Corporate Bankruptcy System and Economic Crisis in Korea

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After the economic crisis broke in 1997, Korea undertook a reform of the corporate bankruptcy system in 1998-9.[8.1] These reforms were not sweeping but piecemeal, maintaining the existing legal framework intact. What, if anything, did the reforms of 1998-9 achieve? Two years after the 1998-9 reforms, debate on reforming the corporate bankruptcy system continued and by the end of 2001, another round of bankruptcy reform was still pending. What weaknesses did the bankruptcy laws and procedures have to prompt another round of reform?

In addressing these issues, we focus on whether rehabilitation

procedures targeted the right firms. Rehabilitation programs should target firms that go bankrupt because of temporary bad luck, but which have a high potential for recovery. If firms do not meet this criterion, then rehabilitation programs are doomed to failure from the start. Another related issue is the timing of filing for bankruptcy procedures. If ailing firms file for bankruptcy procedures too late, prospects for recovery are damaged.

In order to assess the effectiveness of bankruptcy procedures, we look at firm-level data on productivity, a major indicator of corporate performance (see Chapter Four). The information on corporate bankruptcy was gathered from such sources as the Courts, Financial Supervisory Service and the Bank of Korea. We analyze both the cross-sectional distribution of corporate bankruptcy and the time series of ailing firm's productivity before and after bankruptcy, using data on externally audited firms.[8.2] We also compare the productivity distribution of ailing firms for different rehabilitation procedures with an eye on the changes in laws and procedures introduced in 1998 and 1999.

This paper will not elaborate on the workout program, the informal out-of-court bankruptcy process introduced after the crisis; that program is examined in detail by Kyung Suh Park in Chapter Seven. However, it must be emphasized that the formal in-court bankruptcy process would work better if informal out-of-court processes work efficiently, and *vice versa*. It is especially the case where, as in Korea, the scale and scope of corporate insolvency reaches levels that pose systemic risks.

Section 1 explains recent developments in the court corporate bankruptcy system. Section 2 shows the empirical relationship between *chaebol* restructuring and the corporate bankruptcy process from 1997 to 1999. Section 3 evaluates the effects of the 1998-9 reforms of the corporate bankruptcy system. The conclusion provides an evaluation of the 1998-9 reform effort and discusses the agenda for future reforms.

1. Recent Developments in the Corporate Bankruptcy System

Before the economic crisis of 1997, most ailing firms did not use the bankruptcy procedures overseen by the courts. The debt of bankrupt firms was usually collected on an individual basis under the Civil Procedure Act. Most assets of the bankrupt firms were already subject to mortgage or to security and little was left for unsecured creditors. Additional procedures for the collection of debt were not needed.

Although most bankrupt firms were effectively liquidated on a non-judicial basis, some bankrupt firms were periodically bailed out by the government through various "rationalization" measures; for example, such measures were undertaken in the mid-1980s. These measures also undercut the use of formal bankruptcy procedures.

One technical hurdle to the use of judicial bankruptcy procedures was the Act on Special Measures for Unpaid Loans of Financial Institutions. The Act gave the Korea Asset Management Corporation (KAMCO) the authority to hold auctions of the assets of bankrupt firms before court procedures began.

It stopped the Corporate Reorganization Act from operating in practice since the auction of assets by KAMCO effectively preempted the corporate reorganization process. In 1990, the Constitutional Court declared this provision unconstitutional, paving the way for the wider use of judicial bankruptcy procedures.

By enacting the Rule on Corporate Reorganization Procedure in 1992, the Supreme Court began to move in the direction of improving judicial bankruptcy procedures. Among other things, the new rule established the conditions for the initiation of corporate reorganization proceedings. These included high social value, financial distress and possibility of rehabilitation; interestingly, economic efficiency was *not* a requirement for corporate reorganization.

Several episodes of abuse of the corporate reorganization procedure by the controlling shareholders of ailing firms led the Supreme Court to amend the 1992 Rule in 1996. In particular, the court argued that the shares of controlling shareholders responsible for a firm's failure should be wiped out. This revision produced an unanticipated outcome: the owners of ailing firms looked for other possibilities that would allow them to maintain their control. They found such an alternative in the composition procedure. The composition procedure was originally designed for small and medium-sized firms with simple capital structures, but there was no explicit limit on firm size until the law was revised in 1998. Composition required advance agreement with creditors before the court officially considered an application. A court-

provided stay under the composition procedure applied only to unsecured creditors; secured loans could be collected. But what made the composition procedure popular was the fact that existing management maintained control.

Table 8.1 shows the resulting flight to the composition procedure. Filings for composition exploded from nine cases in 1996, to 322 cases in 1997, to 728 cases in 1998. In the first three quarters of 1997, before the onset of the crisis, many large firms facing bankruptcy sought to file for the composition procedure. Among these firms, the case of Kia Motors deserves special mention since it played an important role in the unfolding of the crisis in mid-1997. The debtor and the creditors initially wanted to apply for different procedures: Kia initially filed for composition, but shortly thereafter creditors chose to file for corporate reorganization. When both procedures are filed in this way, the filing for corporate reorganization overrides the one for composition. In the end, the court accepted Kia Motors into corporate reorganization, but the uncertainty and delay in dealing with ailing firms such as Kia clearly added to the uncertainty in the economy before the crisis broke out.

//Table 8.1 here//

The economic crisis of 1997 put the existing corporate bankruptcy system, both judicial and non-judicial, under great strain. The number and scale of bankruptcies soared. Table 8.1 shows that the filings for judicial bankruptcy procedures rose dramatically in 1997. This internal pressure on the system was a driving force for the changes in laws and procedures that

followed in 1998 and 1999, although the IMF and the IBRD also demanded an improvement in the corporate bankruptcy system as a condition for the bailout package.[8.3]

The revision of 1998 represented the most substantial change in the system since the enactment of the corporate bankruptcy laws in 1962. But pressed for time in the wake of crisis, the government did not succeed in initiating a fully comprehensive revision, which accounts for the second round of reform in 1999.

Through these two revisions, the role of the courts in the corporate bankruptcy process increased significantly; if it were not for the workout procedure introduced as an "out-of-court" settlement process in 1998, the role of the courts would have even been larger. In this process, the relative weight of court settlement and out-of-court settlement and the optimal size of firms participating in court settlement remain among the most important issues for future reform. This is especially the case given that the delayed process of financial sector restructuring is likely to put the out-of-court procedure under the influence of the government, the controlling shareholder of several major banks (see Chapter Seven).

To improve the court settlement process, the 1998 revision introduced new provisions into the bankruptcy laws while maintaining the existing framework.[8.4] Most importantly, the new law introduced an economic efficiency criterion to qualify for judicial bankruptcy procedures instead of one based on high social value and prospects for rehabilitation. A comparison

of the value of a distressed firm as a going-concern with its liquidation value is now required for the initiation of all judicial bankruptcy proceedings. Another important change was to speed up proceedings. Time limits were introduced for the critical steps in the proceedings such as the decision on stay, the report of debts and equities, the approval of reorganization plan, and other steps.

To induce a more active role for the creditors, the reform also established a creditors' conference. To enhance the capacity of the court to deal with bankruptcy cases, the court receivership committee was introduced as a special advisor on the critical steps in the proceedings. The process of wiping out the shares of controlling shareholders was also strengthened and made more transparent.

To prevent the abuse of the composition procedure, some critical changes were also made to the Composition Act. Large firms with complicated capital structures were not allowed to enter composition. Table 8.1 shows the impact of this change: the number of composition filings decreased sharply from 728 in 1998 to 140 in 1999.[8.5]

Despite these changes, the 1998 revision left room for further reform.[8.6] To some extent, in fact, the 1999 revision filled the gap between initial reform proposals and what was finally passed in the 1998 revision.[8.7] In the 1999 revision process there was initially debate on the inclusion of an automatic stay in the new law. Under an automatic stay, the debtors' assets are automatically protected on filing from the creditors' rush to secure their claims.

The pros and cons of the automatic stay were both strong. The final compromise of sped up the initiation of the proceedings to within one month of the filing.

Automatic stay can contribute to the rehabilitation of ailing firms after bankruptcy. On the other hand, the debtor might use the court to avoid a formal default and thereby evade criminal punishment under the Illegal Check Control Act. According to the Illegal Check Control Act, the managers or owners of ailing firms who issued bad checks are criminally liable. This was developed to overcome the informational asymmetry between the debtor and the creditors. Dealing with highly unreliable accounting information, creditors would be much less willing to lend money to debtors without such recourse. The debtors are in effect forced to make a credible commitment to repayment by risking incarceration in case of default.

The new revision also facilitated an efficient transition between corporate reorganization and liquidation. After the initiation decision, the court must compare the going-concern value of the firm with its liquidation value. If the liquidation value turns out to be larger than the going-concern value, the court *must* declare the liquidation of the firm.[8.8] Donga Construction was the first large firm to go down this path; the company was liquidated in early 2001.[8.9] This change could be regarded as one that contributes to an efficient working of the market mechanism.[8.10]

2. Corporate Bankruptcy and *Chaebol* Restructuring

If we look at the size distribution of firms in the economy over the 1990s, the shape of the distribution gets more skewed to the left over time: the number of very large firms – those with assets over a trillion won – grows, but overall, we find relatively more small-sized firms over time (Lim 2001). The crisis of 1997-98 had a more serious impact on these small firms.

Table 8.2 shows the portion of insolvent firms belonging to the *chaebol* category from 1997 to 1999.[8.11] The table shows the relative share of solvent and insolvent firms, weighted by the size of assets. The insolvent firms in a given year include only those which went bankrupt in that year for the first time, and do not include those which went bankrupt in other years; hence, the table tells us the incidence of new bankruptcies in the various *chaebol* categories. "Solvent firms" are those which have not gone bankrupt in any year from 1997 to 1999.

//Table 8.2 here//

Of the top 30 *chaebols* which went bankrupt, most did so in 1997; the scale of bankruptcy decreases over time. The other *chaebol* categories behave more or less like the top 30.[8.12] On the other hand, independent[8.13] firms show their highest incidence of bankruptcy in 1999.

Once firms go bankrupt, they can enter into either court or out-of-court administered settlements, including corporate reorganization, composition, or workout. But not all firms undergo these rehabilitation programs; some simply remain bankrupt for a prolonged period of time. Most credit is shut off for these firms, and transactions thus take place in cash.

Table 8.3 shows the relative share of different types of settlement for new *chaebol* bankruptcies from 1997 to 1999. The firms that went bankrupt in 1997 show a clear pattern. For the top 30 *chaebols*, the majority (94 percent in terms of asset size) entered into the corporate reorganization procedure whereas only a fraction (6 percent in terms of asset size) went into the composition procedure. On the other hand, quite a significant proportion of small-sized *chaebols* entered into the composition program. A substantial portion of the independent firms (and a less substantial portion of small-sized *chaebols*) did not qualify for *any* rehabilitation program after bankruptcy.

//Table 8.3 here//

In 1998, the government introduced an out-of-court workout procedure. Table 8.5 shows that, for large-sized *chaebols*, the workout program was the main form of settlement. Even for independent firms, the workout program played an important role. By 1999, the role of the workout program had gotten much bigger, and most of the new bankruptcies (in terms of asset size) were handled by this out-of-court procedure.

Figures 8.1 - 8.3 show the size distribution of the year bankruptcy cohorts and how that distribution has evolved over time. By focusing on the year cohorts, we can control for various year-specific effects and single out the relationship between the various rehabilitation settlements and the size factor over time. In the figures, we put together the size distribution of the top 30 *chaebols* as a reference point.

//Figure 8.1, 8.2 and 8.3 here//

In 1997, the size distributions of the two types of court settlement cases are close to each other, although the size of firms undergoing corporate reorganization is a bit larger than those undergoing composition. This pattern changed in 1998 and 1999; the size of firms undergoing corporate reorganization became much bigger than those in composition. The changes in laws and procedures in 1998 and 1999 had a clear effect on the size distribution of court settlement cases. In the first year of the workout procedure, firms in that process were a bit smaller than those in corporate reorganization. In the second year, however, the size of workout firms gets much bigger than those in corporate reorganization. This fact documents clearly that the workout program was used as an out-of-court bankruptcy mechanism for large *chaebols*.

3. The 1998-9 Reforms and the Performance of the Corporate Bankruptcy System

Firms go bankrupt because they cannot pay their debts. From the perspective of designing a corporate bankruptcy system, one of the important issues is how to tell (or to elicit information on) whether the financial distress of the insolvent firm is temporary or persistent. One way to resolve this issue empirically is to analyze the productivity of insolvent firms. We construct total factor productivity measures for the firms in our data set and analyze them to evaluate the performance of the corporate bankruptcy system in place after the economic crisis. We analyze both the cross-sectional distribution of

corporate bankruptcy and the time series of ailing firm's productivity before and after bankruptcy. We also compare the productivity distribution of ailing firms for different rehabilitation procedures with an eye on the changes in laws and procedures introduced in 1998 and 1999.

A. Industry Distribution of Corporate Bankruptcy

Table 8.5 shows that the incidence of corporate bankruptcy is not evenly distributed across industries.[8.14] Instead, it is clustered in some industries, such as textiles, apparel, footwear, motor vehicles manufacturing, furniture, construction and wholesale trade, many of which are structurally depressed. This suggests that many bankruptcies that followed the economic crisis were not cases of temporary bad luck. Rather, many firms went bankrupt because of persistent and industry-specific difficulties.

//Table 8.5 here//

If this is the case, then the rehabilitation mechanisms applied to such firms are most likely doomed to failure from the start. Rehabilitation must target firms that go bankrupt because of temporary bad luck but that have high potential for recovery. In the case of ailing firms in structurally depressed industries, rehabilitation is targeting firms that do not have the potential for recovery. Other policies that help firms reallocate resources would be more appropriate. For example, instead of giving ailing firms in structurally depressed industries a second chance, policies are needed for removing exit barriers and inducing the re-allocation of capital and labor to growing sectors.

Theoretically, this consideration should be captured by the economic efficiency test for rehabilitation programs. However, it is not easy to make this stipulation operational. The economic efficiency test inevitably compares the liquidation value with the going-concern value in a myopic way. Therefore, the administration should cooperate closely with the court in designing better mechanisms for dealing with this class of ailing firms.

B. The 1998-99 Reforms and the Relative Performance of Different Procedures

Figures 8.4 – 8.6 show the productivity distribution of newly insolvent firms by bankruptcy procedure for each year from 1997 to 1999; again the insolvent firms in a given year include only the ones that go bankrupt in that year for the first time and do not include the ones that went bankrupt in other years. In the figures, we put together the productivity distribution of solvent firms as a reference point.

//Figure 8.4, 8.5 and 8.6 here//

Ailing firms have the freedom to choose between the two court procedures. Changes in the provisions governing them thus have an effect on ailing firms' choice; changes in laws and procedures lead to changes in the incentives facing newly insolvent firms.

With the changes of the laws and procedures in 1998 and 1999, some restrictions were put on the composition procedure to prevent its abuse, including limits on firm size: as mentioned above, large firms with

complicated capital structures were not allowed to enter composition. These changes, together with the ones in corporate reorganization procedure, have a significant effect on the outcome of the two court procedures. In 1997 and 1998, the productivity of the firms in composition was higher than those in corporate reorganization, whereas, in 1999, the opposite was the case.

The bankruptcy procedures are basically a structured bargaining game among interested parties; the court mainly oversees the process according to predetermined rules. The outcome of this bargaining game sometimes depends on these rules in very subtle ways. This is particularly so when the legal infrastructure in the area of corporate governance is lacking. Under these circumstances, giving ailing firms the freedom to choose between bankruptcy procedures often leads to unexpected outcomes; each procedure does not select the right firms in equilibrium. In other words, the bargaining game produces an unwanted pooling equilibrium instead of the separating equilibrium that is sought. Some restrictions are needed on the ailing firm's freedom to choose between bankruptcy procedures even if it does not produce a first-best outcome.

The 1999 workout cohort needs special mention, because productivity was distributed in a quite dispersed manner. We could interpret this observation as meaning that some portion of these firms were financially distressed because of temporary bad luck. Unlike other bankruptcy cohorts, they might have suffered from the crisis but not from persistent difficulties. More importantly, it also tells us that the 1999 workout cohort was selected

not purely on the basis of economic efficiency test. Other political or social factors were possibly at work; in fact, this is one of the most important criticisms for the workout program (see Chapter Seven).

C. The Performance of Insolvent Firms Before and After Bankruptcy

Figures 8.7 and 8.8 show that the 1997 and 1998 bankruptcy cohorts suffered not simply from the crisis but from persistent difficulties. Several years before they went bankrupt and were accepted into one of the rehabilitation programs, their productivity was lower than solvent firms. As with the depressed industry cases, rehabilitation mechanisms applied to such firms are most likely doomed to failure from the start. Again, rehabilitation must target firms that go bankrupt because of temporary bad luck but that have high potential for recovery.

//Figure 8.7 and 8.8 here//

Having said this, the reforms in 1998 appear to affected the choices of target firms. Remember that one of the important changes in the 1998 revision was the introduction of the economic efficiency criterion. Now, the court compares the going-concern value of the firm with its liquidation value for the initiation of judicial bankruptcy proceedings. Figures 8.7 and 8.8 show that the 1998 bankruptcy cohorts suffered less from persistent difficulties than the 1997 cohort. Figures 8.9 and 8.10 show that the productivity of these insolvent firms was lower than that of solvent firms several years after the start of the rehabilitation program. Moreover, the gap continues to widen.

//Figure 8.9 and 8.10 here//

There are two possible ways of interpreting this observation. One interpretation is that the 1997 and 1998 bankruptcy cohorts suffered from firm-specific and persistent shocks. This would imply that the rehabilitation mechanisms put in place after the economic crisis targeted firms that did not have the potential for recovery. The other interpretation is that the rehabilitation programs were not well designed, regardless of whether the rehabilitation mechanisms targeted the right firms. For instance, the court-administered procedure was biased against the controlling shareholders of ailing firms because of their exploitation of the bankruptcy system in the past. In many cases, however, the owners-cum-management are best suited to the task of rehabilitating ailing firms, both in terms of incentives and information. If retaining previous owner-managers seems to be a bad idea, the court should consider aligning the incentives of post-bankruptcy management with firm value maximization by giving the court-appointed manager a stock option or expediting the sale of the company to new private management. If we accept the hypothesis that the 1998 revision had some positive effect on the choices of target firms, then the second interpretation is also somewhat persuasive for the 1998 bankruptcy cohorts; and there is still much to be desired in the design of Korea's rehabilitation programs.

D. A Formal Statistical Test

The discussion so far has shown that insolvent firms are less

productive than solvent firms not just at the time of entering into the bankruptcy procedures, but both before and after bankruptcy as well. This hypothesis can be tested statistically. Tables 8.5 – 8.7 show regressions of productivity on a set of year dummies (not reported) and a dummy variable denoting the 1997 or 1998 bankruptcy cohort interacted with year dummies. Only the particular cohort and the group of solvent firms are included in the sample of each regression. The reported coefficients thus indicate the average productivity differential between the 1997 or 1998 cohort and the group of solvent firms.

//Table 8.5, 8.6 and 8.7 here//

Table 8.5 shows that for the 1997 (corporate reorganization or composition) cohort, the coefficients reported are negative from 1993 to 2000, and significant from 1995 to 2000. Table 8.6 shows a similar result for the 1998 (corporate reorganization or composition) cohort: the coefficients reported are negative from 1993 to 2000, and significant from 1997 to 2000. Table 8.7 shows the result of a similar statistical test for the 1998 workout cohort. The coefficients reported are negative from 1993 to 2000 but significant only for 1998 and 2000.

These statistical results are compatible with the observations based on the productivity distributions. First, the 1997 and 1998 bankruptcy cohorts suffered not simply from the crisis but from persistent difficulties. Several years before they went bankrupt and were accepted into one of the rehabilitation programs, their productivity was lower than solvent firms.

Second, the 1998 bankruptcy cohorts suffered less from persistent difficulties compared to the case of the 1997 bankruptcy cohorts. Remember we interpreted this result as implying that the 1998 revision had a positive effect on the choice of the target firms for rehabilitation procedures. Third, several years after the start of the rehabilitation program, the productivity of these insolvent firms is still lower than that of solvent firms.

Table 8.8 and Table 8.9 report the regression results using the pooled 1993-2000 data. In Table 8.8, the measured firm productivity is regressed on a set of dummy variables indicating whether the firm is a member of the composition, corporate reorganization, or workout group, as well as year dummies (not reported). The estimated coefficients can be interpreted as the average productivity differential between each group of firms and the solvent firms that are assumed to be common across years.[8.15] The table shows that the productivity differential between each group of firms and the solvent firms is statistically significant.

//Table 8.8 and 8.9 here//

Table 8.9 tests the null hypothesis that there is no productivity difference between the composition, corporate reorganization, and workout groups. The productivity of the workout group is higher than that of the composition or corporate reorganization groups. The comparison between the composition and corporate reorganization groups produces a less statistically significant result. Using the pooled 1993-2000 data, the productivity of the composition group is slightly higher than that of the corporate reorganization

group.

The statistical results in Tables 8.8 and Table 8.9 are again compatible with the observations based on the productivity distributions. Several years before and after they went bankrupt and were accepted into one of the rehabilitation programs, the productivity of these firms was lower than solvent firms. This is more so for the case of corporate reorganization or composition than for the case of workout.

4. Concluding Remarks: Evaluation of the 1998-9 Reforms and the Agenda for Future Reforms

This paper uses firm-level data to show that a significant portion of ailing firms suffered not simply from the crisis but from persistent difficulties. Several years before they went bankrupt and were accepted into one of the rehabilitation programs, the productivity of these firms was already lower than solvent firms'. Additional evidence that ailing firms suffered not simply from the crisis but from persistent and industry-specific shocks is the fact that corporate bankruptcy was not evenly distributed across industries. Instead, it was clustered in some structurally depressed industries such as textiles, construction and wholesale trade. Rehabilitation procedures applied to such firms are most likely doomed to failure from the start. Indeed, we provide evidence that the productivity of these firms remained lower than that of solvent firms for several years after the start of the program and that the gap continues to widen. In general, rehabilitation procedures in place after the

crisis did not target the right firms. Rehabilitation must target firms that go bankrupt because of temporary bad luck but that have high potential for recovery.

The analysis also shows that the 1998-9 reforms in the corporate bankruptcy system governing in-court settlements had some positive effects on the way the government dealt with ailing firms. One of the most important changes was the shift in criteria for target firms of rehabilitation programs from high social value to economic efficiency. The court now compares the value of firms as going-concerns with their liquidation value for the initiation of judicial bankruptcy proceedings. The statistical analysis shows that this reform had some positive effect on the court's choosing the right target firms for rehabilitation programs. We then discuss evidence that the productivity of the bankruptcy cohorts even after this reform remained lower than that of solvent firms for several years after the start of the program. We interpret this as implying that the rehabilitation programs were not well designed to induce the recovery of target firms.

This paper also documents that the workout program was used as an out-of-court bankruptcy mechanism for large *chaebols* after the crisis, and provides indirect evidence that the workout program did not select target firms purely on the basis of an economic efficiency test. Other political or social factors were possibly at work, which was one of the criticisms for the workout program.

While the corporate bankruptcy system in Korea made progress

through the reforms of 1998-9, there is still much to be desired. First, for the case of ailing firms in structurally depressed industries, other policies are needed to help firms reallocate resources. Instead of giving a second chance to such ailing firms, some policy is needed for removing exit barriers in these industries. The administration should cooperate closely with the courts in designing better mechanisms for dealing with ailing firms.

Second, a consolidation among different bankruptcy procedures is needed. The 1999 revision achieved some improvement in the transition between corporate reorganization and liquidation. This should be pushed further to link all the different bankruptcy procedures. The unified code of corporate bankruptcy is one form of consolidation, although others may also be appropriate. Our analysis implies that we need some restrictions on ailing firms' freedom to choose between different bankruptcy procedures. With a weak legal infrastructure ailing firms' freedom to choose between different bankruptcy procedures has led to sub optimal results.

Third, the relationship between the in-court and out-of-court bankruptcy procedures must be improved. The optimal weight of in-court and out-of-court procedures necessarily varies depending on the underlying economic situation and particularly the threat of systemic risk. But the in-court process works better if the out-of-court process works efficiently, and *vice versa*, and reform efforts must develop in tandem.

Lastly, rehabilitation programs must target the ailing firms with good prospects for recovery in a timely fashion. According to the Illegal Check

Control Act, the management or owners of ailing firms are criminally liable for bad checks; note that this system was a mechanism to get around the severe informational asymmetry between debtor and creditors. Under these circumstances, the management of an ailing firm has strong incentives to file for bankruptcy procedures as late as possible, which ruins prospects for recovery. However, to induce ailing firms to file for rehabilitation programs in a timely was is critical for successful rehabilitation programs.

References

Aw, B.Y., X. Chen, and M.J. Roberts. 1997. "Firm-level evidence on productivity differentials, turnover, and exports in Taiwanese manufacturing," *NBER Working Paper* 6235.

Good, David H., M. Ishaq Nadiri, and Robin Sickles. 1996. "Index Number and Factor Demand Approaches to the Estimation of Productivity," NBER *Working Paper* 5790.

Hahn, Chin-Hee. 2000. "Entry, Exit, and Aggregate Productivity Growth: Micro Evidence on Korean Manufacturing," Korea *Development Institute Policy Study* No. 2000-04.

Kim, Beom Sik. 1999. *The Revision of Corporate Bankruptcy Laws and the Implications* (in Korean), Samsung Economic Research Institute, Korea.

Kim, Jae Hyung. 2001. *Policy Proposals for Corporate Rehabilitation* (in Korean), Korean Chamber of Commerce and Industry, Korea.

Koo, Bon Cheon. 1998. *The Economic Analysis of corporate Exit and the Reform Proposals* (in Korean), Korea Development Institute, Korea.

Korea Economic Daily, Various Issues.

Lim, Youngjae. 2001. "Sources of Corporate Financing and Economic Crisis in Korea: Micro-evidence," *Paper Presented at the Twelfth Annual East Asian Seminar on Economics, NBER.*

Maeil Economic Daily, Various Issues.

Nam, Il Chong, Soogeun Oh, and Joon-Kyung Kim. 1999. "Insolvency Mechanisms in Korea," Korea *Development Institute Working Paper* 9918.

Yoo, S.M., Y.J. Lim, B.C. Koo, S.W. Lee, and J.H. Lee. 1997. *Corporate Exit: Proposals for Reform* (in Korean), Korea Development Institute, Korea.

Yun, Mikyung. 1998. "Bankruptcy Procedure in Korea: A Perspective," *Korea Institute for International Economic Policy Working Paper* 98-02.

Endnotes

[8.1] When the financial crisis broke in 1997, Korea had a better system of corporate bankruptcy than Thailand or Indonesia did. However, the inefficient corporate bankruptcy system of Korea was regarded as one factor for the crisis, or at least making systemic risks larger than otherwise.

[8.2] The Act on the External Audit of Stock Companies requires a firm with assets of 7 billion won or more to issue audited financial statements. Firm productivity is estimated using the chained-multilateral index approach. For details on this methodology, see Chapter Four and Good, Nadiri, and Sickles (1996).

[8.3] Neither the Federation of Korean Industries nor other industry groups expressed opinions against the government's reform proposals. The Federation of Korean Industries usually presents strong opinions about issues that have negative effects on the business operation of firms, such as class action suits.

[8.4] The 1998 revision mainly focused on corporate reorganization. In 1998, the revision of the Composition Act was made for the first time since 1962.

[8.5] Table 8.1 also shows that the number of corporate reorganization filings decreased from 1998 to 1999. The use of the out-of-court workout program for large ailing firms could explain this.

[8.6] The revisions in the Composition Act and the Liquidation Act were made in early 2000.

[8.7] The legal profession expressed some concerns about the instability that is caused by frequent revisions in the bankruptcy laws.

[8.8] Some people in the legal profession were against this change. They pointed out that it only interchanged the order of the economic efficiency test and the initiation decision and that what follows after the initiation decision could be meaningless and unstable due to the possibility of liquidation.

[8.9] Liquidation Act was never applied to large firms since 1962.

[8.10] According to the revised corporate reorganization procedure, the comparison of the liquidation value and the going-concern value is made after the initiation decision, whereas the opposite was the case in the law revised in 1998.

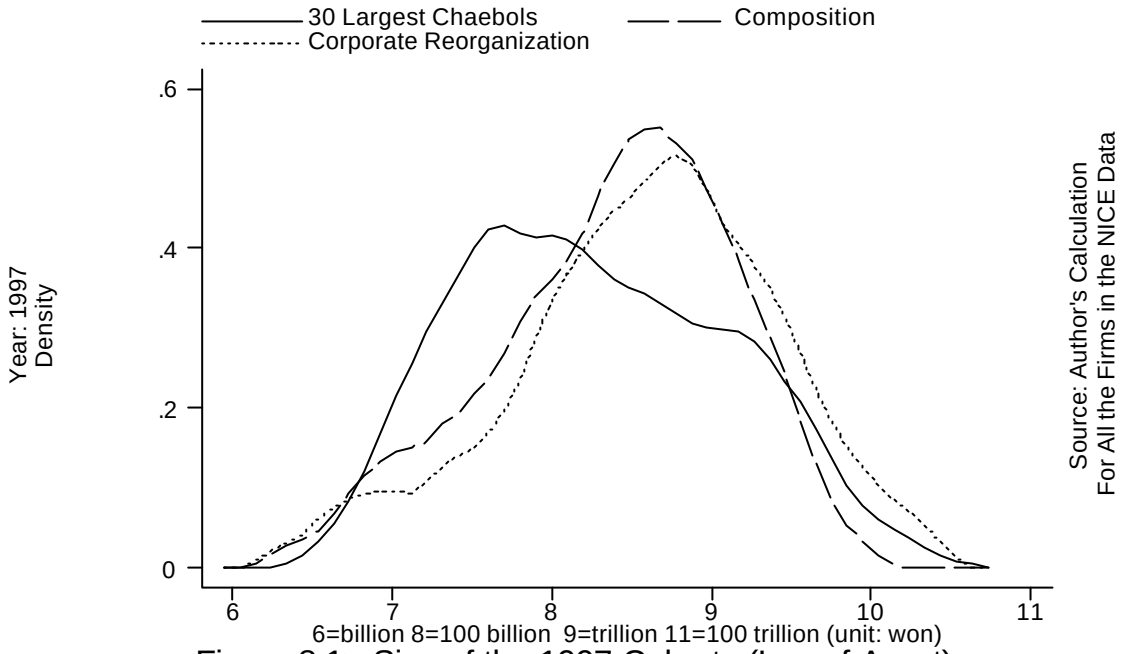
[8.11] The *chaebols* are ranked by the relative asset size of 2001.

[8.12] The 31-60 largest *chaebols* show their highest incidence of bankruptcy in 1998.

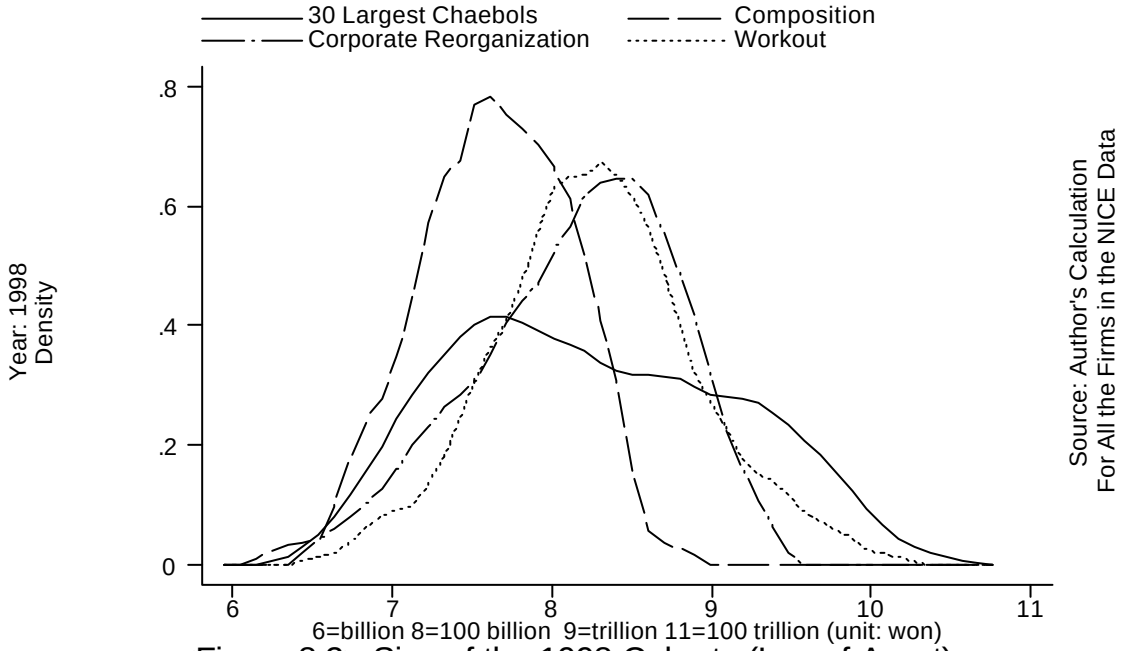
[8.13] Small business groups also belong to this category.

[8.14] The figures show the relative share of solvent and insolvent firms, weighted by the size of assets. Bankrupt firms in a given year include only those that go bankrupt in that year for the first time. Hence, the figures tell us the incidence of new bankruptcies. We define solvent firms as the ones that have not gone bankrupt in any year from 1997 to 1999.

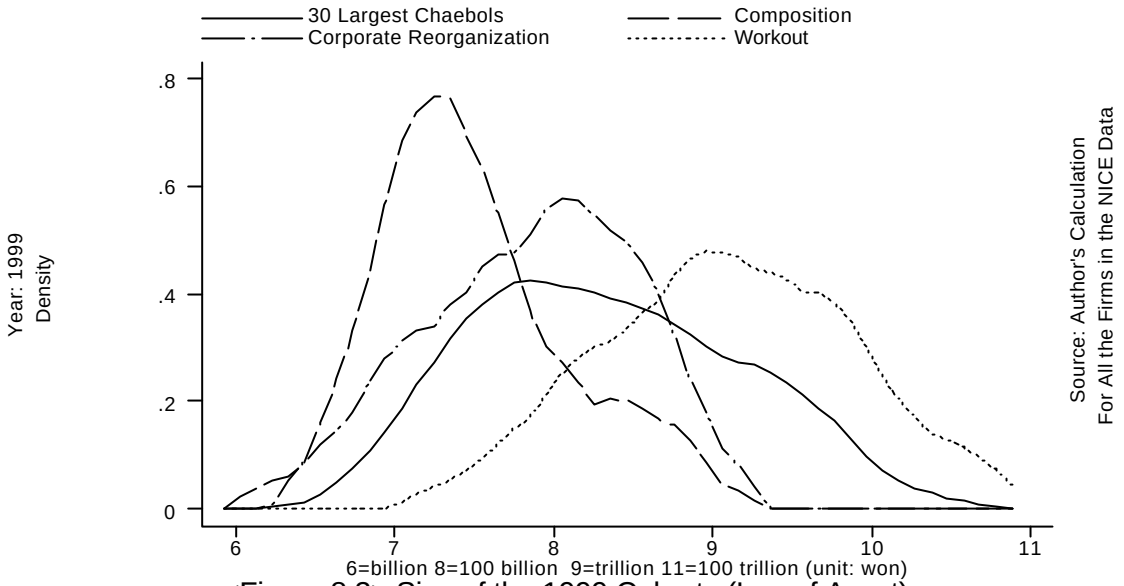
[8.15] Here, the group of the bankrupt firms under no rehabilitation procedures is excluded from the sample in the regression.



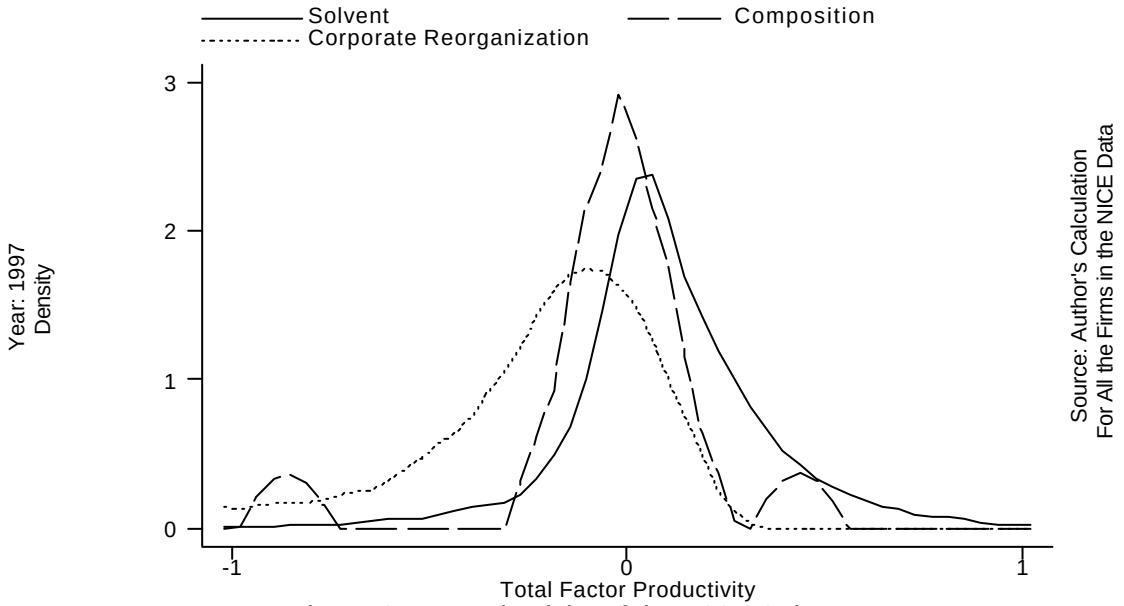
<Figure 8.1> Size of the 1997 Cohorts (Log of Asset)



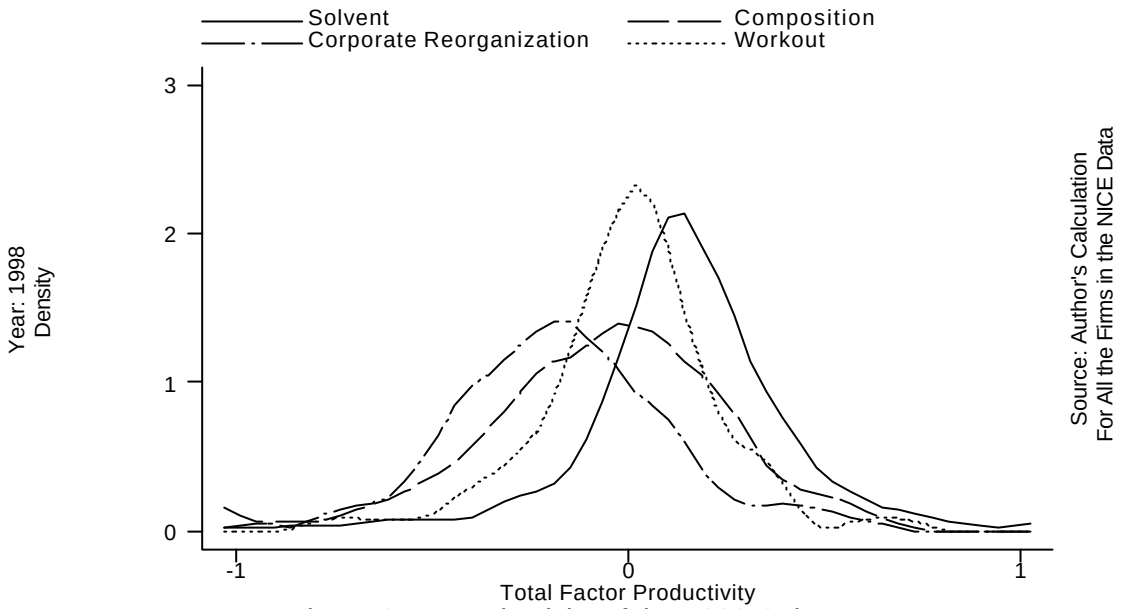
<Figure 8.2> Size of the 1998 Cohorts (Log of Asset)



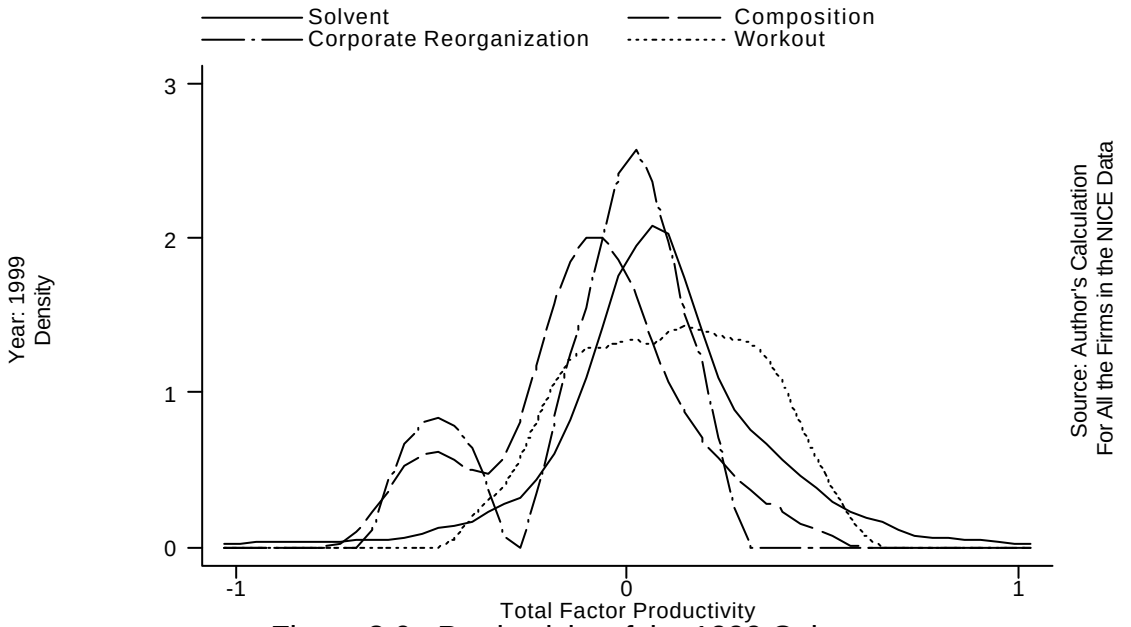
<Figure 8.3> Size of the 1999 Cohorts (Log of Asset)



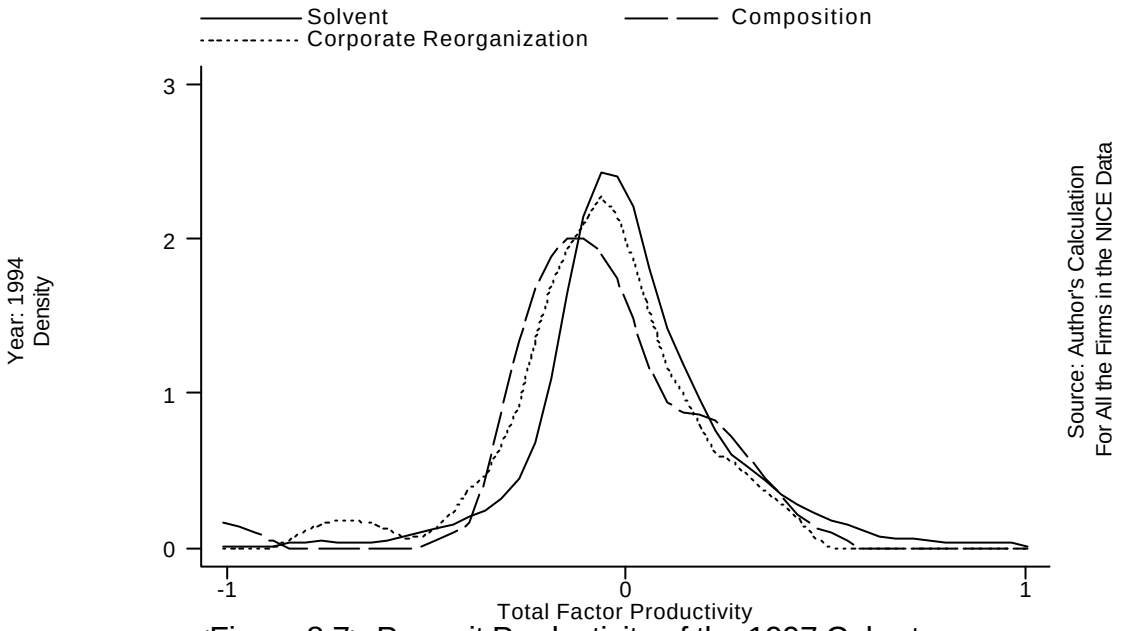
<Figure 8.4> Productivity of the 1997 Cohorts



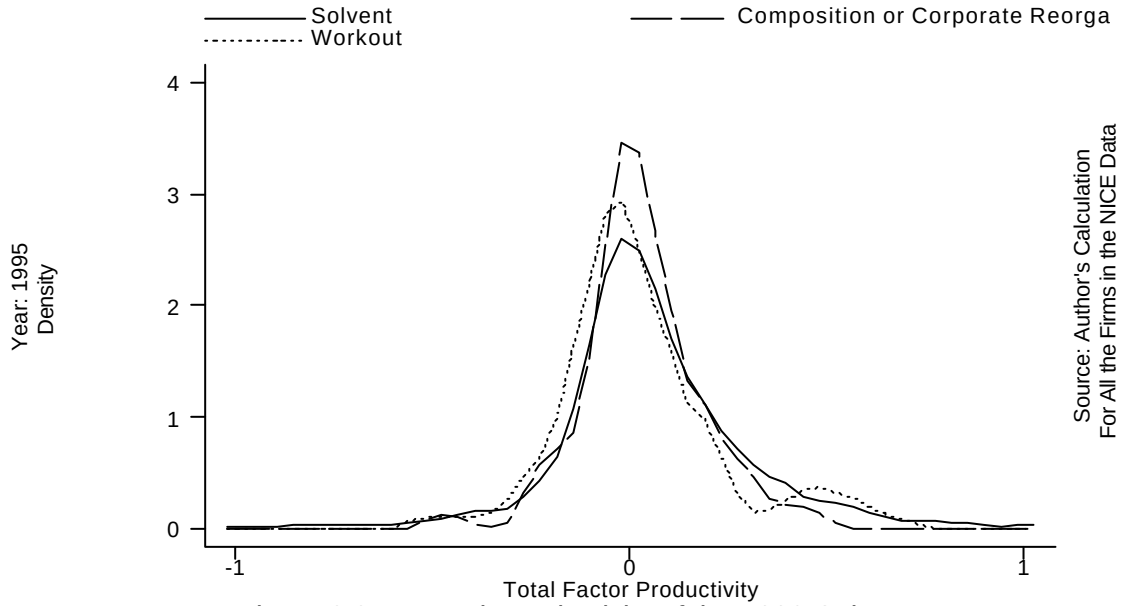
<Figure 8.5> Productivity of the 1998 Cohorts



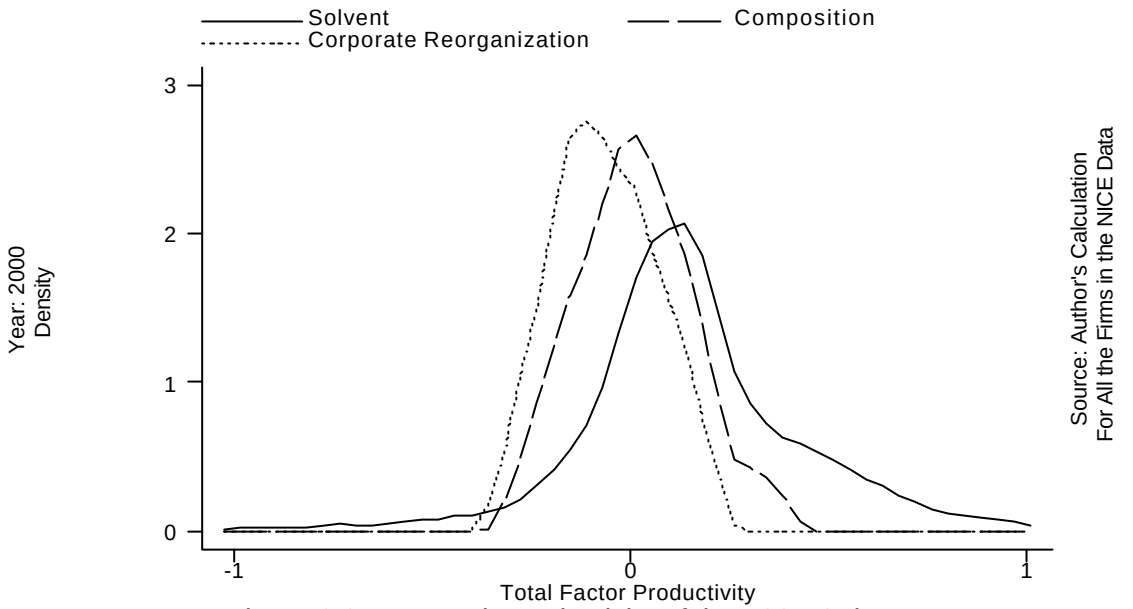
<Figure 8.6> Productivity of the 1999 Cohorts



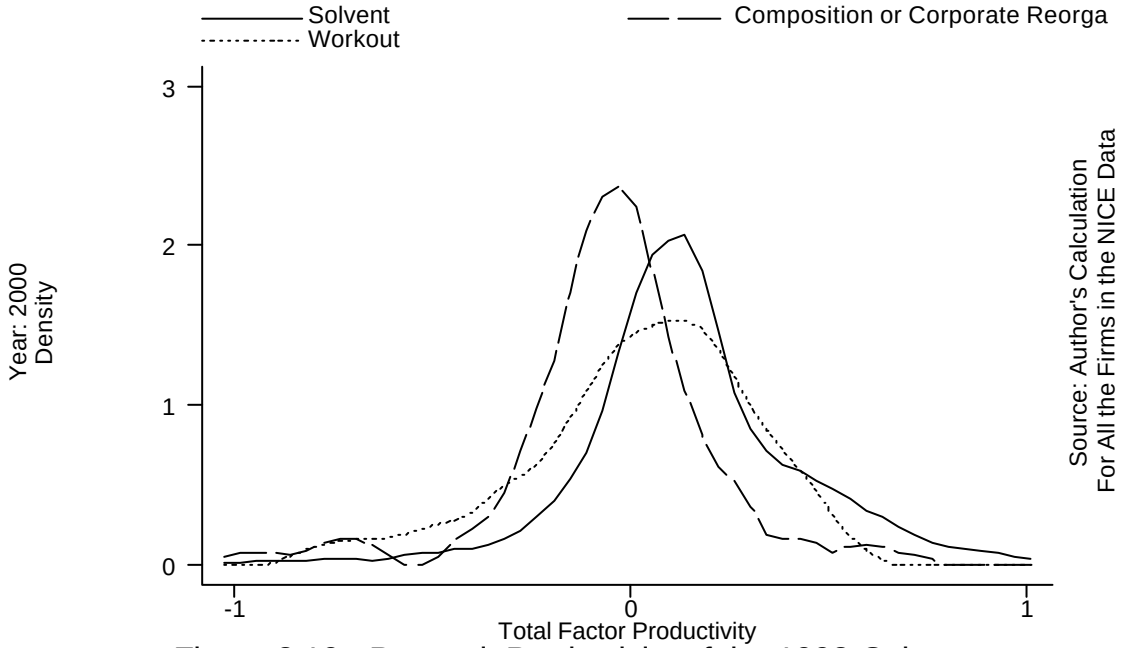
<Figure 8.7> Pre-exit Productivity of the 1997 Cohorts



<Figure 8.8> Pre-exit Productivity of the 1998 Cohorts



<Figure 8.9> Post-exit Productivity of the 1997 Cohorts



<Figure 8.10> Post-exit Productivity of the 1998 Cohorts

Table 8.1 Bankruptcy Filings, 1995 - 1999

Year / Bankruptcy Procedure	1995	1996	1997	1998	1999
Reorganization	79	52	132	148	37
Composition	13	9	322	728	140
Liquidation	12	18	38	467	733
Total	104	79	492	407	910

Note: 1) Bankruptcy cases include both corporate and individual cases

Source: Supreme Court of Korea

Table 8.2

Insolvent Firms vs Solvent Firms by the Chaebol Category

(unit: trillion won, %)

	1997			1998			1999		
	Solvent	Insolvent	Total	Solvent	Insolvent	Total	Solvent	Insolvent	Total
1-30 Largest Chaebols	277.4 (96.37)	10.44 (3.63)	287.9 (100)	321.6 (98.24)	5.769 (1.76)	327.4 (100)	345.9 (99.01)	3.455 (0.99)	349.3 (100)
31-60 Largest Chaebols	21.71 (99.14)	0.19 (0.86)	21.90 (100)	26.33 (82.17)	5.713 (17.83)	32.05 (100)	26.18 (97.81)	0.586 (2.19)	26.76 (100)
61-300 Largest Chaebols	60.34 (71.94)	23.54 (26.06)	83.88 (100)	65.98 (74.83)	22.19 (25.17)	88.17 (100)	71.81 (81.71)	16.08 (18.29)	87.88 (100)
Small Chaebols and Independent Firms	221.8 (94.25)	13.53 (5.75)	235.4 (100)	240.2 (96.56)	8.551 (3.44)	248.7 (100)	249.9 (90.10)	27.45 (9.90)	277.4 (100)

Notes: 1) The frequencies are weighted by the asset size.

2) Author's calculation for all the firms in the NICE data.

3) Numbers in parentheses denote the percentage.

Table 8.3

Insolvent Firms' Procedure by the Chaebol Category

(unit: trillion won, %)

	1997			1998				1999			
	No Procedure	Composition	Corporate Reorg	No Procedure	Composition	Corporate Reorg	Workout	No Procedure	Composition	Corporate Reorg	Workout
1-30 Largest Chaebols	0.35	0.61	9.48	0.09983	0	0	5.669	0	0	0	3.455
	(3.38)	(5.80)	(90.82)	(1.73)	(0.00)	(0.00)	(98.27)	(0.00)	(0.00)	(0.00)	(100)
31-60 Largest Chaebols	0	0	0.19	0	0	0	5.713	0	0	0	0.5862
	(0.00)	(0.00)	(100)	(0.00)	(0.00)	(0.00)	(100)	(0.00)	(0.00)	(0.00)	(100)
61-300 Largest Chaebols	3.18	7.69	12.67	0.7850	1.560	6.795	13.05	0	1.081	0.2857	14.71
	(13.51)	(32.66)	(53.84)	(3.54)	(7.03)	(30.62)	(58.81)	(0.00)	(6.73)	(1.78)	(91.50)
Small Chaebols and Independent Firms	3.95	1.32	8.27	2.090	1.638	1.469	3.354	0.4627	0.9036	0.4040	25.68
	(29.16)	(9.73)	(61.11)	(24.44)	(19.16)	(17.18)	(39.22)	(1.69)	(3.29)	(1.47)	(93.55)

Notes: 1) The frequencies are weighted by the asset size.

2) Author's calculation for all the firms in the NICE data.

3) Numbers in parentheses denote the percentage.

Table 8.4 Insolvent Firms vs Solvent Firms by Industry (1997-1999)

(Weighted by asset size, %)

Industry (the Korean Standard for Industrial Classification, 2 digits)	Solvent	Insolvent
Agriculture	96.19	3.81
Forestry	100.00	0.00
Fishing	96.13	3.87
Mining of Coal, Crude Petroleum and Natural Gas, Uranium and Thorium Ores	97.65	2.35
Manufacture of Food Products and Beverages	80.06	19.94
Manufacture of Tobacco Products	100.00	0.00
Manufacture of Textiles, Except Sewn Wearing apparel	71.11	28.89
Manufacture of Sewn Wearing Apparel and Fur Articles	72.24	27.76
Tanning and Dressing of Leather, Manufacture of Luggage and Footwear	75.35	24.65
Manufacture of Wood and of Products of Wood and Cork, Except Furniture; Manufacture of Articles of Straw and Plaiting Materials	91.24	8.76
Manufacture of Pulp, Paper and Paper Products	83.27	16.73
Publishing, Printing and Reproduction of Recorded Media	98.50	1.50
Manufacture of Coke, Refined Petroleum Products and Nuclear Fuel	100.00	0.00
Manufacture of Chemicals and Chemical Products	90.11	9.89
Manufacture of Rubber and Plastic Products	98.35	1.65
Manufacture of Other Non-metallic Mineral Products	90.70	9.30
Manufacture of Basic Metals	81.04	18.96
Manufacture of Fabricated Metal Products, Except Machinery and Furniture	81.08	18.92
Manufacture of Other Machinery and Equipment	61.25	38.75
Manufacture of Computers and Office Machinery	92.11	7.89
Manufacture of Electrical Machinery and Apparatuses n.e.c.	96.27	3.73
Manufacture of Electronic Components, Radio, Television and Communication Equipment and Apparatuses	82.53	17.47
Manufacture of Medical, Precision and Optical Instruments, Watches and Clocks	98.30	1.70
Manufacture of Motor Vehicles, Trailers and Semitrailers	47.34	52.66
Manufacture of Other Transport Equipment	91.73	8.27
Manufacture of Furniture; Manufacturing of Articles n.e.c.	70.65	29.35
Recycling	95.81	4.19
Electricity, Gas, Steam and Hot Water Supply	99.92	0.08
General Construction	68.25	31.75
Special Trade Construction	95.66	4.34
Sale of Motor Vehicles and Motorcycles; Retail Sale of Automotive Fuel	63.84	36.16
Wholesale Trade and Commission Trade, Except of Motor Vehicles and Motorcycles	60.45	39.55
Retail Trade, Except Motor Vehicles and Motorcycles	80.59	19.41
Land Transport; Transport Via Pipelines	99.91	0.09
Water Transport	99.44	0.56
Air Transport	100.00	0.00
Supporting and Auxiliary Transport Activities; Activities of Travel Agencies	87.58	12.42
Post and Telecommunications	99.47	0.53
Financial Institutions, Except Insurance and Pension Funding	100.00	0.00
Activities Auxiliary to Financial Intermediation	100.00	0.00
Real Estate Activities	91.76	8.24
Renting of Machinery and Equipment without Operator and of Personal and Household Goods Computer and Related Activities	73.18	26.82
Research and Development	100.00	0.00
Professional, Science, and Technology Service	98.24	1.76
Business Support Services	100.00	0.00
Public Administration and Defense; Compulsory Social Security	100.00	0.00
Education	94.63	5.37
Human Health and Veterinary Activities	100.00	0.00
Social Work Activities	99.25	0.75
Other Recreational, Cultural and Sporting Activities	97.33	2.67
Sewage and Refuse Disposal, Sanitation and Similar Activities	83.18	16.82
Membership Organizations n.e.c.	100.00	0.00
Other Services Activities	90.49	9.51

Note: The shaded industries denote the ones in which bankrupt firms are clustered.

Author's own calculation for all the firms in the NICE data

Table 8.5. Productivity Performance of the 1997 Cohort

(Firms undergoing Corporate Reorganization or Composition)

Independent Variables	Dependent Variable
Dummy Variable Denoting a Specific Cohort Interacted with Year Dummies	Productivity
1993	-0.0791634 (-1.35)
1994	-0.0854446 (-1.44)
1995	-0.1333633** (-2.31)
1996	-0.1259469** (-2.16)
1997	-0.2794071** (-4.50)
1998	-0.2570166** (-4.03)
1999	-0.1445766** (-2.10)
2000	-0.1445766** (-2.10)
Year Dummies Included	Yes
Number of Observations	37673

Notes: 1). Numbers in the parenthesis are t-values.

2) * significant at the 10% significance level

** significant at the 5% significance level

Table 8.6 Productivity Performance of the 1998 Cohort

(Firms undergoing Corporate Reorganization or Composition)

Independent Variables	Dependent Variable
Dummy Variable Denoting a Specific Cohort Interacted with Year Dummies	Productivity
1993	-0.177146 (-0.50)
1994	-0.0489432 (-1.44)
1995	-0.0530042 (-1.59)
1996	-0.0032723 (-0.10)
1997	-0.0770928** (-2.21)
1998	-0.3419695** (-7.79)
1999	-0.170335** (-3.72)
2000	-0.1921046** (-4.01)
Year Dummies Included	Yes
Number of Observations	38222

Notes: 1) Numbers in the parenthesis are t-values.

2) * significant at the 10% significance level

** significant at the 5% significance level

Table 8.7 Productivity Performance of the 1998 Cohort

(Firms undergoing Workout)

Independent Variables	Dependent Variable
Dummy Variable Denoting a Specific Cohort Interacted with Year Dummies	Productivity
1993	-0.0232298 (-0.43)
1994	-0.0256346 (-0.49)
1995	-0.0192325 (-0.37)
1996	-0.0148943 (-0.29)
1997	-0.0235884 (-0.45)
1998	-0.1613028** (-3.13)
1999	-0.0333633 (-0.60)
2000	-0.01214934* (-1.91)
Year Dummies Included	Yes
Number of Observation	37774

Notes: 1) Numbers in the parenthesis are t-values.

2) * significant at the 10% significance level

** significant at the 5% significance level

Table 8.8 The Productivity Performance of the Bankruptcy Procedures

Independent Variables	Dependent Variable
Dummy Variable Denoting Specific Categories of Bankruptcy Proceedings	Productivity
Corporate Reorganization	-0.0800824** (-6.95)
Composition	-0.110235** (-8.17)
Workout	-0.0356483** (-2.10)
Year dummies Included	Yes
Number of Observation	39787

Note : 1) Numbers in the parenthesis are t-values.

2) * significant at the 10% significance level

** significant at the 5% significance level

Table 8.9 Comparing the Productivity Performance of the Bankruptcy Procedures

Null Hypotheses	F-Statistics
Corporate Reorganization = Composition	2.96*
Composition Reorganization = Workout	4.77**
Composition = Workout	12.00**
Year Dummies Included	Yes
Number of Observation	39787

Note : * significant at the 10% significance level

** significant at the 5% significance level

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Reorganization	79	52	132	148	37
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Source: Supreme Court of Korea

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Manufacture of Tobacco Products	100.00	0.00
Manufacture of Textiles, Except Sewn Wearing apparel	71.11	28.89
Manufacture of Sewn Wearing Apparel and Fur Articles	72.24	27.76
Tanning and Dressing of Leather, Manufacture of Luggage and Footwear	75.35	24.65
Manufacture of Wood and of Products of Wood and Cork, Except Furniture; Manufacture of Articles of Straw and Plaiting Materials	91.24	8.76
Manufacture of Pulp, Paper and Paper Products	83.27	16.73
Publishing, Printing and Reproduction of Recorded Media	98.50	1.50
Manufacture of Coke, Refined Petroleum Products and Nuclear Fuel	100.00	0.00
Manufacture of Chemicals and Chemical Products	90.11	9.89
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Manufacture of Motor Vehicles, Trailers and Semitrailers	47.34	52.66
Manufacture of Other Transport Equipment	91.73	8.27
Manufacture of Furniture; Manufacturing of Articles n.e.c.	70.65	29.35
Recycling	95.81	4.19
Electricity, Gas, Steam and Hot Water Supply	99.92	0.08
General Construction	68.25	31.75
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Land Transport; Transport Via Pipelines	99.91	0.09
Water Transport	99.44	0.56
Air Transport	100.00	0.00
Supporting and Auxiliary Transport Activities; Activities of Travel Agencies	87.58	12.42
Post and Telecommunications	99.47	0.53
Financial Institutions, Except Insurance and Pension Funding	100.00	0.00
Activities Auxiliary to Financial Intermediation	100.00	0.00
Real Estate Activities	91.76	8.24
Renting of Machinery and Equipment without Operator and of Personal and Household Goods Computer and Related Activities	73.18	26.82
Research and Development	100.00	0.00
Professional, Science, and Technology Service	98.24	1.76
Business Support Services	100.00	0.00
Public Administration and Defense; Compulsory Social Security	100.00	0.00
Education	94.63	5.37
Human Health and Veterinary Activities	100.00	0.00
Social Work Activities	99.25	0.75
Other Recreational, Cultural and Sporting Activities	97.33	2.67
Sewage and Refuse Disposal, Sanitation and Similar Activities	83.18	16.82
Membership Organizations n.e.c.	100.00	0.00
Other Services Activities	90.49	9.51

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Author's own calculation for all the firms in the NICE data

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(Firms undergoing Corporate Reorganization or Composition)

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Year Dummies Included	Yes
Number of Observations	37673

Notes: 1). Numbers in the parenthesis are t-values.
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(Firms undergoing Workout)

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2000	-0.01214934* (-1.91)
Year Dummies Included	Yes
Number of Observation	37774

Notes: 1) Numbers in the parenthesis are t-values.
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** significant at the 5% significance level

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Composition	-0.110235** (-8.17)
Workout	-0.0356483** (-2.10)
Year dummies Included	Yes
Number of Observation	39787

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Composition Reorganization = Workout	4.77**
Composition = Workout	12.00**
Year Dummies Included	Yes
Number of Observation	39787

Note : * significant at the 10% significance level
** significant at the 5% significance level