

Restructurings versus Bankruptcy Buy-Backs

A Study of the Swedish Insolvency Legislation*

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Abstract

This paper compares the Swedish Bankruptcy Act and Business Reorganization Act as tools for restructuring financially distressed firms. The study is performed through an empirical investigation of the two laws with respect to the pre-filing financial characteristics and post-performance of the firms under each procedure. The results show that firms filing for the Business Reorganization Act show worse performance before the filing than buy-backs under the Bankruptcy Act, and have a lower survival rate after the procedure. However, there is no evidence that one of the procedures provides better improvements than the other. The results also show that intangible assets decrease the probability of a buy-back while accounts payable increase the probability of a restructuring. The study suggests that the Business Reorganization Act has failed its purpose and that the Swedish insolvency legislation needs to be revised in order to align the two procedures.

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1 Introduction

Over the past decades, many countries have introduced restructuring procedures in addition to their already existing bankruptcy procedures. During this development, the U.S. Chapter 11 has been a strong source of influence for designing the procedures. Sweden implemented a new restructuring procedure through an entirely new law, the Business Reorganization Act (“Lag (1996:764) om företagsrekonstruktion”), which was effective as of 1st September 1996. Since its introduction, the Business Reorganization Act has not been very successful due to the low usage and large fraction of failed restructurings that end up with a bankruptcy short after the initial filing.

A similar outcome to that of a restructuring can also be achieved by filing for bankruptcy according to the Bankruptcy Act (“Konkurslag (1987:672)”). This occurs, in some cases, when the assets of the bankrupt firm are sold as a going-concern in the mandatory cash auction mechanism of the Bankruptcy Act. If the going-concern is bought back by the pre-bankruptcy owner in the auction and then continued to be operated in a new firm, a restructuring has in fact been performed (henceforth buy-back). The new firm is liberated from the debt burden and can focus on turning the business around. Hence, the bankrupt firm’s operations and debt has been restructured while still remaining under control of the pre-bankruptcy owner. The buy-back strategy is perfectly legal and a common outcome according to previous evidence. Empirical evidence from Sweden has shown that the buy-back method was a common way to restructure a distressed firm before the Business Reorganization Act was implemented. However, the absence of any significant evidence on the insolvency legislation in Sweden after the introduction of the restructuring law leaves a relatively unexplored area for research. Since the restructuring procedure has underperformed in terms of usage, many restructurings are most likely still performed through the Bankruptcy Act. On the other hand, the previous empirical findings on the Bankruptcy Act might have been altered since the Business Reorganization Act should have captured a fraction of the firms that would have filed for bankruptcy prior to 1996. Since a restructuring can be performed by using either of the two different laws, the question arises if the two procedures are similar to each other in terms of type of filing firm and performance.

This paper adds to the literature by examining the insolvency regulation in Sweden after the Business Reorganization Act was implemented. The paper tries to distinguish which type of firm that ends up as a buy-back and which type of firm that ends up as a restructuring. It is done by comparing comprehensive sets of pre-filing financial characteristics of buy-backs and restructurings. This allows the examination to determine which type of firm that becomes a buy-back and hence which type of firm that is not captured by the restructuring law. The study also

compares the post-performance for buy-backs and restructurings in order to examine how successful each procedure is. The empirical results are based on data from the Serrano database which is compiled by Bisnode. The Serrano database contains financial information and business characteristics for all corporations in Sweden between the years 1997-2012. In addition, the database contains start and end dates for all firms that were in bankruptcy or restructuring during these years. The study is based on a sample that includes firms with more than 10 employees, that started an insolvency procedure during the years 1998-2011 and finished it no later than during 2011. The sample contains 5,187 bankruptcies, 102 buy-backs and 808 restructurings. Because of the institutional environment in Sweden, the firms in the study are almost exclusively small or medium sized. Since the legal entity ceases to exist when the firm enters a bankruptcy, the new legal entity containing the bought back assets is identified using a matching method. Hence, a firm is assumed to be a buy-back when the new entity meets a predetermined set of criteria based on the bankrupt firm.

There is an extensive body of research on the Swedish Bankruptcy Act from before the introduction of the Business Reorganization Act. This research identifies going-concern sales in bankruptcies as well as buy-backs through bankruptcy files collected at courts. Thanks to the high quality of the data, this research covers many aspects of the bankruptcy regulation. The research examines both pre-filing characteristics and post-performance of the buy-backs (see for example; Strömberg and Thorburn (1996), and Thorburn (2000)). In addition, the research also covers bankruptcy costs and the absolute priority rule in bankruptcy (see for example; Strömberg and Thorburn (1996), Strömberg (2000), Thorburn (2000), and Eckbo and Thorburn (2008)). The 2007 Insolvency Inquiry includes an investigation of the bankruptcy and restructuring procedures in Sweden, and states that the statistics on restructurings in Sweden is poor. It exists extensive research in the U.S. on Chapter 7 and Chapter 11, the bankruptcy and restructuring procedures of the U.S. bankruptcy code. However, the nature of the U.S. bankruptcy code differs somewhat to that of the Swedish insolvency legislation since it is assembled under one code with a debtor friendly restructuring procedure. This paper provides empirical evidence on the Swedish insolvency legislation with the Business Reorganization Act in place. As opposed to the studies performed on the U.S. system, this paper provides evidence on an insolvency legislation that is separated under two different laws with a creditor friendly restructuring procedure.

The main finding of this study is that buy-backs show better pre-filing financial characteristics than restructurings. Other findings include that intangible assets decrease the probability of a buy-back, while accounts payable both increase the probability of a restructuring

and decrease it for a buy-back. The post-performance shows that a larger fraction of buy-backs compared to restructurings survive after the procedure. Three years after emerging from the procedure 78 percent of the buy-backs has survived while the corresponding figure for restructurings is 37 percent. Even though buy-backs show better post-performance than restructurings the study finds no evidence that one procedure provides better improvements than the other. Instead, the pre-filing condition of the filing firm is crucial for the outcome of each procedure.

The results of this paper have implications for the ongoing debate of whether Sweden should harmonize the insolvency legislation by introducing one law for both the bankruptcy and restructuring procedures. The study suggests that the insolvency legislation would require a thorough revision in order to change the relation between the two laws that applies today. Hence, the paper supports that coordinating the two procedures under one law could be a necessary step in order to prevent the Bankruptcy Act from filling the function of the Business Reorganization Act. The findings would also apply to countries with a similar legal environment as Sweden, that is, with an insolvency procedure that is not coordinated under the same law and where the restructuring procedure is creditor friendly.

2 Previous Research

2.1 Evidence on the Swedish Bankruptcy Act

Most of the previous research covering the Swedish bankruptcy legislation has been conducted on firms that filed for bankruptcy between the years 1987 to 1991 (see for example; Strömberg and Thorburn, 1996; Strömberg, 2000; Thorburn, 2000; Eckbo and Thorburn, 2003; Eckbo and Thorburn, 2007; Eckbo and Thorburn, 2009).

In their paper, Strömberg and Thorburn (1996) present empirical evidence on Swedish bankruptcy filings under a liquidation code. The paper presents findings on creditor recovery rates, direct bankruptcy costs, assets sales, survival rates and bids, as well as post-bankruptcy performance and characteristics. The paper found that 74 percent of the bankrupt firms were sold as a going-concern, of which 54 percent were bought back by the owner of the firm prior to the bankruptcy. Furthermore, 27 percent of the surviving firms filed for bankruptcy again within two years while 38 percent filed for bankruptcy again within four years. For the buy-backs, 48 percent of the firm filed for bankruptcy again. The firms sold as going-concerns in a bankruptcy had an operating performance somewhat below their industry but were also more highly levered. For going-concern sales, buy-backs were more highly levered than other sales.

Strömberg (2000) examines the economic importance of inefficiencies in bankruptcy cash auctions. The paper shows that the probability of a buy-back is positively correlated with the quality of the current management, measured for example in pre-bankruptcy performance of the bankrupt firm. However, the probability of a buy-back is negatively correlated to asset market liquidity, measured for example in financial health of the industry and how non-specific the assets of the firm are. The results indicate that bankrupt firms often are sold back to the current management, which is similar to a debt restructuring. The characteristics of the buy-backs were: a higher proportion of other firms in the same industry were in distress, lower proportion of non-specific assets and lower proportion of secondary junior debt. Furthermore, the paper provides evidence that the probability of a buy-back depends on the seniority structure of the debt. The paper shows that the probability of a buy-back is higher if the risk to the bank increases when the assets are sold to a new owner.

Thorburn (2000) presents empirical evidence on restructurings performed through bankruptcy cash auctions, and compares the results to empirical findings from U.S. Chapter 11 restructurings. The paper finds that 75 percent of the bankrupt firms survive as a going-concern, which was similar to the survival rate of small firms in a Chapter 11 restructuring. The paper also states that 25 percent of the bankrupt firms were sold peace-meal. The probability of a going-

concern sale is positively correlated with the fraction of intangible assets. In addition to the survival rates of bankrupt firms, the paper shows that the Swedish bankruptcy auction system produces pre-bankruptcy financial characteristics that also are comparable to the U.S. Chapter 11 restructurings. In addition, the Swedish bankruptcy auction system provides faster and less costly restructurings compared to Chapter 11. The paper concludes that the Swedish bankruptcy auction system is efficient for restructuring small firms.

Eckbo and Thorburn (2003) show that the CEO's private benefits of control help to balance shareholder risk-shifting incentives during financial distress. The paper finds that the probability that the CEO is re-hired in a buy-back is positively related to the CEO's control benefits. However, going-concern sales that are not buy-backs, are positively related to managerial quality but unrelated from the CEO's control benefits. Hence, the probability for the CEO to be re-hired is related to public information about the CEO benefits and quality. The paper also finds that firms that are sold as going-concerns in bankruptcies have the same performance as industry peers.

Eckbo and Thorburn (2008) examine fire-sale discounts in the Swedish bankruptcy auction system in terms of prices and recovery rates, as well as the impact on post-bankruptcy performance. The paper finds that fire-sale discounts exist in peace-meal sales of the bankrupt firm. In addition, industry distress increase the probability of a peace-meal sale of the bankrupt firm as well as decreases the peace-meal sale price. On the other hand, fire-sale discounts are not present in going-concern sales. The price in going-concern sales are not affected by industry distress for the bankrupt firm or the buyer.

2.2 Evidence on the Swedish Business Reorganization Act

The Business Reorganization Act has so far not been very successful. One reason is that the buy-back procedure functions well for capturing the future value of financially distressed firms. The buy-back procedure is well established and able to provide the necessary solution for a firm in financial distress. Other reasons are that the Business Reorganization Act does not provide sufficiently forceful tools to perform a restructuring or treat the problems of ownership in a restructuring even though the law was expected to be debtor friendly. Also, the coordination between the two laws is not adequate which makes the insolvency legislation illogical. (Welamson and Mellqvist, 2013)

There is no extensive empirical research performed on the Business Reorganization Act. However, one purpose of the 2007 Insolvency Inquiry ("2007 års Insolvensutredning") was to investigate how the restructuring procedure could be improved and coordinated with the

bankruptcy procedure. The 2007 Insolvency Inquiry states that the underlying problem is that bankruptcy and restructuring are two different procedures which causes negative effects in case a restructuring fails, which is often the case. The negative effects often take the shape of longer procedures with higher costs. The 2007 Insolvency Inquiry finds that it would be beneficial to coordinate the bankruptcy and restructuring procedures in one procedure under one law. The 2007 Insolvency Inquiry also states that the Business Reorganization Act has not been successful since it has not been applied in a larger extent and a large proportion of the restructurings fail and end with a bankruptcy instead. The number of restructurings seem to have increased significantly during 2009, probably because the restructuring of SAAB promoted the restructuring procedure. However, there is no evidence that the increased number of restructurings have resulted in an increased proportion of successful restructurings. (SOU 2010:2)

2.3 Evidence on Foreign Insolvency Legislation

The current U.S. restructuring procedure in Chapter 11 was introduced as early as 1979 and has later on been employed as a model for designing other restructuring procedures. Hence, the extensive research body that exist within the field of U.S. restructuring legislation should serve as a benchmark to countries with similar procedures. Much of the research of insolvency covers bankruptcy costs and the absolute priority rules. White (1984) studies the costs of U.S. firms in a liquidation or reorganization bankruptcy which indicates the aggregate U.S. bankruptcy costs. Franks and Torous (1989) examine a sample of 30 large and publicly listed firms that was in Chapter 11 between 1970 and 1987 in order to understand the institutional features of Chapter 11. The paper finds that the Chapter 11 procedure is complex, costly and takes long time. In addition, it shows that violations of the absolute priority rules in favor of the shareholders is a common outcome. Hotchkiss (1995) is the first paper that performs a study on firms after they have emerged from a U.S. Chapter 11 restructuring. The paper presents post-performance for firms that came out from the restructuring as a public firm and filed for bankruptcy between October 1979 and September 1988. One key finding of the paper is that a significant fraction of the restructured firms experience poor post-performance after the restructuring. Another key finding is that involving, or keeping, the pre-restructuring management during the restructuring is strongly related to a poor post-performance. Warren and Westbrook (2000) conducts a five-year empirical study of 3,200 firms that filed for Chapter 7, Chapter 11 or Chapter 13 during 1994. The study focuses on characteristics of the bankrupt firms per chapter with respect to financials and demography. To the key findings of the study belongs the large spread in size of the business that filed for Chapter 11 and that 90 percent were small businesses. In addition,

more than a third of the Chapter 11 filing firms were solvent while 8 percent of the Chapter 7 filing firms were solvent. Bris, Welch and Zhu (2006) examines the differences between the Chapter 7 and Chapter 11 procedures for firms that filed for bankruptcy between 1995 to 2001. The paper was based on the most comprehensive dataset of Chapter 7 and 11 bankruptcies in the U.S and included both private and listed firms. The main finding of the study is that Chapter 7 liquidations are not cheaper than Chapter 11 reorganizations. However, the paper also presents evidence on other significant differences between the two procedures regarding pre-bankruptcy characteristics of the filing firm. The Chapter 11 firms are 10 times larger than the Chapter 7 firms but the indebtedness is similar between the two procedures, but Chapter 11 firms have more secured debt.

When it comes to evidence from the Nordic region, Ravid and Sundgren (1998) compares the creditor friendly Finnish bankruptcy code before 1993 to the debtor friendly U.S. bankruptcy code. The paper uses a sample of small, non-publicly traded Finnish firms and compares the findings to evidence on small U.S firms. Key findings are that the industry and firm size affect the liquidations under both the Finnish and U.S. bankruptcy codes, while the Finnish code leads to a slightly higher probability of peace-meal liquidation. The paper finds that manufacturing firms and larger firms are more successful in reorganizing, and that 29 percent bankrupt firms were sold as a going-concern.

3 Swedish Regulatory Environment

3.1 The Bankruptcy Act

The Bankruptcy Act is applicable to all natural and legal persons with the purpose of minimizing the losses for the creditors. These creditors are primarily institutional creditors such as banks while employees and suppliers only have a secondary priority. A firm is declared as bankrupt when it becomes insolvent, which means that the firm cannot repay its debt. The insolvency criteria assesses the long-term performance of the firm in contrast to an illiquidity criteria that examines if firm can cover its debt with liquid assets. A bankruptcy can be initiated by both the debtor and creditor. When the firm initiates the bankruptcy it is assumed to be insolvent without any further investigation, which creates uncertainty to some extent. However, the creditor needs to prove that the firm is insolvent if he is the one to file for bankruptcy. During the bankruptcy, the firm ceases to exist and the owner and management lose control over the firm's assets. A trustee is appointed whose task is to sell the bankrupt estate's assets as soon as possible and hence convert them into cash. The assets are often sold as a going-concern since this most likely

gives a higher value than a peace-meal liquidation. The assets can be bought back by the owner of the bankrupt firm, but only through a public tender process. Hence, the buy-back procedure can only be conducted safely when there is no competition in the public tender process from another buyer. The buy-back procedure is known to often be initiated by large creditors such as banks. However, the procedure is often seen as a problem since a new legal entity can continue the business with the bankrupt firm's assets but without the debt. The Bankruptcy Act also includes rules about composition in which the debt is written down. A bankruptcy filing made during a restructuring procedure according to the Business Reorganization Act is made passive until the restructuring ends if demanded by the firm being restructured. (Welamson and Mellqvist, 2013)

3.2 The Business Reorganization Act

The purpose of the Business Reorganization Act is to capture the value of firms that have suffered from poor performance but have the potential to survive in the future. In order for a restructuring to be performed according to the Business Reorganization Act, four criteria must be fulfilled. The first criteria is that the law only is applicable on businesses, but of all kinds of legal forms and sizes. (Welamson and Mellqvist, 2013) However, some types of financial and public businesses are not covered by the law. According to the preparatory work, the law does not include banks, saving banks or union banks, credit market companies, support companies and insurance companies. Moreover, the law is not applicable on businesses run by the government, municipality, county, local authorities, parish or church. Even though the law is applicable on businesses of every size, the preparatory work suggests that the law would have more importance for larger firms. The preparatory work refers to that foreign justice systems indicates that a restructuring law have greatest importance for mid-sized and large firms. Furthermore, the conditions for a restructuring are better for large firms because these firms have administration and production that provide better opportunities for flexibility and change. A larger firm also have better conditions to provide collateral for continued financing of the business. However, the restructuring law is designed to apply to smaller firms as well. This has been done by making the rules easy to apply which should keep the costs of the procedure at lower levels. (Prop. 1995/96:5) The second criteria is that the restructuring has to be initiated by the firm which means a difference to the buy-back procedure according to the Bankruptcy Act. The third criteria is that the firm is illiquid when filing for restructuring or short after. This means that there are no requirements for the firm to be insolvent when filing for restructuring.

The fourth criteria says that there has to be a possibility of the restructuring to succeed. (Welamson and Mellqvist, 2013)

During the restructuring procedure the assets remains with the firm. However, an administrator is appointed whose task is to examine the possibility for composition and for the firm to survive. The composition accounts for a large part of the restructuring, but the restructuring could also involve changing the operations. The management has a limited power during the procedure and is restricted from actions such as repaying debt that has arisen before the procedure and pledge assets of central importance to the firm. (Welamson and Mellqvist, 2013)

4 Research Question

This paper aims to contribute to the previous research by examining the insolvency regulation in Sweden after the implementation of the Business Reorganization Act in 1996. The buy-back and restructuring procedures have many similarities since they both are suited for a certain firm size and amount of purchasable assets. Both procedures also aim to improve the capital structure and operations in order to create solvent and competitive firms, while keeping the current management after the process. The study seeks to investigate whether there is a difference between the firms filing for the two procedures, and whether the procedures ability to resolve the situation for distressed firms are different.

5 Data

The content of the dataset used in the study comes from the Serrano database, which is a product from PAR. PAR is a provider of business information to companies and institutions, and a part of Bisnode. Bisnode in turn is a European provider of different types of information to companies, institutions and private persons. For this study, the database is accessed through the Swedish House of Finance (SHoF) which is a client of Bisnode/PAR.

The Serrano database is an assembly of data, mainly from the Swedish Companies Registrations Office (Bolagsverket), the Swedish Statistics Agency (SCB) and data from PAR:s internal group register. This study mainly uses income statement and balance sheet data. The database contains yearly data for all firms registered in Sweden which represents the annual reports from 1997 to 2012. In addition to this, the database includes information on start and end dates for all bankruptcies and restructurings. The study also requires general information on the firms such as firm ID-code, ZIP-codes and industry-ID. The ZIP-codes are on a five-digit Swedish standard and provide information on where the firm is registered. The industry-ID is a

five-digit code on the SNI-standard, where the two first digits represent the general business a firm operates in (see Appendix 1) while digits three to five narrows it down in one to three levels of sub-categories.

In addition to the Serrano database an additional database on board members is used. As with the Serrano database, this dataset comes from PAR and is accessed through SHoF. The database has a specific ID-number for each board member. For privacy purposes, these numbers are assigned to the persons randomly, and can hence not be used to identify who the persons are. The database includes all Swedish registered companies and board members, as well as information on when they started and ended their positions. It also indicates which position each person held. This dataset is the key to identify firms that have gone bankrupt and been bought back by the previous owners.

Since the Serrano database includes yearly data on more or less all registered companies in Sweden and an extensive number of variables for each of these firms, the dataset is large and difficult to handle. Hence, a major cleaning of the dataset is necessary to sort out information that is not relevant to the study. The largest data mining is done by removing all firms that not have been in bankruptcy or restructuring. It is important to make sure that all data on the examined firms before, during and after the bankruptcy or restructuring is kept. The cleaning removes the larger part of the dataset and leaves only the firms that are relevant to the study as the main dataset. However, the full dataset is still kept since the buy-backs need to be analyzed and fall outside the dataset with bankrupt and restructured firms.

Once the initial cleaning is done, the next step is to choose a sample on which the analysis will be performed. The aim is to make the study more comparable with earlier studies within insolvency. Hence, all firms with less than 10 employees (see the definition for micro companies in the European Commission Recommendation (2003)) the year before their bankruptcy or restructuring are excluded. The dataset is altered in each analysis in order to have enough years before and after the process to analyze the performance of the firms. In order to avoid selection bias no further criteria are used to narrow the sample.

6 Methodology

6.1 Identification of Buy-Backs

After the initial cleaning of the database it only includes information on bankruptcies and restructurings. For the restructurings, all necessary information is available in the main dataset. Regarding bankruptcies, however, the study mainly aims to examine the buy-backs. Since there is no record, except the court files, on the buyer of the assets of a bankrupt firm, a huge part of

this study is to identify the buy-backs. To find the buy-backs, a definition is created and used to identify the entity that bought the assets of the bankrupt firm, see Table 1.

Table 1. Buy-Back Definition

The table presents the criteria that are included in the buy-back definition. All of the criteria need to be fulfilled in order for a firm to be classified as a buy-backs.

Criteria	Buy-Back Definition
Bankruptcy procedure	The bankruptcy of the initial firm has to be finished in order for the possible new entity to be classified as a buy-back
Management	The new firm must have the same CEO as the bankrupt firm. The CEO must have started the position no later than a year after the bankruptcy
Geographic location	The new entity must be registered in the exact same geographic area as the old firm. This means, having the same 5-digit ZIP-code
Sector	The two firms must operate in the exact same area of business. This means companies with the same SNI-code on a 5-digit level

Using this detailed level of criteria for the matching is important to secure the quality of the dataset, and make sure that no firms are included in the dataset even though they are not buy-backs.

The main dataset can be used to identify the firms that have gone bankrupt and when the bankruptcies have ended. The information on bankrupt firms is then used to sort out all CEOs that worked in a firm when it went bankrupt. For this purpose, the dataset from SHoF on company board members is used. When all CEOs that have been employed in bankrupt firms are recognized, all other firms that they have worked in are identified. Finally, the Serrano database is used to retrieve necessary information on these firms. With this information the next step is test, for each bankrupt firm, if any of the other firms the CEO have been active in fulfil the criteria above. When this is done, the dataset includes all information necessary to start analyzing the firms filing for the different procedures.

6.2 Empirical Examination

The initial analysis is to examine the firms before the filings and see whether they show any difference. The first part is to plot a timeline that shows which years the different procedures are more common. The timeline includes all bankruptcies, restructurings and buy-backs and shows all filings done between 1998 and 2011. The purpose of this is to find out if the distributions

over time look different between the different procedures as well as whether there is more filings in, for example, crisis years.

Next step is to examine the characteristics of the firms one year before they file for the different procedures, mainly in order to see whether restructurings and buy-backs address different kinds of firms, but also to see whether the two of them are any different from bankruptcies that does not result in a buy-back. The first two analyzes are made by grouping the firms filing for the different procedures by firm size and sector. The firm size analysis divides the firms into five groups depending on the number of employees, where the smallest firms have 10-29 employees and the largest firms have more than 249 employees. After this, the firms are grouped by sector, where the two digit SNI-code decides which sector the firms belongs to, see Appendix 1. The groupings are made for all bankruptcies, restructurings and buybacks in our sample, which corresponds to 5,187 bankruptcies, 808 restructurings and 102 buy-backs.

In order to examine any difference in performance, summary statistics are ran on the firms' income statement and balance sheet figures from one year before the filing. The figures examined are: number of employees, sales, earnings before interest taxes depreciation and amortization (EBITDA), earnings before interest and taxes (EBIT), assets, equity and debt. Similar to Strömberg (2000), the assets have been classified according to their firm and industry specificity. However, the specific assets are classified somewhat different, taking into account the going-concern criteria stated by Strömberg and Thornburn (1996). Hence, machinery and equipment, building and land, inventory and work in progress are classified as assets that are specific to the firm and industry. Current assets less inventory are classified as non-specific to the firm and industry. The rest of the firm's assets are classified as intermediate assets. The fraction of intangible assets is also reported separately. The debt structure is examined in detail by dividing it into long and short liabilities as well as fraction to credit institutions. Finally some key ratios are calculated including return on assets (ROA), interest coverage ratio, current ratio and debt-to-assets. These characteristics are compared between the procedures in order to find general differences between the firms. In addition, t-tests are performed to make sure that the figures for the two groups are not statistically equal to each other. All figures are winsorized on a five percent level in order to avoid outliers and get results that reflect the firms fairly. In addition to the summary statistics, an OLS-regression on dummy variables for the two procedures and the performance variables are performed in order to conclude whether there is a significant difference in the chosen procedure dependent on the pre-filing performance.

The rest of the study focuses on the post-performance of the procedures and the change in performance of firms emerging from one. Before the analysis, a trimming is performed on the

restructuring sample. This is done by running an OLS-regression on a dummy variable for restructuring and a selection of the performance variable that will be analyzed in the paper, see Appendix 2. After the regression, all observations where it have an explanatory power of less than 0.1 or more than 0.9 are excluded from the sample. Since the buy-backs are harder to identify, and hence much fewer in number, no trimming is performed on those observations in order to maintain a sufficient sample size for the study. However, both restructurings and buy-backs are winsorized on a five percent level for all analyzes in order to avoid outliers.

To conclude whether the procedures of restructurings and buy-backs have an immediate effect on the firms, the same performance figures that was calculated pre-filing are also calculated after the procedure, which means one year after the restructuring or buy-back is finished. To make it comparable, pre-filing figures are calculated again, but only for the firms that survived one year after their bankruptcy or buy-back was finished. The figures from one year before the procedure starts and from one year after it ends are compared to find the direct effect on the firms' performance. In addition, t-tests are performed on the differences before and after the procedure in order to conclude whether the differences are statistically significant. The analysis is made on all buy-backs and restructurings that start after 1998 and are finished at latest in 2011, hence procedures started 1997 or ended 2012 are excluded to make it possible to analyze the performance one year before and after. After trimming the data, excluding the years necessary and removing firms with insufficient data, the dataset for the analysis consists of 298 restructurings and 85 buy-backs.

The final part of the analysis focuses on the performance during three years after the restructuring or buy-back is completed. The first indicator of long-term performance that the study examines is the survival rate. This is done for restructurings by examine if the firm has filed for bankruptcy after the restructuring, and if that is the that case, after how long. The same thing is done for buy-backs. Since those are new entities, the second filing can be both for a bankruptcy and restructuring. Firms that have not filed for bankruptcy or restructurings a second time are considered as surviving firms and hence as successful procedures.

Next, the focus is moved to the post-performance in terms of income statement and balance sheet figures. The analysis is performed on the same figures and key ratios as the pre-filing characteristics and the performance of emerging firms. For this analysis the figures are examined during three years after the procedures were completed. To conclude whether there is an actual difference between firms after bankruptcies and restructurings, t-tests are performed on the difference between the summary statistics from the procedures. The aim is to conclude whether the difference is statistically different from zero. In addition to the summary statistics

and the t-tests, an OLS-regression is ran on the performance measures and dummy variables for restructuring and buy-back. The regression controls for pre-filing performance and can hence be used to conclude whether the procedures produce the difference or if they are related to the difference in the performance before the filing. For all post-filing analyses, figures from firms that finished their procedures at latest in 2009 are used. Filings from later years do not allow for a follow up on the three years after the buy-back or restructuring. This leaves 204 restructurings and 65 buy-backs for the analysis in year one. The performance analysis of the first three years after the procedures also done in a second version, where only firms that survive all three years are analyzed (154 restructurings and 60 buybacks).

6.3 Potential Biases

The method used to identify buy-backs might cause some selection bias. If data for any of the criteria used is missing for a firm, it cannot be identified as a buy-back and neither be used to identify a buy-back if it is a bankrupt firm. The detailed criteria might also lead to that some buy-backs do not get identified if they, for example, change their location or decide to define their industry differently. However, high quality in the sample is considered more important than expanding it and risk having firms accidentally identified as buy-backs in the analysis. In comparison to some previous research on the subject, the sample of buy-backs is relatively large and even if the number of observations in the sample is reduced the trends remain the same. Hence, the potential selection bias should not affect the results.

Secondly, the dataset used is extensive but misses a lot of data. Removal of firms with incomplete data is sufficient, but might cause data that would affect the results to get removed from the sample. The initial size of the sample do, however, enable the use of a large sample even after the removal of these observations.

Finally, the analysis of the post-performance figures might be subject to some survivorship bias. Since the analysis only includes firms that have reported a financial statement at a certain time after the procedure, the average figures might look better than they actually are. Firms that have filed for a second bankruptcy does sometimes not report financial statements. This is resolved in the study by taking into account the survival years when evaluating the two procedures.

7 Results

This section presents the results of the empirical investigation that has been conducted in order to find differences between the filings. Section 7.1 provides a distribution of the sample firms over time, size and industry. Section 7.2 shows the pre-filing financial characteristics of the sample firms, organized after income statement, balance sheet and key ratios. Section 7.3 compares the buy-backs and restructurings when emerging from the procedures. Section 7.4 compares the post-performance of the buy-backs and restructurings.

7.1 Distribution

This section provides a distribution of the sample firms over time, size and industry.

Table 2 presents the distribution of bankruptcy and restructuring filings during the years 1998 to 2011. For each year, the total number of bankruptcies is significantly higher than the total number of restructurings. The total number of bankruptcies peaks in 2002 and 2008 with 561 and 539 bankruptcies respectively per year. The number of bankruptcies was around half or below the peak levels before 2000 and during 2004-2006. This pattern indicates two cycles of bankruptcies that could be explained by the information technology crisis in the early 2000 and the financial crisis in 2007-2008. Both crises caused global recessions that led to difficult times for many firms, resulting in an increased number of insolvencies and bankruptcies. The number of restructurings has experienced a similar cyclical pattern over time that could be explained by the two crises after 2000. The total number of restructurings peaks in 2001 and 2008 with 59 and 119 restructurings respectively per year. The number of restructurings was around half or below the peak level of 2002 before 2000 and in 2006. While the peak levels for bankruptcies were approximately the same, the number of restructurings in 2008 was more than twice the number in 2002. Hence, the Business Reorganization Act seems to have been more frequently used in the latest crisis. This could also be seen when looking at the restructurings' fraction of total insolvency filings. The proportion restructurings increases steadily from 9 percent in 1998 to 2011 when it accounts for 18 percent of total insolvency filings. Thus, the results suggest that the overall number of bankruptcies is approximately the same while the number of restructurings has increased. The distribution of the identified buy-backs seems to follow the same cyclical pattern as total bankruptcies. The buy-backs peak in 2002 and 2008 with 11 and 20 filings respectively per year.

Table 2. Bankruptcy and Restructuring Filings Over Time

The table presents the sample number of started bankruptcy and restructuring procedures per year during the years 1998-2011. For bankruptcies, the identified number of filings that became buy-backs is reported separately in Total number of buy-backs. The Total number of bankruptcies filings includes all bankruptcies, even the identified buy-backs. The Total number of insolvency filings is the sum of the total number of bankruptcy and restructuring filings each year.

Year of filing	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Total number of insolvency filings	181	301	533	611	612	457	349	261	234	404	658	456	416	522
Total number of bankruptcy filings	165	282	478	552	561	416	300	223	204	330	539	373	336	428
<i>% of total insolvency filings</i>	<i>91%</i>	<i>94%</i>	<i>90%</i>	<i>90%</i>	<i>92%</i>	<i>91%</i>	<i>86%</i>	<i>85%</i>	<i>87%</i>	<i>82%</i>	<i>82%</i>	<i>82%</i>	<i>81%</i>	<i>82%</i>
Total number of buy-backs	1	2	1	6	11	7	6	7	5	11	20	13	8	4
Total number of restructuring filings	16	19	55	59	51	41	49	38	30	74	119	83	80	94
<i>% of total insolvency filings</i>	<i>9%</i>	<i>6%</i>	<i>10%</i>	<i>10%</i>	<i>8%</i>	<i>9%</i>	<i>14%</i>	<i>15%</i>	<i>13%</i>	<i>18%</i>	<i>18%</i>	<i>18%</i>	<i>19%</i>	<i>18%</i>

Table 3 presents the distribution of bankrupt and restructured firms over size with respect to the number of employees.

Table 3. Sample Distribution: Size

The table presents the number of bankruptcies and restructurings within five different ranges of employees. For bankruptcies, the identified number of buy-backs are reported separately in Buy-backs. Bankruptcies includes all bankruptcies, even the identified buy-backs. The employee ranges has been set in order to be comparable with the recommendation of the European Commission; medium-sized companies have less than 250 employees, small companies has less than 50 employees and micro companies has less than 10 employees (Commission Recommendation 2003). Hence, the table does not display micro companies.

Number of employees	Number of Firms	Frequency (%)	Cumulative Frequency (%)
Bankruptcies			
10-29	4,097	79%	79%
30-49	590	11%	90%
50-99	359	7%	97%
100-249	108	2%	99%
>249	33	0.6%	100%
Restructurings			
10-29	506	63%	63%
30-49	130	16%	79%
50-99	113	14%	93%
100-249	41	5%	98%
>249	18	2%	100%
Buy-backs			
10-29	65	64%	64%
30-49	19	19%	82%
50-99	14	14%	96%
100-249	3	3%	99%
>249	1	1%	100%

A significant proportion of the firms in the study are small firms with 10 to 49 employees, see the ranges in the European Commission Recommendation (2003). As much as 90 percent of the bankrupt firms are classified as small. Buy-backs and restructurings have a slightly lower fraction of small firms with 82 and 79 percent of the firms classified as small respectively. The rest of the sample almost exclusively contains medium-sized firms with 50 to 249 employees. Only 9 percent of the bankrupt firms are medium-sized while this proportion is slightly higher for buy-backs and restructurings, for which 17 and 19 percent are medium-sized firms respectively. The sample only contains 52 large firms in total, 33 bankruptcies, 1 buy-back and 18 restructurings. The large firms only account for 0.6 percent of the bankruptcies, 1 percent of the buy-backs and 2 percent of the restructurings. Another finding worth noticing is that the distribution of firms over size is most similar between buy-backs and restructurings, while the distribution for bankruptcies follow the same pattern but with a noticeable discrepancy to the two other categories. Buy-backs and restructurings also seem to comprise larger firms than bankruptcies as

a whole. Bankruptcies have 79 percent of the firms within the range of 10 to 29 employees. Buy-backs and restructurings have similar and lower fractions within this range, 64 and 63 percent respectively. Bankruptcies have 18 percent of the firms with the ranges 30 to 49 and 50 to 99 employees. Buy-backs and restructurings have higher and similar fractions within these ranges, 33 and 30 percent respectively.

In sum, buy-backs and restructurings are larger and more similarly distributed over size compared to all bankruptcies. However, restructurings seem to be slightly larger than buy-backs. The distribution also suggests that buy-backs do not happen as often for large firms which instead end up more frequently in a restructuring procedure.

Table 4 presents the distribution of bankrupt and restructured firms over industry.

The distribution over industry indicates large similarities between bankruptcies, buy-backs and restructurings. Moreover, the distributions for buy-backs and restructurings seem to be somewhat closer compared to bankruptcies as a whole.

Table 4. Sample Distribution: Industry

The table presents the number of sample bankruptcies and restructurings within each industry. For bankruptcies, the identified number of buy-backs is reported separately under Buy-backs. Bankruptcies includes all bankruptcies, even the identified buy-backs. The firms activities have been classified according to the two-digit Swedish Standard Industrial Classification (SNI 2007) industry definition.

Industry	Number of Firms	Frequency (%)	Cumulative Frequency (%)
Bankruptcies			
Manufacturing	1,299	25.0%	25.0%
Construction	820	15.8%	40.9%
Trade; repair of motor vehicles and motorcycles	735	14.2%	55.0%
Law, Economy, Science and Technology	512	9.9%	64.9%
Transportation and Storage	455	8.8%	73.7%
Five most frequent industries			73.7%
Real Estate	377	7.3%	80.9%
Leasing and other Services	347	6.7%	87.6%
Hotels and Restaurants	275	5.3%	92.9%
Healthcare	81	1.6%	94.5%
Information and Communication	48	0.9%	95.4%
Agricultural, Fishing and Forestry	40	0.8%	96.2%
Finance and Insurance	24	0.5%	96.6%
Mining	5	0.1%	96.7%
Water Supply	5	0.1%	96.8%
Other Services	143	2.8%	99.6%
Other	21	0.4%	100.0%
Total	5,187	100.0%	100.0%
Buy-backs			
Manufacturing	34	33.3%	33.3%
Trade; repair of motor vehicles and motorcycles	20	19.6%	52.9%
Leasing and other Services	10	9.8%	62.7%
Construction	9	8.8%	71.6%
Law, Economy, Science and Technology	8	7.8%	79.4%
Five most frequent industries			79.4%
Real Estate	7	6.9%	86.3%
Hotels and Restaurants	5	4.9%	91.2%
Transportation and Storage	4	3.9%	95.1%
Healthcare	1	1.0%	96.1%
Other Services	1	1.0%	97.1%
Other	3	2.9%	100.0%
Total	102	100.0%	100.0%
Restructurings			
Manufacturing	286	35.4%	35.4%
Trade; repair of motor vehicles and motorcycles	119	14.7%	50.1%
Construction	84	10.4%	60.5%
Law, Economy, Science and Technology	81	10.0%	70.5%
Real Estate	65	8.0%	78.6%
Five most frequent industries			78.6%
Transportation and Storage	42	5.2%	83.8%
Hotels and Restaurants	34	4.2%	88.0%
Leasing and other Services	35	4.3%	92.3%
Information and Communication	18	2.2%	94.6%
Healthcare	12	1.5%	96.0%
Mining	3	0.4%	96.4%
Agricultural, Fishing and Forestry	2	0.2%	96.7%
Finance and Insurance	2	0.2%	96.9%
Other Services	22	2.7%	99.6%
Other	3	0.4%	100.0%
Total	808	100.0%	100.0%

Among the five most frequent industries, manufacturing, construction, repair of motor vehicles and motorcycles, and law, economy, science and technology can be found for all procedures. Hence, the five most frequent industries are dominated by industries with relatively high proportions of fixed assets. Buy-backs and restructurings differ only on one industry in the five most frequent industries. Leasing and other services is included for buy-backs but not for restructurings. However, real estate is included for restructurings but not for buy-backs.

Manufacturing is the most common industry for bankruptcies, buy-backs and restructurings. The industry accounts for a similar fraction of buy-backs and restructurings, which is higher compared to bankruptcies as a whole. Manufacturing represents 33.3 percent of buy-backs and 35.4 percent of restructurings, while it represents 25.0 percent of total bankruptcies. These figures are similar to the bankruptcy sample of Strömberg and Thorburn (1996), in which manufacturing accounted for 30 percent. When comparing buy-backs to restructurings, there are four industries within restructurings that cannot be found within buy-backs. These industries are finance and insurance, information and communication, mining, and agricultural, fishing and forestry. These sectors account for 3.1 percent of the restructurings.

In sum, buy-backs and restructurings are more similarly distributed over industry compared to all bankruptcies.

7.2 Pre-Filing Financial Characteristics

Table 5.1 and 5.2 present the pre-filing characteristics for buy-backs and restructurings.

Table 5.1. Pre-Filing Financial Characteristics: Buy-Backs

The table presents the pre-filing financial characteristics for buy-backs the year before the bankruptcy procedure started. The figures are in thousand SEK. Specific assets are defined as machinery and equipment, building and land, inventory and work in progress. Non-specific assets are defined as current assets less inventory. Intermediate assets are defined as the residual assets. Intangible, specific, non-specific and intermediate assets are reported as fractions of total assets. Non-current and current liabilities, as well as liabilities to credit institutions and accounts payable, are reported as fractions of total debt. Return on assets is calculated as EBIT divided by opening assets. Interest coverage ratio is calculated as EBIT divided by external interest expenses. Current ratio is calculated as current assets divided by current liabilities. All fractions of assets and liabilities and key ratios are equally weighted in order to eliminate size effects. The means and medians have been trimmed and then winsorized at 5 percent in order to eliminate outliers.

Characteristic	Number	Mean	Median
Number of firms	102		
Number of employees		39	22
Income Statement			
Sales		43,006	29,824
EBITDA		-247	10
<i>EBITDA-margin</i>		-0.57%	0.03%
EBIT		-1,029	-251
<i>EBIT-margin</i>		-2.39%	-0.84%
<i>Fraction firms with negative EBIT</i>	0.58		
Balance Sheet			
Total assets (book value)		18,263	12,126
<i>Intangible assets</i>		0.02	0.00
<i>Specific assets</i>		0.37	0.34
<i>Non-specific assets</i>		0.58	0.55
<i>Intermediate assets</i>		0.05	0.05
Equity		2,225	930
Debt		16,039	11,197
<i>Non-current liabilities</i>		0.21	0.14
<i>To credit institutions</i>		0.17	0.07
<i>Current liabilities</i>		0.79	0.86
<i>To credit institutions</i>		0.06	0.00
<i>Accounts payable</i>		0.26	0.25
Key Ratios			
Return on assets		-6.82%	-3.00%
Interest coverage ratio		-3.17	-1.24
<i>Fraction firms with ICR < 1</i>	0.68		
Current ratio		1.14	1.14
<i>Fraction firms with CR < 1</i>	0.41		
<i>Fraction firms with CR < 0.5</i>	0.07		
Debt-to-asset ratio		0.91	0.91

Table 5.2. Pre-Filing Financial Characteristics: Restructurings

The table presents the pre-filing financial characteristics for restructurings the year before the restructuring procedure started. The figures are in thousand SEK. Specific assets are defined as machinery and equipment, building and land, inventory and work in progress. Non-specific assets are defined as current assets less inventory. Intermediate assets are defined as the residual assets. Intangible, specific, non-specific and intermediate assets are reported as fractions of total assets. Non-current and current liabilities, as well as liabilities to credit institutions and accounts payable, are reported as fractions of total debt. Return on assets is calculated as EBIT divided by opening assets. Interest coverage ratio is calculated as EBIT divided by external interest expenses. Current ratio is calculated as current assets divided by current liabilities. All fractions of assets and liabilities and key ratios are equally weighted in order to eliminate size effects. The means and medians have been trimmed and then winsorized at 5 percent in order to eliminate outliers.

Characteristic	Number	Mean	Median
Number of firms	808		
Number of employees		46	22
Income Statement			
Sales		51,516	24,923
EBITDA		-2,078	-662
<i>EBITDA-margin</i>		-4.03%	-2.66%
EBIT		-3,676	-1,272
<i>EBIT-margin</i>		-7.13%	-5.10%
<i>Fraction firms with negative EBIT</i>	0.72		
Balance Sheet			
Total assets (book value)		29,171	15,196
<i>Intangible assets</i>		0.04	0.00
<i>Specific assets</i>		0.43	0.44
<i>Non-specific assets</i>		0.49	0.45
<i>Intermediate assets</i>		0.08	0.01
Equity		3,792	775
Debt		25,379	14,421
<i>Non-current liabilities</i>		0.25	0.20
<i>To credit institutions</i>		0.18	0.14
<i>Current liabilities</i>		0.75	0.80
<i>To credit institutions</i>		0.07	0.01
<i>Accounts payable</i>		0.27	0.25
Key Ratios			
Return on assets		-16.42%	-10.80%
Interest coverage ratio		-9.73	-3.62
<i>Fraction firms with ICR < 1</i>	0.80		
Current ratio		1.03	0.96
<i>Fraction firms with CR < 1</i>	0.55		
<i>Fraction firms with CR < 0.5</i>	0.15		
Debt-to-asset ratio		0.96	0.94

The buy-backs and restructurings are to the largest extent small firms as seen in the distribution over size. Buy-backs have on average 39 employees (median of 22) while restructurings have on average 46 employees (median of 22). Hence, even though they are similar in size, restructurings seem to be somewhat larger than buy-backs. As expected, both buy-backs and restructurings experience a negative profitability with respect to EBITDA and EBIT. However, restructurings seem to have more negative profitability than buy-backs. The EBITDA-margin for buy-backs is on average -0.57 percent (median of 0.03 percent) while it is -4.03 percent (median of -2.66 percent) for restructurings. The EBIT-margin for buy-backs is on average -2.39 percent (median of -0.84 percent) while it is -7.13 percent (median of -5.10 percent) for restructurings. Buy-backs have a smaller fraction of firms with negative EBIT than restructurings. The fraction of firms with negative EBIT is 0.58 for buy-backs while it is 0.72 for restructurings.

Both buy-backs and restructurings are highly levered one year before starting the procedure. Buy-backs have an average debt-to-asset ratio of 0.91 (median of 0.91) while restructurings have an average debt-to-asset ratio of 0.96 (median of 0.94). Hence, it seems like restructurings are slightly more levered than buy-backs. The high leverage seems to create poor liquidity and solvency for buy-backs and restructurings the year before filing. The current ratio can be used as a measure for liquidity. On average, buy-backs have a current ratio of 1.14 (median of 1.14) while restructurings have a current ratio of 1.03 (median of 0.96). Hence, both buy-backs and restructurings seem on average to be able to cover their current liabilities with their current assets if the current liabilities came due one year before the procedure started. However, the fraction of firms with a current ratio below 1 is 0.41 for buy-backs and 0.55 for restructurings. This shows that restructurings consist of a higher fraction of less liquid firms compared to buy-backs. The interest coverage ratio can be used as a measure for solvency. Both buy-backs and restructurings have interest coverage ratios that are significantly below zero which shows that both buy-backs and restructurings are insolvent when entering the procedures. On average, buy-backs have an interest coverage ratio of -3.17 (median of -1.24) while restructurings have an interest coverage ratio of -9.73 (median of -3.62). The fraction of firms with an interest coverage ratio below 1 is 0.68 for buy-backs and 0.80 for restructurings. This shows that restructurings have a higher fraction of less solvent firms compared to buy-backs.

The large proportion of both buy-backs and restructured firms that have negative profitability can also be seen on the negative ROA. The ROA is on average -6.82 percent (median of -3.00 percent) for buy-backs and -16.42 percent (median of -10.80 percent) for restructurings. This shows that buy-backs on average are less unprofitable than restructurings.

Restructurings have slightly higher specific assets than buy-backs. On average, the specific assets accounts for a fraction of 0.37 (median of 0.34) of buy-backs total assets, while they accounts for a fraction of 0.43 (median of 0.44) for restructurings. Buy-backs have on average a slightly higher fraction of non-specific assets than restructurings. The non-specific assets accounts for a fraction of 0.58 (median of 0.55) of buy-backs' total assets while it accounts for a fraction of 0.49 (median of 0.45) for restructurings' total assets. Restructurings have on average a slightly higher fraction of intangible assets compared to buy-backs. The average fraction of intangible assets in relation to total assets is 0.02 (median of 0.00) for buy-backs while it is 0.04 (median of 0.00) for restructurings. The breakdown of debt shows no significant differences between buy-backs and restructurings.

Appendix 3 presents the pre-filing characteristics for all bankruptcies. Hence, the table displays the pre-filing characteristics for firms that both were liquidated peace-meal and as a going-concern. This means that the table includes the characteristics of the buy-backs. However, when comparing the bankruptcies to the sample of buy-backs and the restructurings there are few characteristics that stands out from which conclusions can be drawn. As expected, the bankruptcies appears to be in financial distress one year before entering bankruptcy, which also holds for buy-backs and restructurings. However, bankruptcies in total seems to be somewhat smaller than both buy-backs and restructurings. Bankruptcies have on average 27 employees (median of 16).

Table 5.3 sums the differences between pre-filing characteristics for buy-backs and restructurings. As can be seen, both show a negative EBIT and EBITDA, but the performance is worse for restructurings at a one percent level. Restructurings show a higher sales on average but this is not significant on a ten percent level. When looking at the asset structure of the firms before the different procedures, buy-backs have a larger fraction non-specific assets. Hence, the fraction of specific assets is larger for restructurings. Also worth to notice is that restructurings have a larger fraction of intangible assets. The other key ratios show that buy-backs have better profitability (ROA), solvency (interest coverage ratio), liquidity (current ratio) and are less leveraged (debt-to-asset ratio).

Table 5.3. Pre-Filing Financial Characteristics: Differences

The table presents the differences in pre-filing financial characteristics between buy-backs and restructurings the year before the procedures started. The figures are in thousand SEK. Specific assets are defined as machinery and equipment, building and land, inventory and work in progress. Non-specific assets are defined as current assets less inventory. Intermediate assets are defined as the residual assets. Intangible, specific, non-specific and intermediate assets are reported as fractions of total assets. Non-current and current liabilities, as well as liabilities to credit institutions and accounts payable, are reported as fractions of total debt. Return on assets is calculated as EBIT divided by opening assets. Interest coverage ratio is calculated as EBIT divided by external interest expenses. Current ratio is calculated as current assets divided by current liabilities. All fractions of assets and liabilities and key ratios are equally weighted in order to eliminate size effects. The means and medians have been trimmed and then winsorized at 5 percent in order to eliminate outliers. ***p<0.01, ** p<0.05, *p<0.10.

Characteristic	Buy-Back	Restructuring	Difference
Sales	43,006	51,516	8,510
EBITDA	-247	-2,078	1,831 ***
EBIT	-1,029	-3,676	2,647 ***
Intangible assets	0.02	0.04	0.02 **
Specific assets	0.37	0.43	0.06 **
Non-specific assets	0.58	0.49	0.09 ***
Intermediate assets	0.05	0.08	0.03
Non-current liabilities	0.21	0.25	0.04 *
To credit institutions	0.17	0.18	0.02
Current liabilities	0.79	0.75	0.04 *
To credit institutions	0.06	0.07	0.01
Accounts payable	0.26	0.27	0.01
Return on assets	-6.82%	-16.42%	9.60% ***
Interest coverage ratio	-3.17	-9.73	6.56 ***
Current ratio	1.14	1.03	0.12 ***
Debt-to-asset ratio	0.91	0.96	0.04 *

The summary statistics from the OLS-regression show few significant variables, see Appendix 4. However, accounts payable are significant at the one percent level and intangible assets at the ten percent level. Accounts payable tells us that firms with much accounts payable are more probable to file for restructuring and less probable to do a buy-back. This makes sense since the Bankruptcy Act does not prioritize suppliers but instead institutional creditors such as banks, see Strömberg (2000), and Welamson and Mellqvist (2013). Intangible assets tell us that firms with more intangible assets are less probable to do a buy-back. This also makes sense since the intangible assets most likely will be lost in a bankruptcy, see Fenster and Fruhan (2010).

In sum, buy-backs appear to be in better shape than restructurings one year before the procedure starts. Buy-backs have a less negative operating performance, are less leveraged, less insolvent, and more liquid. In addition, firms with more intangible assets are less likely to do a buy-back, while firms with more accounts payable are more likely to do a restructuring and less likely to do a buy-back.

7.3 Emerging From The Procedures

Table 6.1 and 6.2 present the changes in financial characteristics of the firms in the year after they emerge from respective procedure. The bankruptcy and restructuring procedures lead to substantial changes in the financial characteristics of the firms that have survived in the year after emerging from the procedure.

Table 6.1. Changes Emerging From Bankruptcy

The table presents the change in financial characteristics for buy-backs when emerging from the bankruptcy procedure. The figures are in thousand SEK. The financial characteristics are displayed for those firms that survived the same year they came out from the bankruptcy procedure. The columns under “-1” provides the financial characteristics the year before the bankruptcy procedure started. The columns under “+1” provides the financial characteristics the year after the bankruptcy procedure ended. The column with Change shows the change in means from “-1” to “+1”. The column with Percent shows the percentage change in means from “-1” to “+1”. Specific assets are defined as machinery and equipment, building and land, inventory and work in progress. Non-specific assets are defined as current assets less inventory. Intermediate assets are defined as the residual assets. Intangible, specific, non-specific and intermediate assets are reported as fractions of total assets. Non-current and current liabilities, as well as liabilities to credit institutions and accounts payable, are reported as fractions of total debt. Return on assets is calculated as EBIT divided by opening assets. Interest coverage ratio is calculated as EBIT divided by external interest expenses. Current ratio is calculated as current assets divided by current liabilities. All fractions of assets and liabilities and key ratios are equally weighted in order to eliminate size effects. The means and medians have been trimmed and then winsorized at 5 percent in order to eliminate outliers. ***p<0.01, ** p<0.05, *p<0.10.

Characteristic	Years to bankruptcy				Change	Percent
	-1		+1			
	Mean	Median	Mean	Median		
Number of firms	85	85	85	85		
Income Statement						
Sales	44,824	29,856	18,141	8,751	-26,683 ***	-60%
EBITDA	152	43	648	211	496	327%
<i>EBITDA-margin</i>	<i>0.34%</i>	<i>0.14%</i>	<i>3.57%</i>	<i>2.41%</i>		
EBIT	-629	-204	370	92	1,000 ***	-159%
<i>EBIT-margin</i>	<i>-1.40%</i>	<i>-0.68%</i>	<i>2.04%</i>	<i>1.05%</i>		
<i>Fraction firms with negative EBIT</i>	0.59	0.59	0.35	0.35	-0.24	-40%
Balance Sheet						
Total assets (book value)	18,618	11,516	8,547	3,489	-10,072 ***	-54%
<i>Intangible assets</i>	0.03	0.00	0.02	0.00	-0.01	-29%
<i>Specific assets</i>	0.37	0.35	0.09	0.02	-0.28 ***	-76%
<i>Non-specific assets</i>	0.59	0.58	0.81	0.89	0.22 ***	38%
<i>Intermediate assets</i>	0.04	0.02	0.10	0.00	0.06	137%
Equity	2,415	998	1,868	711	-546	-23%
Debt	16,204	10,518	6,678	2,778	-9,525 ***	-59%
<i>Non-current liabilities</i>	0.23	0.14	0.17	0.03	-0.05	-24%
<i>To credit institutions</i>	0.18	0.08	0.10	0.00	-0.08 ***	-44%
<i>Current liabilities</i>	0.77	0.86	0.83	0.97	0.05	7%
<i>To credit institutions</i>	0.05	0.00	0.04	0.00	-0.02	-30%
<i>Accounts payable</i>	0.26	0.23	0.23	0.20	-0.04	-14%
Key Ratios						
Return on assets	-4.73%	-2.22%	6.18%	4.76%	10.91% ***	-231%
Interest coverage ratio	-2.48	-1.20	8.01	2.36	10.50 **	-423%
<i>Fraction firms with ICR < 1</i>	<i>0.70</i>	<i>0.70</i>	<i>0.30</i>	<i>0.30</i>	-0.39	-56%
Current ratio	1.18	1.16	3.03	1.28	1.84 ***	156%
<i>Fraction firms with CR < 1</i>	<i>0.40</i>	<i>0.40</i>	<i>0.26</i>	<i>0.26</i>	-0.14	-36%
<i>Fraction firms with CR < 0.5</i>	<i>0.04</i>	<i>0.04</i>	<i>0.09</i>	<i>0.09</i>	0.04	108%
Debt-to-asset ratio	0.91	0.92	0.69	0.81	-0.22 ***	-24%

Table 6.2. Changes Emerging From Restructuring

The table presents the change in financial characteristics for restructurings when emerging from the restructuring procedure. The figures are in thousand SEK. The financial characteristics are displayed for those firms that survived the year they came out from the restructuring procedure. The columns under “-1” provides the financial characteristics the year before the restructuring procedure started. The columns under “+1” provides the financial characteristics the year after the restructuring procedure ended. The column with Change shows the change in means from “-1” to “+1”. The column with Percent shows the percentage change in means from “-1” to “+1”. Specific assets are defined as machinery and equipment, building and land, inventory and work in progress. Non-specific assets are defined as current assets less inventory. Intermediate assets are defined as the residual assets. Intangible, specific, non-specific and intermediate assets are reported as fractions of total assets. Non-current and current liabilities, as well as liabilities to credit institutions and accounts payable, are reported as fractions of total debt. Return on assets is calculated as EBIT divided by opening assets. Interest coverage ratio is calculated as EBIT divided by external interest expenses. Current ratio is calculated as current assets divided by current liabilities. All fractions of assets and liabilities and key ratios are equally weighted in order to eliminate size effects. The means and medians have been trimmed and then winsorized at 5 percent in order to eliminate outliers. ***p<0.01, **p<0.05, *p<0.10.

Characteristic	Years to restructuring				Change	Percent
	-1		+1			
	Mean	Median	Mean	Median		
Number of firms	298	298	298	298		
Income Statement						
Sales	64,322	31,722	42,116	19,221	-22,205 ***	-35%
EBITDA	-2,513	-1,027	357	534	2,870 ***	-114%
<i>EBITDA-margin</i>	-3.91%	-3.24%	0.85%	2.78%		
EBIT	-4,373	-1,870	-1,095	100	3,278 ***	-75%
<i>EBIT-margin</i>	-6.80%	-5.89%	-2.60%	0.52%		
<i>Fraction firms with negative EBIT</i>	0.80	0.80	0.48	0.48	-0.33	-41%
Balance Sheet						
Total assets (book value)	33,273	17,568	25,810	11,735	-7,463 **	-22%
<i>Intangible assets</i>	0.04	0.00	0.04	0.00	-0.01	-19%
<i>Specific assets</i>	0.49	0.53	0.45	0.48	-0.05 *	-9%
<i>Non-specific assets</i>	0.43	0.37	0.44	0.40	0.01	2%
<i>Intermediate assets</i>	0.08	0.02	0.11	0.02	0.04 *	49%
Equity	4,079	778	5,617	2,039	1,538 **	38%
Debt	29,194	16,790	20,193	9,696	-9,001 ***	-31%
<i>Non-current liabilities</i>	0.26	0.22	0.26	0.21	0.00	1%
<i>To credit institutions</i>	0.20	0.15	0.16	0.09	-0.03 **	-17%
<i>Current liabilities</i>	0.74	0.78	0.74	0.79	0.00	0%
<i>To credit institutions</i>	0.09	0.04	0.08	0.02	-0.01	-10%
<i>Accounts payable</i>	0.26	0.25	0.20	0.16	-0.07 ***	-25%
Key Ratios						
Return on assets	-17.15%	-12.93%	-2.94%	0.66%	14.22% ***	-83%
Interest coverage ratio	-10.00	-4.53	-1.30	0.48	8.70 ***	-87%
<i>Fraction firms with ICR < 1</i>	0.85	0.85	0.50	0.50	-0.35	-41%
Current ratio	0.97	0.88	1.29	1.15	0.33 ***	34%
<i>Fraction firms with CR < 1</i>	0.56	0.56	0.34	0.34	-0.21	-38%
<i>Fraction firms with CR < 0.5</i>	0.16	0.16	0.11	0.11	-0.05	-29%
Debt-to-asset ratio	0.97	0.95	0.80	0.82	-0.17 ***	-18%

The firms that emerge from a bankruptcy and restructuring are significantly smaller in terms of sales and assets compared to before. The decreases in sales and assets are significant at the one percent level for buy-backs. The decrease in sales is significant at the one percent level for restructurings while the decrease in assets is significant at the five percent level. Sales decreases on average by 60 percent for buy-backs while it decreases by 35 percent for restructurings. Assets decreases on average by 54 percent for buy-backs while it decreases by 22 percent for restructurings.

Even though buy-backs and restructurings are smaller in size when emerging, they also appear to be healthier. The procedures have improved the profitability to slightly positive levels for both buy-backs and restructurings when looking at EBITDA and EBIT. For buy-backs, the procedure meant an average increase in EBIT that is significant at the one percent level. It meant that EBIT on average increased from negative to positive levels, reflecting an EBIT-margin of -1.40 percent before the procedure and 2.04 percent after. The procedure also mean an average increase in EBITDA for buy-backs even though this increase is not significant at any level. For restructurings, the procedure meant an average increase in EBITDA that is significant at the one percent level. It led to that EBITDA on average increased from negative to positive levels, reflecting an EBITDA-margin of -3.91 percent before the procedure and 0.85 percent after. The procedure also meant an average increase in EBIT for restructurings that is significant at the one percent level. EBIT improved on average but remained at negative levels, reflecting an EBIT-margin of -6.80 percent before the procedure and -2.60 percent after. The fraction firms with negative EBIT has also decreased for both buy-backs and restructurings. For buy-backs, it has decreased from 0.59 to 0.35, while it has decreased from 0.80 to 0.48 for restructurings. The profitability with respect to ROA has also improved for both buy-backs and restructurings. The increase in ROA is significant at the one percent level for both buy-backs and restructurings. ROA has improved on average from -4.73 to 6.18 percent for buy-backs, hence by 10.91 percentage points. For restructurings, ROA has improved on average from -17.15 to -2.94 percent, hence by 14.22 percentage points. Thus, the procedure improved the ROA to positive levels for buy-backs while it remained at negative levels for restructurings.

The procedures have also led to changes in the capital structure for the firms. Overall, the emerging firms are less leveraged than the year before they entered the procedure. The decreases in debt-to-asset ratio for both buy-backs and restructurings are significant at the one percent level. For buy-backs, the debt-to-asset ratio has declined by 24 percent, from an average of 0.91 to an average of 0.69. For restructurings, the debt-to-asset ratio has declined by 18 percent, from an average of 0.97 to a median of 0.80. However, the emerging firms still have relatively high

levels of debt after the restructurings in absolute terms since the debt-to-assets ratios are 0.69 and 0.80. Looking at the debt breakdown, only a few items show significance regarding the difference between before and after the procedure. For both buy-backs and restructurings, the decrease in the fraction of non-current liabilities to credit institutions is significant, at the one and five percent level respectively. The fraction has decreased by 44 percent for buy-backs, from 0.18 to 0.10, while it has decreased by 17 percent for restructurings, from 0.20 to 0.16. For restructurings, the decrease in the fraction of accounts payable is significant at the one percent level. The fraction has decreased by 25 percent, from 0.26 to 0.20.

The solvency of the emerging firms has improved when looking at the interest coverage ratio. The average change in interest coverage ratio is significant at the five percent level for buy-backs while it is significant at the one percent level for restructurings. The average for buy-backs has increased from -2.48 to 8.01, which is a healthy level. However, the average interest coverage ratio for restructurings is still not at a satisfying level the year after the restructuring ended. The average for restructurings has then only increased to -1.30 from -10.00. The fraction firms with interest coverage ratio below 1 has also decreased for both buy-backs and restructurings. For buy-backs, it has decreased from 0.70 to 0.30, while it has decreased from 0.85 to 0.50 for restructurings.

The liquidity of the emerging firms has also improved when looking at the current ratio. The average change in the current ratio is significant at the one percent level for both buy-backs and restructurings. The average for buy-backs has increased from 1.18 to 3.03, which is a healthy level in most industries. The average current ratio for restructurings has also improved to a better level the year after the restructuring ended. The average for restructurings has then increased to 1.29 from 0.97. The fraction firms with current ratio below 1 has also decreased for both buy-backs and restructurings. For buy-backs, it has decreased from 0.40 to 0.26, while it has decreased from 0.56 to 0.34 for restructurings.

In sum, both the buy-back and restructuring procedure improves the operational performance and financial situation for the firms. Overall, buy-backs improves to relatively better levels than restructurings. In addition, both procedures reduces the size of the firms.

7.4 Post-Performance

Tables 7.1 and 7.2 present the filing frequency of surviving buy-backs and restructurings up to three years after emerging from respective procedure. A striking observation is that the number of emerging firms decreases dramatically for both types of filings between year 0 and 3 post the procedure. The decline in firms is the result of a second filing for either bankruptcy or restructuring by a large proportion of the emerging firms.

Table 7.1. Post-Performance: Filing Frequency of Surviving Buy-Backs

The table presents the filing frequency for the buy-backs that emerge from the bankruptcy procedure. The Number of surviving buy-backs displays the beginning of each year post bankruptcy. The Number of second filings are made during each year post bankruptcy. A second filing is defined as either a bankruptcy filing or a restructuring filing.

Post-Performance	Number of Years After Bankruptcy Ending			
	+0	+1	+2	+3
Number of surviving buy-backs	77	65	62	60
<i>Proportion of emerging firms surviving</i>	<i>100%</i>	<i>84%</i>	<i>81%</i>	<i>78%</i>
Number of second filings	12	3	2	2
<i>Proportion of emerging firms' second filings</i>	<i>16%</i>	<i>4%</i>	<i>3%</i>	<i>3%</i>
<i>Cum. Proportion of second filings</i>	<i>16%</i>	<i>19%</i>	<i>22%</i>	<i>25%</i>

Table 7.2. Post-Performance: Filing Frequency of Surviving Restructurings

The table presents the filing frequency for the restructurings that emerge from the restructuring procedure. The Number of surviving restructurings displays the beginning of each year post restructuring. The Number of second filings are made during each year post restructuring. A second filing is defined as either a bankruptcy filing or a restructuring filing.

Post-Performance	Number of Years After Restructuring Ending			
	+0	+1	+2	+3
Number of surviving restructurings	418	204	169	154
<i>Proportion of emerging firms surviving</i>	<i>100%</i>	<i>49%</i>	<i>40%</i>	<i>37%</i>
Number of second filings	214	35	15	3
<i>Proportion of emerging firms' second filings</i>	<i>51%</i>	<i>8%</i>	<i>4%</i>	<i>1%</i>
<i>Cum. Proportion of second filings</i>	<i>51%</i>	<i>60%</i>	<i>63%</i>	<i>64%</i>

Of the 77 firms that emerge from the bankruptcy procedure as a buy-back, 84 percent has survived one year after they emerge from the procedure. This means that 16 percent file a second time during the same year as emerging from the procedure. However, of the 418 firms that emerge from the restructuring procedure, only 49 percent has survived one year after they emerged from the procedure. This means that as much as 51 percent of the restructurings file a second time the same year as emerging from the procedure. Hence, there is a significant discrepancy between the percentage of surviving firms in the same year as the procedure ended when comparing buy-backs and restructurings. However, the largest proportion of second filings

occur in the same year as the procedure ended for both buy-backs and restructurings. The number of surviving firms only declines slightly for both types of filings 2-3 years past the procedure. During years 1-3 post the procedure, only 10 percent of the emerging buy-backs and 13 percent of the emerging restructurings filed a second time. Looking at year 3 post the procedure, 78 percent of the buy-backs and 37 percent of the restructurings had survived. The large failure rate of restructurings is in line with the literature on the Business Reorganization Act, see Welamson and Mellqvist, 2013 and the 2007 Insolvency Inquiry.

Tables 7.3 to 7.5 present the financial characteristics of the surviving buy-backs and restructurings three years after emerging from respective procedure, as well as the differences between the procedures.

Table 7.3. Post-Performance: Buy-Backs

The table presents the financial characteristics for the surviving sample buy-backs each year during three years after emerging from the bankruptcy procedure. The figures are in thousand SEK. The figures are averages at the beginning of each year post bankruptcy. Specific assets are defined as machinery and equipment, building and land, inventory and work in progress. Non-specific assets are defined as current assets less inventory. Intermediate assets are defined as the residual assets. Intangible, specific, non-specific and intermediate assets are reported as fractions of total assets. Non-current and current liabilities, as well as liabilities to credit institutions and accounts payable, are reported as fractions of total debt. Return on assets is calculated as EBIT divided by opening assets. Interest coverage ratio is calculated as EBIT divided by external interest expenses. Current ratio is calculated as current assets divided by current liabilities. All fractions of assets and liabilities and key ratios are equally weighted in order to eliminate size effects. The means and medians have been trimmed and then winsorized at 5 percent in order to eliminate outliers.

Characteristic	Number of Years After Bankruptcy Ending			
	+0	+1	+2	+3
Number of firms	77	65	62	60
<i>Percentage of emerging firms surviving</i>		84%	81%	78%
Income Statement				
Sales		20,252	21,445	20,944
EBITDA		688	924	823
<i>EBITDA-margin</i>		3.40%	4.31%	3.93%
EBIT		408	572	506
<i>EBIT-margin</i>		2.02%	2.67%	2.41%
<i>Fraction firms with negative EBIT</i>		0.38	0.33	0.38
Balance Sheet				
Total assets (book value)		8,515	8,960	9,237
<i>Intangible assets</i>		0.02	0.03	0.03
<i>Specific assets</i>		0.10	0.10	0.10
<i>Non-specific assets</i>		0.77	0.79	0.80
<i>Intermediate assets</i>		0.14	0.10	0.10
Equity		1,859	2,569	2,835
Debt		6,656	6,391	6,402
<i>Non-current liabilities</i>		0.20	0.17	0.16
<i>To credit institutions</i>		0.12	0.11	0.09
<i>Current liabilities</i>		0.80	0.83	0.84
<i>To credit institutions</i>		0.04	0.04	0.04
<i>Accounts payable</i>		0.23	0.20	0.19
Key Ratios				
Return on assets		4.79%	5.03%	5.65%
Interest coverage ratio		4.71	5.96	11.36
<i>Fraction firms with ICR < 1</i>		0.33	0.28	0.31
Current ratio		2.79	3.24	3.51
<i>Fraction firms with CR < 1</i>		0.25	0.15	0.20
<i>Fraction firms with CR < 0.5</i>		0.09	0.03	0.07
Debt-to-asset ratio		0.70	0.67	0.63

Table 7.4. Post-Performance: Restructurings

The table presents the financial characteristics for the surviving sample restructurings each year during three years after emerging from the restructuring procedure. The figures are in thousand SEK. The figures are averages at the beginning of each year post restructuring. Specific assets are defined as machinery and equipment, building and land, inventory and work in progress. Non-specific assets are defined as current assets less inventory. Intermediate assets are defined as the residual assets. Intangible, specific, non-specific and intermediate assets are reported as fractions of total assets. Non-current and current liabilities, as well as liabilities to credit institutions and accounts payable, are reported as fractions of total debt. Return on assets is calculated as EBIT divided by opening assets. Interest coverage ratio is calculated as EBIT divided by external interest expenses. Current ratio is calculated as current assets divided by current liabilities. All fractions of assets and liabilities and key ratios are equally weighted in order to eliminate size effects. The means and medians have been trimmed and then winsorized at 5 percent in order to eliminate outliers.

Characteristic	Number of Years After Restructuring Ending			
	+0	+1	+2	+3
Number of firms	418	204	169	154
<i>Percentage of emerging firms surviving</i>		49%	40%	37%
Income Statement				
Sales		35,472	38,094	39,613
EBITDA		689	732	1,485
<i>EBITDA-margin</i>		1.94%	1.92%	3.75%
EBIT		-542	-438	342
<i>EBIT-margin</i>		-1.53%	-1.15%	0.86%
<i>Fraction firms with negative EBIT</i>		0.48	0.43	0.38
Balance Sheet				
Total assets (book value)		23,210	23,219	23,697
<i>Intangible assets</i>		0.03	0.03	0.03
<i>Specific assets</i>		0.43	0.41	0.41
<i>Non-specific assets</i>		0.45	0.46	0.45
<i>Intermediate assets</i>		0.11	0.13	0.14
Equity		5,835	6,484	7,093
Debt		17,375	16,735	16,604
<i>Non-current liabilities</i>		0.25	0.25	0.21
<i>To credit institutions</i>		0.16	0.15	0.12
<i>Current liabilities</i>		0.75	0.75	0.79
<i>To credit institutions</i>		0.08	0.09	0.09
<i>Accounts payable</i>		0.20	0.20	0.22
Key Ratios				
Return on assets		-2.53%	0.57%	2.92%
Interest coverage ratio		0.51	1.78	4.61
<i>Fraction firms with ICR < 1</i>		0.50	0.50	0.45
Current ratio		1.31	1.38	1.40
<i>Fraction firms with CR < 1</i>		0.34	0.20	0.35
<i>Fraction firms with CR < 0.5</i>		0.12	0.09	0.14
Debt-to-asset ratio		0.80	0.76	0.75

Table 7.5. Post-Performance: Differences

The table presents the differences in post-performance between buy-backs and restructurings during three years after emerging from the procedures. The figures are in thousand SEK. Specific assets are defined as machinery and equipment, building and land, inventory and work in progress. Non-specific assets are defined as current assets less inventory. Intermediate assets are defined as the residual assets. Intangible, specific, non-specific and intermediate assets are reported as fractions of total assets. Non-current and current liabilities, as well as liabilities to credit institutions and accounts payable, are reported as fractions of total debt. Return on assets is calculated as EBIT divided by opening assets. Interest coverage ratio is calculated as EBIT divided by external interest expenses. Current ratio is calculated as current assets divided by current liabilities. All fractions of assets and liabilities and key ratios are equally weighted in order to eliminate size effects. The means and medians have been trimmed and then winsorized at 5 percent in order to eliminate outliers. ***p<0.01,** p<0.05, *p<0.10.

T+1	Buy-Back	Restructuring	Difference	T+2	Buy-Back	Restructuring	Difference	T+3	Buy-Back	Restructuring	Difference
Sales	20,252	35,472	15,221 ***	Sales	21,445	38,094	16,648 ***	Sales	20,944	39,613	18,669 ***
EBITDA	688	689	1	EBITDA	924	732	192	EBITDA	823	1,485	662
EBIT	408	-542	950	EBIT	572	-438	1,010 *	EBIT	506	342	163
Intangible assets	0.02	0.03	0.01	Intangible assets	0.03	0.03	0.00	Intangible assets	0.03	0.03	0.00
Specific assets	0.10	0.43	0.34 ***	Specific assets	0.10	0.41	0.31 ***	Specific assets	0.10	0.41	0.31 ***
Non-specific assets	0.77	0.45	0.31 ***	Non-specific assets	0.79	0.46	0.34 ***	Non-specific assets	0.80	0.45	0.35 ***
Intermediate assets	0.14	0.11	0.02	Intermediate assets	0.10	0.13	0.03	Intermediate assets	0.10	0.14	0.04
Non-current liabilities	0.20	0.25	0.06 *	Non-current liabilities	0.17	0.25	0.08 **	Non-current liabilities	0.16	0.21	0.06
To credit institutions	0.12	0.16	0.04	To credit institutions	0.11	0.15	0.03	To credit institutions	0.09	0.12	0.03
Current liabilities	0.80	0.75	0.06 *	Current liabilities	0.83	0.75	0.08 **	Current liabilities	0.84	0.79	0.06
To credit institutions	0.04	0.08	0.05 ***	To credit institutions	0.04	0.09	0.05 ***	To credit institutions	0.04	0.09	0.05 ***
Accounts payable	0.23	0.20	0.03	Accounts payable	0.20	0.20	0.00	Accounts payable	0.19	0.22	0.03
Return on assets	0.05	-0.03	0.07 **	Return on assets	0.05	0.01	0.04	Return on assets	0.06	0.03	0.03
Interest coverage ratio	4.71	0.51	4.21	Interest coverage ratio	5.96	1.78	4.18	Interest coverage ratio	11.36	4.61	6.75
Current ratio	2.79	1.31	1.47 ***	Current ratio	3.24	1.38	1.86 ***	Current ratio	3.51	1.40	2.11 ***
Debt-to-asset ratio	0.70	0.80	0.09 **	Debt-to-asset ratio	0.67	0.76	0.10 **	Debt-to-asset ratio	0.63	0.75	0.11 ***

Sales stays on average at lower levels the three years after the procedure compared to before. When comparing the procedures, sales is larger for restructurings than buy-backs. The difference is significant at the one percent level during all three years after the procedure, see Table 7.5. The procedures seem on average to improve the operations for both the surviving buy-backs and restructurings three years after. For buy-backs, the average EBITDA and EBIT margins are at positive levels each year after the procedure. For restructurings, the average EBITDA margin is at positive levels each year after the procedure, while the average EBIT margin is at negative levels the two first years and positive in the third year. There is no significant differences in EBITDA and EBIT between the two procedures in year 1 and 3, see Table 7.5. Worth noticing is that buy-backs have a statistically significant better EBIT compared to restructurings two years after the procedures. However, due to the lack of consistency it is not possible to draw any conclusions regarding EBIT. For buy-backs, the average ROA is at positive levels each year after the procedure. For restructurings, the average ROA is negative in year 1 and 2, and turns positive in year 3. In addition, buy-backs have a statistically significant better ROA in year 1 compared to restructurings, see Table 7.5.

One of the largest difference in post-performance between buy-backs and restructurings is found when examining the current ratio. The difference in current ratio is significant at the one percent level during all three years after the procedure, see Table 7.5. The current ratio is already far beyond a healthy level for buy-backs one year after emerging from bankruptcy. The current ratio stays above the 2.79 for the surviving firms during the 3 years, which should be seen as acceptable for in most industries. The average current ratio is 2.79 in year 1 and increases to 3.24 in year 2 and 3.51 in year 3. For restructurings, the average current ratio is at the level of 1.31 in year 1. The average interest coverage ratio improves slightly in year 2 to 1.38 and in year 3 to 1.40. Even though these levels are above 1, this current ratio could be seen as relatively low in some industries.

Even though there seems to be a difference between buy-backs and restructurings in the average interest coverage ratio, this difference is not statistically significant, see Table 7.5. The interest coverage ratio is already far beyond a healthy level for buy-backs one year after emerging from bankruptcy. It is 4.71 in year 1 and increases to 5.96 in year 2 and 11.36 in year 3. For restructurings, the average interest coverage ratio is at the low level of 0.51 in year 1. The average interest coverage ratio improves to a healthy level for the surviving firms in year 2 while it increases further during year 3. The performance of the firms that survived all three years after the procedure is also separated from the failing firms, see Appendix 6 and 7. The most striking observation is that the surviving restructurings have an average interest coverage ratio that is

healthy already in the first year after the procedure. For these restructurings, the average interest coverage ratio is at the level of 3.69 in year 1. The average interest coverage ratio then stays at a healthy level in year 2 and 3.

Looking at the structure of assets and debt there are a few differences that stand out which also are statistically significant. The asset structure shows that restructured firms have a larger fraction specific assets while buy-backs have a larger fraction non-specific assets. These differences are significant at the one percent level for all three years, see Table 7.5. The surviving buy-backs also stay less leveraged than the surviving restructurings during the three years. The debt-to-asset ratio for buy-backs declines from 0.70 in year 1 to 0.67 in year 2 and then further to 0.63 in year 3. The debt-to-asset ratio for restructurings declines from 0.80 in year 1 to 0.76 in year 2 and then further to 0.75 in year 3. The difference in debt-to-asset ratio of the two procedures each year is statistically significant. A slight difference in the debt structure can be seen between the procedures. During the two years after the procedures, buy-backs tend to have a significant larger fraction current debt while restructurings have a significant larger fraction non-current debt. Restructurings also have a larger fraction of current liabilities to credit institutions each year than buy-backs. This difference is significant at the one percent level during all three years.

The OLS-regression on the performance variables and dummies for buyback and restructuring show low significant effect from the procedures when controlling for pre-filing performance, see Appendix 5. The only significant effect from the dummy variables is for EBITDA and EBIT in year 2. Without any consistency, however, no conclusion can be drawn from this. The pre-performance variables are significant for most performance measures and years, which shows that the difference in post-performance that can be seen between the two procedures is related to the pre-filing differences rather than the being an effect of the type of procedure.

In sum, buy-backs perform better than restructurings during the three years after emergence from the procedures. However, the difference in post-performance does not depend on the type of procedure but instead the pre-performance of the filing firm.

8 Implications and Conclusion

The main finding of this study is that firms performing buy-backs show better pre-filing financial characteristics than firms filing for restructurings. This finding is counterintuitive since the illiquidity criteria required for a firm to be granted restructuring reflects a better financial condition than the insolvency criteria required for a bankruptcy. Hence, the Business Reorganization Act should capture firms at an earlier stage of financial distress compared to the Bankruptcy Act. This should also be reflected in the financial information of restructurings which should show better performance than buy-backs. Instead, the Business Reorganization Act targets a category of firms that performs relatively worse compared to buy-backs under the Bankruptcy Act. Given the financial prerequisites of the laws, the Bankruptcy Act is consequently targeting a category of firms that could be restructured under the Business Reorganization Act. Thus, the buy-back procedure seems to substitute the Business Reorganization Act as a restructuring procedure. The buy-back procedure as a way to restructure a firm is supported by the papers that studied the Swedish Bankruptcy Act in the 1990s and the legal doctrine. Around 75 percent of the bankrupt firms were then sold as a going-concern while only 25 percent were liquidated peace-meal. In addition, 54 percent of the going-concern sales were bought back by the pre-bankruptcy owner. The Bankruptcy Act is still acknowledged as a well-established restructuring procedure with skillful trustees that handle the process. Hence, the results of this study suggests that the established buy-back procedure has not been altered by the introduction of the Business Reorganization Act. It is possible that the financial prerequisite for each procedure provides an explanation for an unchanged order. Since there is a presumption of insolvency if the debtor himself files for bankruptcy, it should be possible for the debtor to be granted bankruptcy before this state has been reached. Hence, if the debtor filed for bankruptcy when only being illiquid, then insolvency would be assumed. This would explain why the buy-back procedure can carry on with the Business Reorganization Act in place and why buy-backs' financial information looks relatively less negative. Furthermore, the pre-filing financial characteristics of restructurings appear as much worse than a firm that is only illiquid. It seems like the restructured firms are far down the spiral of financial distress before filing. If the business has experienced too much difficulties, the probability of a going-concern sale and buy-back should decrease. Part of the business might have been sold before the bankruptcy in order to raise cash, which could not be done by issuing more debt for an already highly leveraged firm. Hence, with an experienced buy-back procedure in place, the Business Reorganization Act simply might be targeting those firms that would otherwise be sold peace-meal in a bankruptcy.

Other findings that should be assigned economic importance are that intangible assets decrease the probability of a buy-back, while accounts payables both increase the probability of a restructuring and decrease it for a buy-back. Since the firm ceases to exist in a bankruptcy, it makes sense not to try to perform a buy-back for a firm that includes, for example, an established brand. The bankruptcy procedure would create negative publicity that would damage the brand. Hence, the intangible assets would likely be reduced or lost in a bankruptcy. In a buy-back, the bank and pre-bankruptcy owner can cause a violation of the priority of claims if the firm is bought at a price that is lower than the value of the firm as a going-concern. The suppliers would lose value on an underpriced buy-back since accounts payable are junior claims. (see Strömberg (2000)). This is also supported by the legal doctrine which states that the Bankruptcy Act favors banks rather than suppliers. It is plausible that this is generally known to suppliers since the buy-back procedure is well established. This would instead give incentive for the suppliers to push for a restructuring procedure and benefit from the future value of the firm. It might explain why accounts payable decrease the probability of a buy-back and increase the probability of a restructuring. However, a violation of the absolute priority order is also known to occur in the restructuring procedure of Chapter 11. While this procedure is debtor friendly, the Business Reorganization Act is creditor friendly, which might maintain the priority order to a larger extent.

The importance of the pre-filing differences in financial performance of buy-backs and restructurings is further supported by the findings on post-performance. Even though buy-backs perform better than restructurings there is no evidence that one procedure provides better improvement than the other. Instead, the pre-filing condition of the filing firm is crucial for the performance after each procedure.

The results of this study have implications for the insolvency regulation in Sweden. The results show that buy-backs is common in practice even when the Business Reorganization Act is in place and supposed to replace the buy-backs. There does not seem to be any reason for the debtor to file for the Business Reorganization Act other than when the firm has a larger fraction of intangible assets. This poses an obstacle for the law to become more frequently used and fill its purpose as an effective restructuring procedure. As long as the experience of the buy-back procedure remains in the legal system, the buy-back procedure should continue to substitute the restructuring procedure. Hence, the insolvency legislation would require a thorough revision in order to change the relation between the two laws that applies today. Hence, this paper concludes that coordinating the two procedures under one law as suggested by the 2007 Insolvency Inquiry could be a necessary step in order to prevent the Bankruptcy Act from filling

the function of the Business Reorganization Act. The findings of this paper would also apply to countries with a similar legal environment as Sweden, that is, with an insolvency procedure that is not coordinated under the same law and where the restructuring procedure is creditor friendly.

9 Limitations and Future Research

The data used in this study limits the empirical investigation to compare the industry and financial information between buy-backs and restructurings. In addition, the method for identifying buy-backs limits the sample to buy-backs with the same CEO, industry and geographical location as the filing firm. These limitations of the data leaves room for further research on the Swedish insolvency legislation after the introduction of the Business Reorganization Act. More detailed data could be assembled from the bankruptcy and restructuring files at the court where each procedure was handled. This information could also result in an investigation of the creditor recovery rates and absolute priority order, as well as the costs, of each procedure. It would also be possible to look at the going-concern sales in bankruptcy that does not end up as a buy-backs but instead might be bought by a competitor.

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11 Appendix

Appendix 1. Two-Digit SNI-Codes

The table presents the SNI-Codes for each industry on a two-digit level.

Industry	SNI 2007 Standard	SNI 2002 Standard
Agricultural, Fishing and Forestry	00-04	00-06
Mining	05-09	09-14
Manufacturing	10-33	15-37
Energy Supply	35	n/a
Water Supply	36-39	40-41
Construction	41-43	45
Trade; repair of Vehicles and Motorcycles	45-47	50-52
Transportation and Storage	49-53	60-64
Hotels and Restaurants	55-56	54
Information and Communication	58-63	n/a
Finance and Insurance	64-66	65-67
Real Estate	68	70-74
Leasing and Other Services	77-82	n/a
Law, Economy, Science and Technology	69-75	n/a
Public Management and Defence	84	75
Healthcare	86-88	85
Other Services	94-96	80, 90-93
Household Activities	97-98	95
Non-Profit Organizations	99	99

Appendix 2. Trimming: Coefficient and T-Statistic

The table presents the summary statistics from the OLS-regression used to trim the restructuring data. All observations where the regression have a predictive power of less than 0.1 or more than 0.9 are excluded from the sample.

Restructuring	Coefficient	T-Value
EBITDA-margin	0.0025	1.89
EBIT-margin	-0.0024	-2.00
Asset growth	0.0018	2.09
Fraction Intangible Assets	0.1034	1.99
Fraction Specific Assets	0.0976	4.52
Fraction Intermediate Assets	0.1866	5.76
Fraction Non-Current Liabilities	-0.0440	-1.65
Fraction Accounts Payable	0.1094	3.75
Constant	0.0774	6.30

Appendix 3. Pre-Filing Financial Characteristics: Bankruptcies

The table presents the pre-filing financial characteristics for bankruptcies the year before the bankruptcy procedure started. The figures are in thousand SEK. The bankruptcies include the identified buy-backs. Specific assets are defined as machinery and equipment, building and land, inventory and work in progress. Non-specific assets are defined as current assets less inventory. Intermediate assets are defined as the residual assets. Intangible, specific, non-specific and intermediate assets are reported as fractions of total assets. Non-current and current liabilities, as well as liabilities to credit institutions and accounts payable, are reported as fractions of total debt. Return on assets is calculated as EBIT divided by opening assets. Interest coverage ratio is calculated as EBIT divided by external interest expenses. Current ratio is calculated as current assets divided by current liabilities. All fractions of assets and liabilities and key ratios are equally weighted in order to eliminate size effects. The means and medians have been trimmed and then winsorized at 5 percent in order to eliminate outliers.

Characteristic	Number	Mean	Median
Number of firms	5,187		
Number of employees		27	16
Income Statement			
Sales		23,807	14,531
EBITDA		-257	62
<i>EBITDA-margin</i>		-1.08%	0.43%
EBIT		-848	-162
<i>EBIT-margin</i>		-3.56%	-1.11%
<i>Fraction firms with negative EBIT</i>	0.57		
Balance Sheet			
Total assets (book value)		11,033	6,408
<i>Intangible assets</i>		0.02	0.00
<i>Specific assets</i>		0.42	0.39
<i>Non-specific assets</i>		0.55	0.53
<i>Intermediate assets</i>		0.03	0.00
Equity		1,218	316
Debt		9,815	6,092
<i>Non-current liabilities</i>		0.24	0.21
<i>To credit institutions</i>		0.19	0.11
<i>Current liabilities</i>		0.76	0.79
<i>To credit institutions</i>		0.04	0.00
<i>Accounts payable</i>		0.25	0.22
Key Ratios			
Return on assets		-9.01%	-3.33%
Interest coverage ratio		-4.62	-1.02
<i>Fraction firms with ICR < 1</i>	0.67		
Current ratio		1.11	1.02
<i>Fraction firms with CR < 1</i>	0.47		
<i>Fraction firms with CR < 0.5</i>	0.12		
Debt-to-asset ratio		0.94	0.94

Appendix 4. Pre-Filing Financial Characteristics: Regressions

The table presents the summary statistics of regressions with dummy variables for buy-backs and restructurings as dependent variables and performance measures from one year before the filing as independent. Specific assets are defined as machinery and equipment, building and land, inventory and work in progress. Non-specific assets are defined as current assets less inventory. Intermediate assets are defined as the residual assets. Intangible, specific, non-specific and intermediate assets are reported as fractions of total assets. Non-current and current liabilities, as well as liabilities to credit institutions and accounts payable, are reported as fractions of total debt. Return on assets is calculated as EBIT divided by opening assets. Interest coverage ratio is calculated as EBIT divided by external interest expenses. Current ratio is calculated as current assets divided by current liabilities. All fractions of assets and liabilities and key ratios are equally weighted in order to eliminate size effects. The means and medians have been trimmed and then winsorized at 5 percent in order to eliminate outliers.

Regression	Buy-Back		Restructurings	
	Beta	T-Value	Beta	T-Value
Intangible assets	-0.2344	-1.54	0.1552	1.09
Specific assets	-0.0557	-0.88	0.0319	0.54
Non specific assets	0.0816	0.94	-0.1347	-1.68
Current liabilities	0.1643	1.44	-0.1189	-1.12
Non-current liabilities to credit institutions	0.0311	0.28	-0.0753	-0.73
Current liabilities to credit institutions	-0.1436	-1.17	0.1591	1.40
Accounts payable	-0.2239	-2.74	0.1705	2.25
Return on assets	0.0760	1.03	-0.0837	-1.22
Interest coverage ratio	0.0013	1.41	-0.0004	-0.46
Current ratio	0.0478	1.47	-0.0430	-1.42
Debt-to-assets	-0.0266	-0.35	0.0435	0.61
Constant	0.0575	0.43	0.9741	7.81

Appendix 5. Post-Performance: Regressions

The table presents the summary statistics of regressions with post-performance characteristics as dependent variables and dummies for buy-backs and restructurings as well as pre-filing performance as independent. The figures are averages at the beginning of each year post restructuring. Return on assets is calculated as EBIT divided by opening assets. Interest coverage ratio is calculated as EBIT divided by external interest expenses. Current ratio is calculated as current assets divided by current liabilities. The means and medians have been trimmed and then winsorized at 5 percent in order to eliminate outliers

T+1	Buy-Back	T-Value	Restructuring	T-Value	Pre-Performance	T-Value	Constant	T-value
EBITDA	128.3126	0.03	635.6789	0.16	0.1766	3.00	470.9090	0.12
EBIT	-555.6631	-0.14	-732.8837	-0.18	0.1947	3.85	988.9525	0.25
ROA	-0.0154	-0.07	-0.0488	-0.22	0.2303	2.91	0.0697	0.32
Current Ratio	-0.3453	-0.13	-1.8414	-0.71	0.1726	0.46	2.9741	1.12
Interest Coverage Ratio	-6.3506	-0.30	-8.5355	-0.41	0.2235	2.09	10.6923	0.51
Debt-to-Assets	0.1456	0.60	0.2112	0.86	0.3854	4.07	0.2133	0.82
T+2	Buy-Back	T-Value	Restructuring	T-Value	Pre-Performance	T-Value	Constant	T-value
EBITDA	6504.1510	1.86	7454.2990	2.12	0.3168	5.76	-5841.5970	-1.66
EBIT	5586.9020	1.59	6082.0830	1.72	0.3073	6.48	-5077.8730	-1.43
ROA	0.0555	0.28	0.0390	0.20	0.2134	2.81	0.0002	0.00
Current Ratio	-0.4388	-0.14	-2.2627	-0.71	0.1330	0.26	3.5189	1.07
Interest Coverage Ratio	20.1497	0.95	19.2076	0.90	0.2982	2.72	-15.2365	-0.71
Debt-to-Assets	0.1367	0.57	0.2134	0.89	0.4144	4.14	0.1530	0.60
T+3	Buy-Back	T-Value	Restructuring	T-Value	Pre-Performance	T-Value	Constant	T-value
EBITDA	2456.9150	0.73	3368.1770	0.99	0.0500	0.91	-1747.9140	-0.51
EBIT	1642.5700	0.50	1893.1480	0.57	0.0839	1.75	-1177.2470	-0.35
ROA	-0.0078	-0.04	-0.0222	-0.11	0.1219	1.51	0.0693	0.34
Current Ratio	-0.5876	-0.18	-2.7249	-0.82	-0.0191	-0.03	4.1443	1.22
Interest Coverage Ratio	0.6278	0.02	-4.2961	-0.16	0.0268	0.21	9.0668	0.33
Debt-to-Assets	0.1423	0.55	0.2358	0.91	0.3592	3.26	0.1675	0.60

Appendix 6. Post-Performance: Buy-Backs Surviving 3 years

The table presents the financial characteristics for the sample buy-backs that survived three years after emerging from the bankruptcy procedure. The figures are at the beginning of each year post bankruptcy. The figures are in thousand SEK. Specific assets are defined as machinery and equipment, building and land, inventory and work in progress. Non-specific assets are defined as current assets less inventory. Intermediate assets are defined as the residual assets. Intangible, specific, non-specific and intermediate assets are reported as fractions of total assets. Non-current and current liabilities, as well as liabilities to credit institutions and accounts payable, are reported as fractions of total debt. Return on assets is calculated as EBIT divided by opening assets. Interest coverage ratio is calculated as EBIT divided by external interest expenses. Current ratio is calculated as current assets divided by current liabilities. All fractions of assets and liabilities and key ratios are equally weighted in order to eliminate size effects. The means and medians have been trimmed and then winsorized at 5 percent in order to eliminate outliers.

Characteristic	Number of Years After Bankruptcy Ending			
	+0	+1	+2	+3
Number of firms	77	60	60	60
<i>Percentage of emerging firms surviving</i>		78%	78%	78%
Income Statement				
Sales		19,134	21,313	20,944
EBITDA		654	912	823
<i>EBITDA-margin</i>		3.42%	4.28%	3.93%
EBIT		423	605	506
<i>EBIT-margin</i>		2.21%	2.84%	2.41%
<i>Fraction firms with negative EBIT</i>		0.38	0.32	0.38
Balance Sheet				
Total assets (book value)		8,060	8,339	9,237
<i>Intangible assets</i>		0.02	0.03	0.03
<i>Specific assets</i>		0.10	0.10	0.10
<i>Non-specific assets</i>		0.76	0.10	0.80
<i>Intermediate assets</i>		0.14	0.10	0.10
Equity		1,641	2,330	2,835
Debt		6,419	6,009	6,402
<i>Non-current liabilities</i>		0.19	0.17	0.16
<i>To credit institutions</i>		0.12	0.11	0.09
<i>Current liabilities</i>		0.81	0.83	0.84
<i>To credit institutions</i>		0.04	0.04	0.04
<i>Accounts payable</i>		0.22	0.20	0.19
Key Ratios				
Return on assets		4.56%	6.62%	5.65%
Interest coverage ratio		4.65	6.14	11.36
<i>Fraction firms with ICR < 1</i>		0.33	0.27	0.31
Current ratio		2.83	3.27	3.51
<i>Fraction firms with CR < 1</i>		0.26	0.15	0.20
<i>Fraction firms with CR < 0.5</i>		0.10	0.03	0.07
Debt-to-asset ratio		0.70	0.67	0.63

Appendix 7. Post-Performance: Restructurings Surviving 3 years

The table presents the financial characteristics for the sample restructurings that survived three years after emerging from the restructuring procedure. The figures are in thousand SEK. The figures are at the beginning of each year post restructuring. Specific assets are defined as machinery and equipment, building and land, inventory and work in progress. Non-specific assets are defined as current assets less inventory. Intermediate assets are defined as the residual assets. Intangible, specific, non-specific and intermediate assets are reported as fractions of total assets. Non-current and current liabilities, as well as liabilities to credit institutions and accounts payable, are reported as fractions of total debt. Return on assets is calculated as EBIT divided by opening assets. Interest coverage ratio is calculated as EBIT divided by external interest expenses. Current ratio is calculated as current assets divided by current liabilities. All fractions of assets and liabilities and key ratios are equally weighted in order to eliminate size effects. The means and medians have been trimmed and then winsorized at 5 percent in order to eliminate outliers

Characteristic	Number of Years After Restructuring Ending			
	+0	+1	+2	+3
Number of firms	418	154	154	154
<i>Percentage of emerging firms surviving</i>		37%	37%	37%
Income Statement				
Sales		37,735	40,218	39,613
EBITDA		1,169	964	1,485
<i>EBITDA-margin</i>		3.10%	2.40%	3.75%
EBIT		-95	-247	342
<i>EBIT-margin</i>		-0.25%	-0.61%	0.86%
<i>Fraction firms with negative EBIT</i>		0.36	0.38	0.38
Balance Sheet				
Total assets (book value)		25,228	24,879	23,697
<i>Intangible assets</i>		0.03	0.03	0.03
<i>Specific assets</i>		0.41	0.42	0.41
<i>Non-specific assets</i>		0.46	0.45	0.45
<i>Intermediate assets</i>		0.13	0.13	0.14
Equity		7,060	7,196	7,093
Debt		18,168	17,684	16,604
<i>Non-current liabilities</i>		0.26	0.25	0.21
<i>To credit institutions</i>		0.16	0.16	0.12
<i>Current liabilities</i>		0.74	0.75	0.79
<i>To credit institutions</i>		0.09	0.09	0.09
<i>Accounts payable</i>		0.19	0.20	0.22
Key Ratios				
Return on assets		1.77%	2.38%	2.92%
Interest coverage ratio		3.69	2.99	4.61
<i>Fraction firms with ICR < 1</i>		3.69	2.99	4.61
Current ratio		1.34	1.40	1.40
<i>Fraction firms with CR < 1</i>		0.31	0.30	0.35
<i>Fraction firms with CR < 0.5</i>		0.10	0.09	0.14
Debt-to-asset ratio		0.78	0.75	0.75