; however, they are not statistically significant at usual levels.

Despite the fact that two-thirds of SGL's production and sales are outside of Germany, though, SGL stock prices still exhibit a higher correlation with the CDAX Index than with the NYSE Index as shown in Exhibit 6. We cannot say anything about whether this correlation increased or decreased compared to a pre-listing period because SGL was not an "independent" company; it's shares were owned by Hoechst.

6. Pfeiffer Vacuum

6.1 Background

Pfeiffer Vacuum Technology (PV) is a medium-sized German maker of vacuum pumps (total equity of DM 44 million), but the world leader in turbomolecular pumps. These pumps create vacuum environments for special processing for manufacturing applications (for freeze drying by food processors, for special coating applications by chipmakers, optical glass makers and in the manufacture of light bulbs, also for making television tubes, computer monitors and computer flat panel displays). PV operates in 33 countries and has an export share of 70%, with the United States being the most important single market.

Pfeiffer Vacuum was a wholly owned subsidiary of the Swiss group Oerlikon-Buehrle Holding (OBH). In connection with the Swiss group's acquisition of Leybold AG, another German company in the turbomolecular vacuum pump business, it had to divest itself of Pfeiffer. Instead of selling Pfeiffer to a competitor or to financial investors, OBH decided to spin it off by letting it go public. So, the circumstances surrounding Pfeiffer's NYSE listing are virtually identical to those of SGL Carbon. Thus, on July 16, 1996, Pfeiffer Vacuum became the third German company to list itself on the NYSE.

The Pfeiffer spin-off, like SGL, was a version of an initial public offering (IPO). However, unlike SGL, Pfeiffer went public only in the American market. Here was a medium-sized German corporation with a German dual board governance structure choosing to go public in the U.S. markets and, even more interesting, not listing its shares in Germany.

The managing director of the firm taking Pfeiffer public in the United States stated that "Our underlying assumption was that U.S. investors are very sophisticated and better equipped to make bets on emerging companies."

The company stated in a press release that "the main reasons for trading the shares on the NYSE was due to the significance of the US market for our company and the openness of the American stock market towards future-oriented technologies. The US market offers strong growth potential for semiconductor technology, one of the industries where our products are used. By going public on Wall Street, we as an internationally operating company have laid the foundation for long-term security of future expansion."

Taken at their word, Pfeiffer managers believe that a positive correlation exists between the operating cash flows of their company and where it is listed. In other words, the listing decision is more than a decision about lowering the cost of capital - it is also a decision about improving the competitive position of the firm in its product markets.

In 1998, Pfeiffer announced it would also list its shares on the German *Neuer Markt*. The Neuer Markt was created to provide access to the capital market for small to medium-sized firms with trading taking place at the Frankfurt Stock Exchange and operated by the Deutsche Boerse. Pfeiffer's CEO, Wolfgang Dondorf, said the listing was in response to problems faced by some German investors who were prevented from investing in the company because of restrictions on trading U.S. listed securities. The Neuer Markt listing announcement resulted in a $4.00 a share increase in the company's stock price to $37 7/8 on the announcement day.

At the time of the announcement, Dondorf also said the decision to list on the NYSE first was an easy one because Pfeiffer was already using U.S. GAAP and only 27 percent of its revenues came from Germany. Although not explained in the press release, Dondorf is quoted as saying that using GAAP prompted "a change in our (Pfeiffer's) business attitude." Relative to German accounting standards, GAAP is often described as being more transparent and oriented toward reporting financial performance to investors with the German accounting system more designed to meet tax code considerations and considerably less transparent.

Pfeiffer has implemented an executive stock option plan because "The Company believes that its management should turn its attention to increasing the shareholder value of Pfeiffer and should receive remuneration corresponding to the degree to which they achieve this goal." (p 16, 1988 Company report). This public recognition that managers must focus on shareholder value is a relatively new theme for German companies, as is the implementation of stock option compensation schemes. Yet, as we have seen with Daimler and with SGL Carbon, stock option or other schemes designed to turn management's attention toward shareholder wealth maximization is either invoked as a reason for listing on the NYSE or occurs along with the listing.

Financial ratios for Pfeiffer Vacuum are reported in Exhibit 11. Pfeiffer has relatively high profitability ratios for a company with a beta of 1.0 or less. Since going public, its return on equity has been 20 percent or greater. Compare this 20 percent to the 12 percent target set by Daimler! Also noteworthy is the reduction in debt from 23 to 15 percent of total assets. Pfeiffer, like Daimler and SGL appear to be reducing reliance on debt financing as they move to the NYSE.

6.2 Financial Market Performance

Pfeiffer Vacuum has substantially outperformed both the CDAX and the NYSE indexes since its NYSE listing. Its raw price relatives, as reported in Exhibit 4, are 3.518 for the CDAX and 3.613 for the NYSE. Its beta adjusted price relative is 8.481 for the NYSE. Pfeiffer has an estimated zero CDAX beta; so, its adjusted CDAX beta is considerably greater than 3.613.

Pfeiffer also has the largest post listing performance alphas of the seven companies. But, given the low correlation of Pfeiffer's returns with the benchmark indexes, the alphas are not statistically significant.

What we find particularly interesting is that both "spin-off IPOs" (SGL Carbon and Pfeiffer) did so well versus the benchmark portfolios and the other German NYSE firms. Spin-offs are, in effect, going public decisions that turn a portion of a larger conglomerate or company into a separate stand-alone public company. Apparently, investors believed a number of agency and incentive problems were solved or mitigated through these spin-offs and valued the companies accordingly. Of course, without a public equity market, these spin-offs would have been much more difficult.

Exhibit 11: Pfeiffer Vacuum Financial Ratios

	1997	1996
Assets as % of total assets		
Cash and marketable securities	34.36	18.25
Other current assets	47.62	61.61
Current assets	81.98	79.86
Fixed assets	14.82	17.01
Equity and Liabilities as % of total assets		
Shareholder equity	43.00	33.55
Provisions		
Pension obligations	25.15	25.96
Other provisions	15.64	12.09
Debt	14.73	23.10
Asset Turnover/Profitability Ratios		
Sales/Total assets	1.43	1.41
Sales/Fixed assets	9.66	8.30
Operating income/Sales [1]	0.15	0.09
Operating income/Sales [2]	0.15	0.10
Net income/Sales	0.08	0.05
Net income/Assets	0.11	0.07
Net income/Equity	0.26	0.20

Notes: [1]Before interest and taxes. [2]Before taxes.

7. Fresenius Medical Care

7.1 Background

Fresenius Medical Care AG (FMC) is the world's largest integrated provider of products and services for individuals with chronic renal failure. FMC was created in 1996 through the merger of Fresenius USA (a provider of dialysis products) and a subsidiary of Fresenius AG, and National Medical Care Inc. (a provider of dialysis treatment) and a subsidiary of W.R. Grace & Co. In North America the new company has more than 22,000 employees and manufactures, distributes and sells both hemodialysis and peritoneal dialysis products, provides dialysis treatment in over 740 dialysis centers nationwide; and offers renal support services including laboratory testing, diagnostics, disease and data management, educational services and nutritional support.

The new company, headquartered in Germany for tax reasons, was listed simultaneously on the NYSE (on October 1, 1996) and on the Frankfurt stock exchange (on October 2). It is subject to the rules of the SEC and will issue quarterly reports according to US-GAAP. With the listings, 49.7 % of the company's total equity is being traded. Initial shareowners are the public stockholders of W.R. Grace & Co. (44.8 %) and of the old Fresenius USA Inc. (4.9 %). The majority (50.3 %) of the equity remains with Fresenius AG. Majority ownership was necessitated by German accounting rules that permit consolidation of the new company in the group's balance sheet only if it owns more than 50% of the equity. The merger was headlined in Germany as "herring eats shark" as the smaller Fresenius (with sales of DM 2.2 billion and 9000 employees) acquired the bigger NMC (with sales of DM 3.2 billion and 21,000 employees). Despite the new company's high indebtedness (around $ 2.4 billion had to be paid to W.R. Grace), its initial share price was higher (at $ 24 per ADR or DM 128,20 per share) than had been predicted by the analysts.

Additional capital was to be raised in late November/ early December by the issuance of $250 million of preferred stock and $350 million of secondary bonds (participation certificates?) for which no market exists in Germany. This amount is considered part of equity in Germany, whereas in the US it is a liability and thus reduces tax liabilities.

Whereas the management board is all German (Dr. Gerd Krick, chairman of Fresenius AG also assuming the chairmanship at Fresenius Medical Care AG), there will be two Americans on the 6-member supervisory board. Together with the financial reporting according to US-GAAP, the American board members will add to the Anglo-Saxon influence on corporate governance.

Note that unlike SGL Carbon and Pfeiffer Vacuum, Fresenius is **not an independent stand-alone company where the public investors collectively have controlling interest**. Fresenius remains under the control of a German style governance structure.

Exhibit 12 contains financial ratios for Fresenius. Evident is very poor profitability with a 2 percent return on equity. Also note that bank debt as a percent of total assets has increased from 28.4 percent to 39.9 percent - a movement toward a traditional German governance structure.

Exhibit 12: Fresenius Medical Care Financial Ratios

	1997	1996
Assets as % of total assets		
Cash and marketable securities	0.7	15.0
Other current assets	23.4	0.0
Current assets	24.1	15.0
Fixed assets	74.1	85.0
Equity and Liabilities as % of total assets		
Shareholder equity	43.9	28.4
Provisions		
Pension obligations	n.a.	2.1
Other provisions	16.2	21.3
Debt	39.9	49.4
Bank debt long-term		20.9
Bank debt short-term	39.9	28.4
Profitability Ratios		
Sales/Total assets	0.33	0.49
Sales/Fixed assets	0.44	0.72
Operating income/Sales [1]	0.11	0.06
Operating income/Sales [2]	0.06	0.04
Net income/Sales	0.03	0.04
Net income/Assets	0.01	0.02
Net income/Equity	0.02	0.06

Notes: [1]Before interest and taxes. [2]Before taxes.

7.2 Financial Market Performance

On a raw basis, Fresenius has under performed both the CDAX and the NYSE since its creation and listing on the NYSE. Its raw CDAX relative is 0.503; its raw NYSE relative is 0.759. Based on estimated betas, though, the beta adjusted price relatives are 2.062 and 18.087. However, the very low estimated betas may reflect the fact that investors were revising their expectations about the company downward thus producing a "distorted" beta measure. For much of the time following its NYSE listing, Fresenius stock price fell while the NYSE was rising. This interpretation is confirmed by the negative post-listing NYSE alpha of -0.533.

As we have already emphasized, unlike the other German companies, Fresenius is still controlled by a German parent company with a German style governance structure. It is not an independent company in the sense that the public shareholders hold a controlling interest in the company. So, in a sense, the under-performance of Fresenius may simply reflect the fact that it has yet to become an Anglo-American style company despite having its stock listed on the NYSE.

8. Deutsche Telekom

8.1 Background

Deutsche Telekom (DT) is Europe's largest telecommunications provider. The company has more than 44 fixed phone lines and 2.7 million mobile home subscribers, and it provides cable TV and radio broadcasts to some 17 million households. Deutsche Telekom has investments in Asia, Europe and the US, and participates in the Global One telecom service joint venture with Sprint and France Telecom.

Deutsche Telekom emerged from the German postal system as a result of the 1989 postal reform which separated the mail services, the postal banking services and the telecom services. After choosing its management and supervisory boards, DT was able to start functioning independently on January 1, 1990. The 1994 postal reform transformed Deutsche Telekom from a public sector enterprise into a stock company (AG) from January 1, 1995 with Ron Sommer as chairman of the management board.

On 18 November 1996, Deutsche Telekom AG went public in Germany. Although this was the biggest privatization in Germany to date, 60 % of the shares are still controlled by the German government. So, Deutsche Telekom also is not an independently owned company or one in which public shareholders have controlling interest.

On the same day it went public in Germany, DT listed its shares on the NYSE, becoming the fourth German company to do so. The U.S. tranche amounted to 14 percent of the total trading volume of 720 million shares. In the words of Ron Sommer, the DT chairman, a global player must have access to the largest financial market of the world. He also spoke of "a turning point in the company's history."

Joachim Kröske, the chief financial officer, emphasized the seven-year preparation for the IPO. The company was being rationalized "with a view towards competition and shareholder value." After investment of DM 150 billion from 1990 to 1996, investment volume would now be reduced to DM 15 billion in 1997 and to DM 11 to 12 billion per year thereafter. Thus, depreciation will exceed investment during coming years, making cash-flow available for debt reduction and dividend payments.

In September 1997, Moody's Investors Service gave Deutsche Telekom a prospective rating of Aa2 for long-term debt, just a bit higher than the AA- rating by Standard & Poor's. Moody's referred to the very modern telephone network, the expected growth of market penetration of mobile phones and fixed-line telephony, the broad diversification of revenue sources, and the cost-cutting and efficiency-raising measures of the company. Cost reduction and new marketing initiatives are expected to strengthen future cash-flow. In May 1998 Deutsche Telekom placed its first bond issue with a volume of up to DM 2 billion, thus entering the international bond market and eschewing German bank financing.

Financial ratios for Deutsche Telekom are reported in Exhibit 13. Profitability is "weak" but a substantial reduction in bank debt has occurred.

Exhibit 13: Deutsche Telekom Financial Ratios

	1997	1996	1995	1994	1993
Assets as % of total assets					
Cash and marketable securities	7.9	10.2	6.2	n.a.	n.a.
Other current assets	23.4	6.1	6.2	17.2	10.5
Current assets	14.7	16.3	12.5	17.2	10.5
Fixed assets	84.2	82.8	86.9	82.8	89.5
Equity and Liabilities as % of total assets					
Shareholder equity	29.6	26.7	15.4	11.5	10.2
Provisions					
Pension obligations	3.7	3.6	3.8	3.6	4.1
Other provisions	n.a.	5.0	4.3	3.2	n.a.
Debt	61.2	64.2	76.2	81.7	82.2
Bank debt	54.0	57.3	68.9	74.9	73.1
Profitability Ratios					
Sales/Total assets	0.41	0.36	0.41	37.9	0.40
Sales/Fixed assets	0.49	0.44	0.48	0.46	0.45
Operating income/Sales [1]	0.11	0.10	0.16	0.18	0.16
Operating income/Sales [2]	0.10	0.07	0.14	0.13	0.12
Net income/Sales	0.05	0.03	0.08	0.06	0.03
Net income/Assets	0.02	0.01	0.03	0.04	0.01
Net income/Equity	0.07	0.04	0.21	0.19	0.14

Notes: [1]Before interest and taxes. [2]Before taxes.

8.2 Financial Market Performance

The raw CDAX and NYSE post-listing price relatives for Deutsche Telekom stock are 0.999 and 1.090 respectively. Our beta adjusted price relatives (see Exhibit 5) are 1.498 for the CDAX and 1.269 for the NYSE index with our estimated betas (see Exhibit 6) being 0.669 for the CDAX and 0.886 for the NYSE. We are quite comfortable with these estimated betas as the *Value Line* beta for British Telecom is 0.70 and for Tele Danmark, 0.55. So, on the basis of this evidence, DT has outperformed the benchmark indexes. But, this out-performance is not confirmed for the CDAX Index by the CDAX performance alpha. This alpha, although not statistically significant, is less than zero. Out-performance relative to the NYSE Index is confirmed by the NYSE alpha of 0.4323

As is the case with SGL Carbon, Pfeiffer Vacuum, and Fresenius Medical Care, comparisons to a pre-NYSE listing period are impossible because the company did not exist as an privately-owned entity. It became privately owned and publicly held through its listing on the NYSE!

9. HOECHST

Hoechst listed itself on the NYSE on September 24, 1997. This event was part of a major restructuring program that began in 1994 and was intended to focus the company on pharmaceutical, life science and biotechnology businesses. We have already encountered one major Hoechst restructuring event - the spin off of SGL Carbon and its listing on the NYSE. So, like Daimler, Hoechst's move toward listing on the NYSE was accompanied by major restructuring events. Exhibit 14 summarizes these events.

In response to a question about why Hoechst was listing its shares on the NYSE, its CEO, Juergen Dormann, stated that:

> "The Hoechst share price will serve as the yardstick of our performance; in other words, we want the capital markets, specifically you, our shareholders, to be the judge of our efforts. We are primarily interested in maintaining and gaining the confidence of existing and potential long-term shareholders who share our conviction of the success of the

> Hoechst strategy. With the listing on the New York Stock Exchange in the fall, our performance will be judged by the world's largest capital market. This move will also increase Hoechst's international familiarity and make it easier for a large number of potential investors to invest directly in our shares."

Along with the NYSE listing also came a management compensation plan that involved stock appreciation rights for top managers. So, the theme of shifting the company's focus toward shareholder value and tying managerial compensation to stock price performance continues as a major characteristic of German firms listing themselves on the NYSE. Hoechst's financial goals include achieving a 20 percent return on equity within the coming 5 years (1996: 16.5 %) and reducing the ratio of debt to cash-flow from 210 percent in 1996 to less than 150 percent.

Also noticeably present is the theme of greater transparency for shareholders and potential investors. In its *1996 Annual Report*, Hoechst explicitly states that its "new structure also permits the clear delegation of responsibility and will increase entrepreneurial flexibility while offering our shareholders greater transparency [presumably with respect to the performance of senior managers and their respective operating divisions].

Exhibit 14: Summary of Hoechst Restructuring Events

Date	Divestiture, Sale, Spin-off	Acquisition
May 5, 1995		• Hoechst agrees to buy drug maker Marion Merrell Dow for $7.1 bill.
June 29, 1995		• Sale of Marion Merrell Dow Inc. shares by Dow Chemical Co. to Hoechst AG.
June 30, 1995	• Joint venture between Germany's Bayer AG and Hoechst AG combining their textile dye operations.	
July 27, 1995	• Agreement reached between Courtaulds PLC and Hoechst AG in July 1995 to consolidate their polypropylene businesses.	
July 28, 1995	• Reports on the Allied Signal Inc.'s decision to acquire Hoechst AG's interest in Riedel-de Haen AG, a German manufacturer of specialty chemicals. Related information in brief.	
Sept. 28,1995	• Announces selling of stakes in SGL Carbon A.G. by Hoechst A.G., as on September 28, 1995.	
Feb. 21, 1996	• Chiron will pay about $120 million for 49% of Hoechst's vaccine business.	
March 8, 1996	•	• Hoechst plans to invest more than $1 billion in China by the year 2000
March 15, 1996	• Hoechst plans to split drug and chemical units.	
May 8, 1996	• Rest of SGL Carbon stake to be sold in placement.	
Dec. 11, 1996		• Hoechst to gain 45% stake in Clariant through deal.
March 7, 1997		• Hoechst makes large investment in deal with Ariad.
Aug. 27, 1997	• Watson Pharmaceuticals Incorporated agreed to acquire Rugby Group Incorporated from Hoechst AG.	
Jan.16, 1998	• Saba seeks Hoechst's Trevira unit.	
March 18, 1998	• Mobil, Hoechst plan venture to combine flexible-film lines.	

Hoechst's financial ratios are contained in Exhibit 15. As was the case with our other companies, except Fresenius, bank debt as a percent of total assets has fallen since its NYSE listing.

Exhibit 15: Hoechst Financial Ratios

	1997	1996	1995	1994	1993
Assets as % of total assets					
Cash and marketable securities	1.0	1.0	2.1	4.9	4.1
Other current assets	35.5	41.5	42.7	45.9	46.6
Current assets	36.6	42.5	44.9	50.8	50.7
Fixed assets	63.4	57.5	55.1	45.8	49.3
Equity and Liabilities as % of total assets					
Shareholder equity	31.4	32.8	29.0	34.0	34.6
Provisions					
Pension obligations	11.3	12.4	12.2	15.9	15.6
Other provisions	15.6	17.1	23.8	17.3	16.4
Debt					
Bank debt long-term	14.3	16.0	16.3	7.5	7.3
Bank debt short-term	15.7	17.3	18.7	25.1	25.9
Turnover and Profitability Ratios					
Sales/Total assets	0.41	0.36	0.41		0.40
Sales/Fixed assets	0.49	0.44	0.48	0.46	0.45
Operating income/Sales [1]	0.11	0.10	0.16	0.18	0.16
Operating income/Sales [2]	0.10	0.07	0.14	0.13	0.12
Net income/Sales	0.05	0.03	0.08	0.06	0.03
Net income/Assets	0.02	0.01	0.03	21.42	0.01
Net income/Equity	0.07	0.04	0.21	0.19	0.14

Notes: [1]Before interest and taxes. [2]Before taxes.

9.1 Financial Market Performance

How have investors "judged" Hoechst? As was the case with Daimler-Benz, the NYSE listing announcement was actually associated with negative abnormal returns as shown in Exhibit 3. The cumulative abnormal returns for Hoechst stock from day -1 to day +2 around the announcement date were -9.48 percent.

During the pre-listing period which runs from 1994 through its 1997 listing date, the Hoechst raw CDAX price relative was 1.243 (Exhibit 4). The raw NYSE price relative was 1.013 (Exhibit 4). However, in the post-listing period, the raw price relatives are 0.797 and 0.949 respectively. On the surface, it appears that Hoechst's stock price performance deteriorated after its NYSE listing. This "deterioration" persists when we examine the beta adjusted post-listing price relatives. The CDAX beta adjusted price relative falls from 1.016 to 0.754 and the beta adjusted NYSE price relative falls from 4.053 to 1.0182.

Based on its alphas as reported in Exhibits 7 and 8, Hoechst has generated adequate risk adjusted returns. The major piece of evidence to the contrary is the negative post-listing alpha of -0.0346 for the CDAX Index. This negative alpha is confirms the post listing CDAX price relative of less than 1.0.

One explanation for the "high" pre-listing price relatives is that many of the restructuring events occurred before the NYSE listing. So, once listing occurred, Hoechst was meeting market expectations of a post-restructuring company.

With Hoechst, we can examine the pre and post listing of its stock relative to both the CDAX and NYSE indexes. The relevant statistics are reported in Exhibit 9 and were calculated the same way as the ones for Daimler-Benz.

Like Daimler, Hoechst's stock price became less responsive to daily changes in the CDAX Index after its NYSE listing. The slope indicator variable for the post-listing CDAX is -0.2023 which means that its CDAX beta in the post-listing period was 0.2023 less than its CDAX beta in its pre-listing period. This outcome is also apparent in Exhibit 6 where the pre- and post-listing betas were estimated separately. The opposite outcome occurs for the sensitivity of Hoechst stock relative to the NYSE index. Here, its slope beta, calculated by regressing daily dollar-denominated Hoechst returns against daily NYSE returns, is 0.5126, meaning that the post-listing NYSE beta for Hoechst increased by 0.5125. As was the case for Daimler, investors were "pricing out" Hoechst stock differently in the post listing period.

10.VEBA

10.1 Background

Veba is one of Germany' largest diversified companies. Besides owning and operating electric utilities (PreussenElektra), it also has interests in petroleum exploration, production, and refining (Veba Oel). Veba Hüls subsidiary makes chemicals; it merged with Degussa AG with the aim of forming a separately traded company. Other lines of business include housing development (Raab Karcher, Veba Immobilien Management), distribution/logistics (Stinnes AG, Veba Electronics), air, sea, and land transport, production of construction materials, and telecommunications (Otelo/E-Plus).

Veba, too, is restructuring: the Group has already reduced its range of businesses from 60 to 40 and wants to go to 30. The three main areas are to be energy, chemicals, and telecommunications. Thus, in May 1997 it bought 36.4% of Degussa AG. Stinnes AG is to be spun off in early 1999.

With more than 400,000 shareholders, Veba is one of the largest European public companies. It listed itself on the NYSE on October 8, 1997 in order to broaden its investor base. In contrast to Hoechst, which addressed primarily the public investors, Veba focused its road show on the pension funds. Veba wants to raise the share of US investors from 12% to 15-20% of the shares outstanding within the next few years. As it sees domestic business growth limited, Veba is trying to shift more to the international arena, with the goal of raising foreign sales from DM 75 billion to DM 100-125 billion by 2005. It plans to double its investment in North America from the 1996 level. Close to DM 6 billion or 13% of total fixed investment is to go to the NAFTA countries. Veba Hüls alone, the chemicals subsidiary, is to spend DM 3.9 in the United States to cement its leadership in phenols, special chemicals (colorants) and performance chemicals (superabsorber). Stinnes is to grow its chemicals distribution business as well as air and sea transport in the United States, and Raab Karcher wants to improve its position as the world's third largest producer of electronic components. Toward this end it acquired Wyle Electronics in 1997.

In preparation for its NYSE listing, Veba switched to GAAP accounting principles in 1995. Its management adopted relatively early and especially consistently the idea of shareholder value, introducing the concept of value-added controlling five years ago. Veba became one of the first German companies to abolish limitations on voting rights for shareholders, establishing the principle of "one share - one vote". It was also the first German company to set and publish targets for the return on equity. In 1996 it achieved an after-tax return on equity of 13 %, double the ratio of four years earlier, and approaching the medium-term goal of 15%. Veba expects its structure and culture to have changed fundamentally by the beginning of the next century.

Ulrich Hartmann, chairman of the board of management and CEO of Veba, answers the question of why he listed Veba on NYSE with one sentence: "Veba wants to learn from the American way of doing business.„ In an address to the German American Chamber of Commerce he also said:

> "Improving our access to the immense US market for products, services and capital is our most important reason for coming the New York Stock

> Exchange. However, we are also vitally interested in tapping the US market for ideas - to bolster our continuous process of corporate reform. After our stock market listing, we will be better able to absorb ingredients of the US business and management culture that are necessary for Germany's success.
>
> That is not to say that we wish to abandon the consensus-based management and business structure that has contributed so much to Germany. However, the so-called "German model" will persist only if it adapts.
>
> With our listing, we are *deliberately exposing ourselves to the critical appraisal of the world's most important capital market*. And we hope to expand our access to US institutional funds.
>
> More generally, the listing will enable us to learn more from the way things are done in the U.S. American-style business culture offers an array of advantages which we must also adopt: flexibility, fast response to market trends, customer focus, and emphasis on service.
>
> If we take these concepts and adapt them to our own German system, which emphasizes longer-term relationships between management, employees, unions, customers and suppliers, then the result may be a combination which will be hard to beat.„

In what may be a particular revealing assessment of why Veba listed on the NYSE, Hartman said at the 1997 shareholders' meeting:

> 'The capital market also plays an extremely important role in accelerating necessary structural changes. The capital market assesses companies' current status, and, more importantly, their future, thus ensuring that capital is allocated as economically as possible. The better a company's results and the more convincing its strategy, the better positioned it is for obtaining equity at favorable conditions. For businesses, the capital market functions as an early warning system for major changes in markets and shifts in competitive structures. However, politicians and society would also be well advised to take its signals seriously."

Veba's financial ratios are in Exhibit 16. Again, notice the reduction in bank debt as a percent of total assets.

Exhibit 16: VEBA Financial Ratios

	1997	1996	1995	1994	1993	1992
Assets as % of total assets						
Cash and marketable securities	1.6	6.9	6.1	7.0	6.6	5.4
Other current assets	25.8	24.0	26.5	28.1	29.9	30.5
Current assets	27.4	30.9	32.6	35.1	36.5	35.9
Fixed assets	72.3	68.9	67.2	64.7	63.4	64.0
Equity and Liabilities as % of total assets						
Shareholder equity	31.4	32.0	30.9	29.2	29.8	30.0
Provisions						
Pension obligations	11.1	11.6	11.9	11.5	11.9	11.6
Other provisions	30.2	32.7	34.1	32.8	30.7	29.7
Debt						
Bank debt long-term	n.a.	5.1	3.2	4.5	5.0	4.7
Bank debt short-term	n.a.	16.5	15.8	18.0	18.9	20.6
Turnover and Profitability Ratios						
Sales/Total assets	1.03	1.04	0.98	1.08	1.19	1.25
Sales/Fixed assets	1.42	1.50	1.46	1.68	1.88	1.96
Operating income/Sales [1]	0.04	0.05	0.06	0.04	0.03	0.04
Operating income/Sales [2]	0.06	0.06	0.08	0.06	0.04	0.05
Net income/Sales	0.02	0.03	0.03	0.03	0.03	0.03
Net income/Assets	0.02	0.03	0.03	0.03	0.04	0.04
Net income/Equity	0.08	0.09	0.10	0.11	0.12	0.13

Notes: [1]Before interest and taxes. [2]Before taxes.

10.2 Financial Market Performance

As was the case with Daimler-Benz and Hoechst, negative abnormal returns were associated with VEBA's NYSE listing announcement. So, all three previously publicly traded companies on German exchanges had negative reactions to their initial NYSE listing announcements. Such outcomes are consistent with the view that these companies were interested in something more than or beyond changes in their cost of capital when they decided to list on the NYSE.

Prior to its NYSE listing, VEBA stock performed in line with both the CDAX and the NYSE indexes. On a beta-adjusted basis, the stock has outperformed the NYSE index and under-performed the CDAX index.

Veba's performance alphas are mixed. It has a positive post listing NYSE alpha but a negative post listing CDAX alpha. The reverse is true for its CDAX alphas. However, conclusions about its post-listing performance are tenuous at best, though, because of the short time it has traded on the NYSE.

Like Daimler and Hoechst, Veba's stock became less sensitive to the CDAX Index and more sensitive to changes in the NYSE Index after its NYSE listing. It's CDAX beta fell by 0.1344 and its NYSE beta increased by 0.3159 in the post-listing period (Exhibit 7). So, the pattern of investors "pricing out" a German company's stock differently after it lists itself on the NYSE continues.

11. Analysis

Every NYSE listing followed from or occurred concurrently with an organizational architecture event where organizational architecture refers to the organization of the company, its governance system and the ways in which decision rights are assigned within a company and managers

evaluated and compensated (Brickley, Smith and Zimmerman, 1997). Nobody simply continued to do what they were already doing and, by-the-way, decided to sell stock in the United States with the possible exception of Fresenius.

Two of the seven companies were effectively IPOs—SGL Carbon and Pfeiffer Vacuum—that left public investors with controlling interest in the company. Two other companies were also IPOs—Fresenius Medical Care and Deutsche Telekom—with controlling interest remaining in the hands of the existing owners: Fresenius AG in the case of Fresenius Medical Care and the German government in the case of Deutsche Telekom. In all four cases, though, existing owners and/or management made a decision to place the governance apparatus of the company in the hands of public investors. So, perhaps an even more fundamental question than why did the companies list themselves on the NYSE is why did they go public?

The alternative to going public for the owners of a company (who want to "cash out") is to sell the company to a trade buyer or a group of private investors and managers through a leveraged buy out (LBO). Presumably, wealth-maximizing owners will choose the alternative that offers the highest price. So, why were these firms worth more as publicly traded corporations than as parts of a conglomerate or LBO or controlled by banks with large equity and debt positions in the company - the German model?

One answer, well articulated by Williamson (1985), is that publicly owned firms provide a way for offering high powered incentives to their managers; incentives not normally available if the "firm" remains part of a conglomerate. As part of a conglomerate, high-powered incentive systems that tie compensation to stock price performance tie compensation to the consolidated performance of the company, not the divisions. So, the managers of the division have less incentive to maximize the value of their divisions than if the divisions were stand-alone companies. By the same token, these managers have less to lose if their divisions run into financial difficulties because they may be able to convince the company to support them financially through intra-company cash transfers (including bank loans from banks with equity positions in the company). Couple this "distancing" of compensation from division specific performance with internal accounting conventions and corporate politics and the opportunities for logrolling and back-scratching ripen. Under these conditions, managers try to "game" the system rather than focusing on creating value for the shareholders.

A solution to this problem is to create an independent company with managerial compensation tied to performance as measured by the market value of the company. Much of the noise created by internal accounting systems with respect to evaluating managerial performance is removed and managers will find it difficult to blame someone else or political forces beyond their control for sub-par performance. As we have noted in our review of the German companies, implementing a high powered managerial incentive system was integral to the NYSE listing decision and implicitly if not explicitly offered as a reason for "going public."

A second reason is a story often told by investment bankers. This story is that established firms go public in order to escape the monitoring and control of banks and to set the stage for selling public debt. Public debt is less expensive than private debt and the firm achieves greater flexibility through reductions in debt covenants and being able to issue a wide range of securities to the public. Rajan (1992) has developed a theoretical model along these lines and Pagano, Panetta and Zingales (1998) find supporting evidence in Italian IPOs.

Substituting public debt for bank debt is a major change from a corporate governance perspective. So, given the supposed virtues of a bank dominated governance structure such as reductions in financial distress costs and the ability to use more leverage, what types of firms would be likely to forgo these benefits and choose public ownership?

Most likely, these firms have an established track record such that the quality of the firm's cash flows are publicly known or could be deduced from public information, meaning that access to

inside information about the firm's financial situation has little value. One would also expect that the need for creditors to control managerial decisions would be limited or, at least, the control exerted through bond covenants would be adequate. This description fits our seven German companies quite well.

Exhibit 17 contains the ratios of bank-debt-to-total-assets and equity-to-total-assets for the ADR companies. Every company exhibits a falling ratio of bank-debt-to-total-assets and either little change or an increase in the ratio of equity-to-total-assets. So, a substantial change in governance structure has occurred with non-bank debt and equity replacing bank financing.

Exhibit 17: Bank Debt and Equity as a Percent of Total Assets

	1997	1996	1995	1994	1993	1992
			Bank Debt as a Percent of Total Assets			
Daimler	28.7	40.1	39.9	39.8	39.9	36.2
SGL Carbon	34.5	32.3	27.9	44.6	54.1	n.a.
Pfeiffer Vacuum	14.7	23.1	n.a.	n.a.	n.a.	n.a.
Fresenius Medical Care	39.9	49.4	n.a.	n.a.	n.a.	n.a.
Deutsche Telekom	54.0	57.3	68.9	74.9	73.1	n.a.
Hoechst	30.0	33.3	35.0	32.6	33.2	n.a.
VEBA	n.a.	21.6	19.0	22.5	23.9	25.3
			Equity as a Percent of Total Assets			
Daimler	25.6	23.5	22.4	21.7	20.0	22.9
SGL Carbon	43.2	42.6	40.9	22.1	13.8	
Pfeiffer Vacuum	43.0	33.6				
Fresenius Medical Care	43.9	28.4				
Deutsche Telekom	29.6	26.7	15.4	11.5	10.2	
Hoechst	31.4	32.8	29.0	34.0	34.6	
VEBA	31.4	32.0	30.9	29.2	29.8	30.0

Our other three companies, although already public corporations, used the listing on the NYSE as a vehicle for implementing major organizational changes. The three companies also state that they welcome the discipline of the capital market (a market-based governance structure) and, as stated by the CEO of VEBA, hope that politicians do likewise.

These public statements and commitments to market discipline may suggest some other objectives as well, however. The "discipline of the market" may be useful as a means of disciplining other stakeholders of the firm, including politicians and governmental officials. Attempts by special interest stakeholders can be fended off by pointing out the damage such requests could do to the competitive position of the company in global markets. Market discipline also makes it easier to undertake restructuring more quickly by pointing out how failure to restructure is destroying the value of the firm.

What we are suggesting with respect toward a movement to a market based governance structure for large firms has a parallel in the discipline that a single currency with a supranational European central bank brings to member countries of the European Monetary Union (EMU). Demands for increased wages, social welfare programs and tax reductions can be countered with arguments that such demands, while understandable, cannot be met if the country is to comply with the terms of the EMU and not go bankrupt. Perhaps the most recent example of this is Greece where the current government is apparently committed to join EMU. According to news reports, plans to privatize the Ionian Bank were met with strikes and riots. In the past, observers have argued that the government

would have buckled under the pressure but given its commitment to join EMU, the privatization went ahead.[1]

Our empirical results fits well with this story that the decision of German firms to list themselves on the NYSE was primarily a governance decision to move toward a market oriented governance structure and give managers and owners more freedom for undertaking restructuring programs. We found some evidence based on beta adjusted price relatives that the post NYSE listing performance of the German companies "outperformed" our benchmark indexes. However, using Jensen's alpha as a performance measure, we conclude that the companies generated the expected risk adjusted returns. In other words, we observed neither under-performance nor out-performance, although if pressed we would opt for out-performance. This conclusion is particularly applicable to the two spin-offs—SGL Carbon and Pfeiffer Vacuum. The company with the worst performance, interestingly enough, is Fresenius, the one that kept a German governance structure.

But, what about the question of whether any change in the company's cost of capital was associated with listing on the NYSE, which is akin to asking whether investors were "pricing out" the companies differently in the post listing period? Here, our results are perplexing.

We have clearly documented that once the German companies were listed on the NYSE, their stock prices became more sensitive to changes in the NYSE Index and less sensitive to changes in the CDAX Index (Exhibits 7 and 8). Beyond the question of whether this means the companies became more "global" or more "American", though, is the question of what the increase in the NYSE betas and decrease in CDAX betas mean in terms of the companies' cost of equity capital.

According to widely used asset pricing models, the NYSE and CDAX betas are measures of systematic risk. Therefore, an increase in beta is to be interpreted as an increase in systematic risk and an increase in the cost of equity capital. So, is it really true that listing of German companies on the NYSE led to an increase in their cost-of-capital based on a U.S. market index? What we haven't done, as yet, is to calculate betas based on a world market portfolio. However, the assumption that the beta of U.S. markets with a global market portfolio is very close to one is quite reasonable and widely accepted. One highly respected estimate of the U.S. market beta with this global market as measured by the Morgan Stanley Capital Index is 0.96 (Harvey, 1991). So, we can rephrase the question and ask: Is it true that the listing of German firms on the NYSE increased their cost of capital on a global basis? Within the narrow framework of a one-factor CAPM, the ostensible answer is yes.

But, the more important question is: If there was an increase in the cost of equity capital, was it accompanied by upward revisions in investor expectations of profits and cash flows? The answer to this question also appears to be yes. Otherwise the apparent increase in the cost of equity would have resulted in a reduction in the companies' stock prices and we would have observed negative alphas in the post-listing period.

12 Summary and Conclusions

We have examined the reasons why German companies chose to list themselves on the NYSE and their pre and post listing financial performance. We find that organizational architecture reasons seem to best explain the listing decisions. The companies were making conscious decisions to move toward a market oriented governance structure that they believed was necessary to remain competitive in a global economy. This market oriented governance structure subjected all the stakeholders of the firm to the discipline of the market and made it easier to restructure the firm in response to changing competitive conditions.

[1] "Greece Gets Serious About Joining EMU," *Wall Street Journal*, October 7, 1998

We also find little evidence that the stock price performance of the companies changed substantially in the post listing period. Based on Jensen's alpha, the companies earned their risk adjusted required returns - neither more nor less.

Finally, we find that the companies' stock prices became more sensitive to changes in the NYSE Index and less sensitive to changes in German stock indexes in the post listing period. Because the NYSE Index is highly correlated with a global market index and has a beta of one relative to global indexes, we conclude that the companies' stock prices were being set more in the context of a global market than the German domestic market in the post listing period.

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