

Universität Hohenheim
Fakultät Wirtschafts- und Sozialwissenschaften
Bankwirtschaft und Finanzdienstleistungen
Diplomseminar SS 2010
Prof. Dr. Hans-Peter Burghof

**Regulatory Frameworks
And The Impact
On Corporate Restructuring**

Stuttgart, den 17. Mai 2010

Table of Content

1.	Introduction.....	3
2.	National Bankruptcy Laws	4
2.1.	The German Bankruptcy Law	4
2.2.	The US American Bankruptcy Law	5
2.3.	The UK Bankruptcy Law.....	6
3.	Comparison of the national bankruptcy laws.....	7
4.	Game Theoretic approach – voting rules	9
4.1.	Voting requirements in the regarding countries	9
4.2.	Simple Voting Games – SVG.....	10
4.3.	Logical consequences for the process of restructuring.....	14
5.	Conclusion	18

1. Introduction

Bankruptcy law differs between countries' jurisdictions. Therefore this paper will concentrate on three major insolvency codes: the United States (US), United Kingdom (UK) and German code. Within the framework of existing legislation the restructuring process of bankruptcy firms varies in these countries. E.g. the insolvency code in the US has the reputation to be very debtor friendly whereas the UK code has a reputation to be creditor friendly. The German law stands in the middle. In Germany secured and unsecured creditors obtain the same rights in the process from filing insolvency until the actual restructuring or liquidation takes place. Purpose of this is to avoid pre-mature liquidations; keeping a distressed firm alive. In the UK creditors have very strong rights. Under certain circumstances a receiver can be appointed without the approval of a court and liquidate important assets of the firm. In some cases the company can't accomplish the daily work anymore because important assets have been liquidated by the receiver with the consequence of pre-mature liquidation of the firm. In the US the debtor stays powerful even if the firm files bankruptcy. In Chapter 11 the management can stay and lead the company through troubled water as the so called debtor in possession. The philosophy is that no one else than the existing management knows the details about the firm and the market as good as the existing one and that a temporarily distressed firm has the ability to be strong and powerful in the future again if the correct steps are taken. Through negotiations between creditors and debtors during the insolvency process maintaining the firm as a going concern is achievable. A voting process by claimants takes place where the decision is made if a firm is going into restructuring or liquidation. Each type of legislation consists of other requirements to the voting rules in the insolvency process. Not alone that these requirements can be simply listed; the chances that this process is successful or not can be presented in a simple game theoretic approach. The most research on this field has been done in the political sector where the outcome of a voting process decides almost every decision. I am going to show how the voting process in insolvency law can be affected by its actors. The voting rules are vulnerable. Coalitions can form in a way that winning is guaranteed, but some laws are more resistant through their requirements than others.

In the first section of this paper I will show the legal requirements in the national bankruptcy law of Germany, the US and the UK. The second section shows similarities and differences between the codes. Section three is a game theoretic approach in insolvency law. It will be shown how legal requirements affect the outcome of a vote. Section 5 will conclude.

2. National Bankruptcy Laws

Each country which plays a significant role in the world economy is equipped with its own bankruptcy law. Differences between the codes are the result of the different understanding of law from a historical background. There is the Common law with its English origin and the Civil law with its Roman origin.¹ This paper will concentrate on three major insolvency codes, the German, UK and US American law. These countries were chosen because of their high importance. Germany as the largest economy in Europe, the UK as one of the largest financial center in the world and the USA as being the largest economy and of its outstanding importance and influence in the world. All codes include the following alternatives: liquidation and keeping the firm as a going concern. A firm should be liquidated if the payback in liquidation is higher than the reasonable value which will be earned if the firm is kept as a going concern.²

2.1. The German Bankruptcy Law

Before 1999 the German Bankruptcy law was split into three different codes. There was the compulsory liquidation (Konkursordnung), the composition proceedings (Vergleichsordnung) in the old German states and the Total Execution Act (Gesamtvollstreckungsverfahren) in the new German states. Compulsory liquidation was mainly used when firms got into financial distress. An insolvency administrator (Konkursverwalter) took charge of the firm and led it through the liquidation procedure which, in average, took 27.5 month.³ The purpose of the composition proceeding on the other hand was to maintain the firm as a going concern. It was rarely used. In 1992 only 0.3% of insolvencies were composition proceedings compared to 25% in compulsory liquidation. Strong legal requirements made firms rather chose to go into liquidation than proceeding.

This system could never prove its functionality and therefore a new insolvency code called Insolvency Statue (Insolvenzordnung) was passed in 1994 and came into effect in 1999. Access to composition proceeding was simplified. The time lapse from distress until insolvency proceedings was shortened and “the law of avoidance was intensified”.⁴ The position of unsecured creditors was enhanced. As well as the secured creditors also the unsecured credi-

¹ Cf. La Porta (1998), p. 1115

² Cf. Kaiser (1996), p. 67

³ Cf. Franks et al. (1996), p. 90

⁴ Remmert (2002), p. 1

tors are now part of the voting procedure.⁵ In general, the debtor and the creditor have the obligation to file a request for composition proceedings at the district court. Composition proceedings are not automatically opened after filing a request. The court appoints a preliminary administrator who decides if the company is worth as a going concern. If so, a formal/final administrator and a creditors' committee is appointed by the court. The administrator tries to keep the company running for additional three month. This automatic stay of three month "is designed to give the administrator and all interested parties an opportunity to share information so that efficient solutions can be achieved".⁶ During this period meetings are going to be arranged where the administrator informs the creditors about the firms economic situation. A plan of reorganization is proposed by the administrator. He attempts to offer different solutions as a workout plan, viz. complete liquidation as well as keeping the firm as a going concern in whole or in part. It is not only the administrator's obligation to design a work out plan. Also an alternative plan can be proposed by the debtor. However, this can only occur if the first plan from the administrator gets voted down. The creditors' assembly votes on the plan. Creditors are divided into voting groups of secured and unsecured creditors.⁷ The required majority is a simple majority by number and by claim in each group.⁸ It is prohibited by law that one group of creditors is treated worse by the plan than they have been without the plan. "This provides a guarantee that a large group of creditors cannot disadvantage other creditors".⁹ After approval from the court the plan becomes effective.¹⁰

2.2. The US American Bankruptcy Law

Chapter 11 and Chapter 7 describe the main bankruptcy procedures in US American bankruptcy law. Chapter 7 is meant for liquidation, Chapter 11 for reorganization of the corporation. US bankruptcy law has the reputation to be debtor friendly. Their attitude is that a management failure does not harm company's future success. The company stays in competition if it chooses to reorganize after Chapter 11. Both, the creditor and the debtor have the right to enter Chapter 11. After entering Chapter 11 the debtor has the sole right to propose a plan of reorganization if the court hasn't taken it away and passed it on to the creditor.¹¹ The debtor has 120 days to propose a plan and another 60 days for creditor's approval. There is an automatic stay of three month against all claims. Creditors and debtors negotiate about a plan of

⁵ Cf. Remmert (2002), p. 1

⁶ Franks et al. (1996), p. 90

⁷ Cf. § 222 InsO

⁸ Cf. § 244 InsO

⁹ Franks et al. (1996), p. 90

¹⁰ Cf. § 248 InsO

¹¹ Cf. Franks, Torous (1992)

reorganization. During this process the debtor has the opportunity to remain in charge as the so called 'debtor in possession'. "In almost half the cases, the existing management remains in control, and in the large majority of remaining cases, new management is appointed".¹² The option to appoint a trustee also exists. Reorganization ends when all creditors and courts approved the plan. Each class of creditors needs to reach a simple majority of creditors by number and two-thirds by face value of claims. If a majority is not achievable there is the option to "Cram-down". This is a special procedure where assenting classes overrule non-assenting classes.¹³ This eventuates when a particular class is about to withhold a decision which would be approved by all other classes. The impairing class must receive as much as they would in case of liquidation after Chapter 7.¹⁴

But most firms only enter Chapter 11 after an attempt of a workout outside of the bankruptcy process. Workouts are usually less time-consuming, cheaper and only the distressed liabilities are involved. Besides, court stays out of the company. On the other hand firms don't have the benefits through Chapter 11. Advantages are available through combining Chapter 11 with a workout. Tax benefits which are offered in Chapter 11 can be a very useful during the restructuring of firm's liabilities. "A firm files for Chapter 11 with a plan of reorganization which has already been accepted by the required number of claim holders".¹⁵

2.3. The UK Bankruptcy Law

The Insolvency code of the United Kingdom consists of four different methods. Before 1986 there was liquidation, receivership plus administrative receivership, and company voluntary arrangement (CVA). In the Insolvency Act of 1986 the method of administration was added. One specialty of the English insolvency code is that in every method the existing management is replaced and a licensed insolvency practitioner takes over. In liquidation the liquidator's task is to sell as many assets as possible to repay the creditors as beneficial as possible. The possibilities are (i) selling the firm as a going concern, (ii) non operating or (iii) piecemeal. Receivership and administrative receivership are mentioned together because of its similarity. The type of claim makes the difference. To appoint a receiver the creditor must hold a floating charge, e.g. stocks (Lagerbestände) or work in progress. The receiver's task is to realize the assets which secure the floating charge. The administrative receiver is in charge over the entire company's assets. He takes complete control over the firm and tries to gain enough value

¹² Franks et al. (1996), p. 89

¹³ Cf. Franks, Torous (1992), p. 76

¹⁴ Cf. Brouwer (2006), p. 12

¹⁵ Franks, Torous (1992), p. 76

to repay the floating charges. Receiver can only be appointed by secured creditors.^{16 17} It is not necessary that court or other creditors agree to the receiver. To keep the firm running the receiver can raise funds, “although any new borrowing will be junior to existing loans”.¹⁸ Another conflict lies in the fact that other creditors with fixed charges can repossess their assets even if they are vital to maintain the firm as a going concern. This forces the receiver to negotiations with the creditors. Solution is that creditors own both, fixed and floating charges. Since 1986 there is the possibility to appoint an administrator. Permission by court is required. Within a period of three month the administrator must propose a plan of reorganization which needs to be approved by all creditors. Difference to receivership is that all creditors can vote instead of only creditors with floating charges. Creditors prefer receiver because control rights are greater than in administration.¹⁹

Company Voluntary Arrangement (CVA) at its best is used together with administration. A practitioner is nominated who will supervise the development of a plan of reorganization which is reported to court. If practiced together with administration the administrator usually fulfills both roles. The practitioner has to present a report to court within 28 days. If the court approves the plan the creditors take a vote. “Approval of a scheme requires that three-quarters in attendance or voting by proxy vote in favor”.²⁰

3. Comparison of the national bankruptcy laws

Over the last 25 years lots of modifications have taken place in national bankruptcy laws. The USA’s bankruptcy code is known as the debtor friendliest code. The USA is the only country in the world where failing management can stay in charge. Besides almost all claims are stayed and new financing during reorganization has priority over existing claims. The debtor has strong rights during the bankruptcy process. The hope is that firms in financial distress are not immediately liquidated. The legislation wants to offer an incentive to keep the firm running. The direct costs of Chapter 11 proceedings are high. Court is heavily involved during the process and after a three month automatic stay firms can even extend the stay which happens often and is usually granted. In general the best location to be a debtor is the USA. A lot is done to prevent a premature liquidation of the firm. In Germany creditors take over control of the firm. There is an automatic stay against all claims: three month for secured claims and

¹⁶ Cf. Kaiser (1996), pp. 74-75

¹⁷ Cf. Franks, Torous (1992), p. 72

¹⁸ Franks et al. (1996), p. 88

¹⁹ Cf. Franks et al. (1996), p. 89

²⁰ Kaiser (1996), p. 75

unlimited stay for unsecured claims. Like in every code the rights of secured creditors are stronger, than unsecured creditor's rights. The bankruptcy procedure can be shortened by creditors but court is also heavily involved which leads to high direct cost but new financing is senior and therefore easier to get. In the UK secured creditors who possess a floating charge have the option to appoint a receiver who takes over control with significant power. Unsecured creditors must hope that if a receiver is called there will be enough assets left to liquidate after his job is done. It is not mandatory for the owner of a floating charge to call a receiver. But not calling a receiver must be profitable for the creditor with a floating charge. In receivership there is no automatic stay against claims. The costs are low in the UK because the bankruptcy process goes by quicker. In receivership there is no court involved, i.e. the receiver can get appointed without the approval from court. It is possible but not easy to raise new funds because the new funds will probably come from senior creditors and then will be junior. (See Table 1)

Table 1. Stylized Facts of the insolvency process in the regarding countries.

Stylized Facts ^{21,22,23}	Germany	UK – Administration & Receivership	USA – Chapter 11
Control Rights	Secured & unsecured Creditors	Secured & unsecured Creditors	Debtor in control
Automatic Stay	Automatic stay for unsecured; three month for secured	None in receivership, administrator has strong power to delay or stay claims ²⁴	All claims are stayed (exceptions e.g. lease payments)
New Funds	possible	Aggravated, new funds come from existing creditors and are junior	Easy, new funds are senior to existing claims
Direct Costs	high	Low in receivership, higher in administration	Rather high, court heavily involved
Duration	long	Short in receivership; rather longer in administration	long

²¹ Cf. Franks, Torous (1992), p. 74

²² Cf. Franks et al. (1996), p. 91

²³ Cf. Kaiser (1996), pp. 67-77

²⁴ Cf. Franks, Torous (1992), p. 74

4. Game Theoretic approach – voting rules

4.1. Voting requirements in the regarding countries

In Germany and the USA both the secured and unsecured creditors vote for or against a plan of reorganization if no outside workout took place. If the voters approve the plan the firm goes into reorganization, if the plan doesn't get approved the firm goes into liquidation or a second plan tries to get approval. In the UK only unsecured creditors vote because the secured creditors with a floating charge have already the right to appoint a receiver who either liquidates as much of the firm as needed to payback the creditor or he maintains the firm as a going concern. The needed majorities for approval differ though. Creditors are divided into classes, i.e. secured and unsecured creditors. There is the possibility that sub-classes of these classes build. In the USA and UK there is the exception that shareholders participate in the voting procedure as well. The more classes there are the more complex it gets because of room for formation of sub classes. In Germany there is a minimum of two classes, secured and unsecured creditors; shareholders don't participate. The same majority requirements apply for both classes. They need a simple majority of face-value of claim of those voting and a simple majority in number of those voting to approve a plan. In the US there is a minimum of three classes voting. The secured and unsecured creditors as well as the shareholders (owners) vote. To approve a plan the creditors need two-thirds in face-value of claim of those voting and a simple majority in number of those voting. The shareholders need to reach a two-third majority of value of those voting. This leads to even more room for formation building. In the UK there is the class of unsecured creditors and the class of the shareholders. The unsecured creditors need a qualified majority of three-fourth of face-value of claim of those voting. The shareholders need a simple majority.^{25 26} (See Table 2)

In order to make statements regarding a game theoretical approach we need to identify how these standards, in required majorities, affect the result of the vote.

²⁵ Cf. Franks et al. (1996), pp. 88-90

²⁶ Cf. Braham, Steffen (2003), pp. 421-423

Table 2. Requirements to vote in favor of a plan of reorganization²⁷

Country	Classes	Required majority
Germany ²⁸	Secured Creditors	>50% of face-value of claim of those voting and >50% in number of those voting
	Unsecured Creditors	As for secured
USA ²⁹	Secured Creditors	≥66.66% of face-value of claim of those voting and >50% in number of those voting
	Unsecured Creditors	As for secured
	Shareholders	≥66.66% of value of those voting
UK ³⁰	Unsecured creditors	>75% of face value of claim of those voting
	Shareholders	>50% in value of those voting

4.2. Simple Voting Games – SVG

Simple voting games (SVG) have been used to describe decision rules in all types of legislatures, committees and other political arbitrations. This concept is often used to forecast how decision makers decide. Most research is done on voting procedures in the European Parliament. Many decisions which are made in the European Union have been made before on a national level. These decisions are usually public knowledge. If it comes to a vote on the European floor the question is if the decision maker makes a different decision. This is most likely not the case. Therefore voters could affect the outcome of the vote. This thought could be transferred into the voting procedure in the bankruptcy process, e.g. if creditors have been in the same situation before. Maybe some creditors are more likely to vote against a plan because they want their assets back as fast as possible to invest in something else. They don't want to be stuck with a distress firm in reorganization. Maybe the interest rate somewhere else is higher than leaving the money in the firm. Other voters could notice this behavior and act different than they would have.³¹

²⁷ Cf. Franks et al. (1996), pp. 88-90

²⁸ Cf. Halsbury's Statutory Instruments (1991), pp. 257-258

²⁹ Cf. Balz and Landfermann (1999)

³⁰ Cf. Henry (1999), p. 213

³¹ Cf. Albert (2003), p. 353

In this case SVG are used to describe the voting power of creditors given through the different requirements to approve a plan of reorganization. A SVG concerns the a priori structure of rules, i.e. any legal consequences of the outcome is not regarded.³² Simple voting games are a good approach to describe voting rules but with a closer look it is obvious that SVG don't meet all the requirements to describe the full complexity, e.g. most voting rules consist out of more than one requirement. The German and US law contain a so called 'double' requirement. This means that two kinds of majorities have to be reached in the same vote. Otherwise the vote is not successful. It is not enough if just a certain quantity of face-value voted for the plan; it is also needed that a certain percentage of the participating voters vote in favor. To describe this issue there is the theory of compound or composite SVG. This theory combines several voting requirements.

First I want to start with the description of SVG. It all depends on a decision rule which can be formulated as: There is a n-member decision making body. This body can be denoted by a set $N = \{1, \dots, n\}$. The decision rule is a mapping of each agent's decision which leads to a group decision. In insolvency law it doesn't matter how every single voter votes. It matters how the group voted at the end. The goal is the approval of a plan. Therefore the decision rule expresses which subsets on N can ensure the acceptance of a plan.

Definition 1. (Braham, Steffen, 2003). (i) A *simple voting game* is a pair (N, W) where W is a collection of subsets of a finite set N , satisfying the following three conditions: $\emptyset \notin W$; $N \in W$; and (monotonicity) if $S \in W$ and $S \subseteq T$ then $T \in W$. (ii) By N is meant an assembly (or voting body) and is the largest set in W , its members are voters, and its subsets are coalitions. A coalition S is said to be winning or losing according to whether $S \in W$ or $S \notin W$. (iii) A coalition S is called a minimal winning coalition (MWC) if $S \in W$, but no subset of S is in W . The set of MWCs is denoted by W^m .

In this model we look at a group of voters. N (the whole voting body) consists of subsets. Related to voting rules in the bankruptcy process these groups are secured creditors, unsecured creditors or shareholders. From now on any group of voters is called "coalition". Definition 1 also states that a SVG can be represented by W . Sets in W are called winning coalitions, sets not in W are called losing coalitions.³³

³² Cf. Braham, Steffen (2003), pp. 423-424

³³ Cf. Taylor, Zwicker (1992), p. 1089

Because SVG can be described as an instance of a *game form* the outcome of the vote depends on *strategies*.

Definition 2. Let a *game form* be any scheme which makes an outcome depend on individual actions of some specified sort, which are called strategies. A voting scheme, then, is a game form in which a strategy is a profession of preference.³⁴

Definition 3. A *strategy* is if each player acts rationally according to the behavior of the other players.³⁵

In the voting procedure the strategy of each voter can only be either Yes or No. Either the voter is for or against the approval of the plan. The outcome of the vote can only be {0,1} which means “plan approval” or “plan refusal”.³⁶

Definition 4. (Braham, Steffen, 2003). Let W be an SVG on an assembly N . The characteristic function of W is a mapping $v: 2^N \rightarrow \{0, 1\}$ such that for any coalition S , $v(S) = 1$ if $S \in W$ and 0 otherwise.

The function v describes the total payoff that is available among the members of S .³⁷

If $v(S) = 1$, this means that a coalition is successful in the vote and the payoffs involved. As one may say v describes the total payoffs of the coalition, it is important to see that all voters get a payoff, not just the voters who voted for approval of a plan. Just because a voter voted against a plan which was approved later doesn't mean that he goes home with empty pockets. The voter lost the vote but the vote only expressed his wish on the future action. As one could say is that the winning coalition gets the payoff which they desired. The losing coalition gets at least the amount of money which they would have gotten in liquidation. The point is that “it is all about the division of the hypothetical value of the reorganized firm over and above its liquidation value”.³⁸ Creditors waive the repayments and therefore hold some or all the equity of the reorganized firm. Through the fact that in n -person cooperative games communication between voters and side payments are allowed, it is possible for the proposer of a plan to assemble a winning coalition.

³⁴ Cf. Gibbard (1973), p. 587

³⁵ Osborne/Rubinstein (2001), p. 14

³⁶ Cf. Braham, Steffen (2002), pp. 425-426

³⁷ Osborne/Rubinstein (2001), p. 257

³⁸ Braham, Steffen (2002), p. 425

In order to get closer to reality, which is still far off, we have to take a closer look at each claimant. The probability that every claimant holds the same claim is close to zero. Hence, we have to introduce the theory of Weighted Voting Games (WVG). If we suppose that every claimant has another claim and we also suppose that one share is one vote we can infer that each claimant has a different amount of votes. This can be described with the weight per claimant w_i .

Definition 5. (Braham, Steffen, 2003). (i) A SVG W is a WVG if there are non-negative weights (w_1, \dots, w_n) allocated to the voters and a quota $0 < q \leq \sum_{i \in N} w_i$ such that $S \in W$ iff $\sum_{i \in N} w_i > q$. (ii) A WVG can be represented by:

$$[q; w_1, \dots, w_n]$$

The weights w_i in WVG are the number of votes that each player has; the quota tells us how many votes are needed in order to win the game.³⁹

Like mentioned above the German and US bankruptcy law contain double requirements. Voters have to reach two separate majorities in one round of voting in each group of creditors. This means that each group has to reach the double requirements. To model a game like this the single SVGs have to be composed. Game Theory therefore has “a specific type of composite known as a *meet*”.⁴⁰

Definition 6. (Felsenthal, Machover, 1998). (i) Let m be a positive integer and let W^* be an SVG with assembly $I_m = \{1, \dots, m\}$. For each $i \in I_m$, let W_i be an arbitrary SVG. We now define an SVG $W^* [W_1, \dots, W_m]$ called the *composite* of W_1, \dots, W_m under W^* . Next, define the assembly N of $W^* [W_1, \dots, W_m]$ as the union of the assemblies N_i of the W_i : $N =_{\text{def}} \bigcup_{i=1}^m N_i$.

We refer to W^* as the ‘top’ and W_i as the i -th ‘component’ of the composite SVG

$W^* [W_1, \dots, W_m]$.

(ii) A *meet* of the W_i is denoted by $W_1 \wedge W_2 \wedge \dots \wedge W_m$ which is equal to a unanimity SVG $M_{n,n}$ on $[W_1, \dots, W_m]$, i.e. each component game must be won. If the assemblies N_i are pairwise disjoint then the meet is called a *product* of W_i and is denoted by $W_1 \times W_2 \times \dots \times W_m$

The first part of the definition helps us to understand how several SVG W_i can be combined into one expression. W^* is the composition of each W_i . To transfer this thought into the idea

³⁹ Cf. Osborne/Rubinstein (2001), p. 289

⁴⁰ Braham, Steffen (2002), p. 428

of voting for or against the approval of a plan W_i is a single SVG and therewith the vote which takes places in each group of creditors. W_i can be split another time to constitute the double requirement as well. In order to map the double requirement with weighted votes of the German and US insolvency rules the *meet* has to be written as $W_1 \cap W_2 \cap \dots \cap W_m$ (see (ii) in Definition 6). The double requirement is expressed in $W_1 \cap W_2$ because we only have two requirements to fulfill, the weighted rule and the numerosity rule. If this expression is split into its partitions this figure will follow: $[q_1; w_1, \dots, w_n] \cap [q_2; 1, \dots, 1]$. The first part is the weighted rule which has to be simultaneously reached as the numerosity rule in the second part. q again is the quota. Here it means the majority requirement in the vote, i.e. in Germany the simple majority and in the US the two third majority.

Criticism to this model could be that an influenced vote is being neglected. Maybe some voters vote in favor of someone else's desire. This can happen if certain voters are able to exert power on other voters. Another way would be if voters buy the vote of other voters to alter the vote outcome in their desired way. Communication between voters is allowed and side-payments are also permissible and feasible, from this follows that a vote is vulnerable in their outcome. Another aspect you may think is missing in this model is the fact that voters can be participate in a vote but with abstention from voting.⁴¹

To describe the latter case Felsenthal and Machover introduced the model of "Ternary Voting Games". It allows a third option. Besides Yes and No there is also the abstention from voting. But in most insolvency codes abstention from voting is counted as not participating in the vote and therefore not from any importance in this case.^{42 43}

4.3. Logical consequences for the process of restructuring

Before it comes to the question that voters decide about reorganization it is possible to make statements about the a priori probability that a proposal will be adopted. Coleman therefore introduced the 'power of collectivity to act'.

Definition 7. (Coleman, 1971). We put $A(W) \stackrel{\text{def}}{=} \frac{|W|}{2^n}$

The denominator of the fraction states that there is an assembly of n person to vote. These

⁴¹ Cf. Braham, Steffen (2002), pp. 421-429

⁴² Cf. Felsenthal, Machover (1997), pp. 335-336

⁴³ Cf. Depré et al. (2008), p. 1461

voters have the choice between Yes and No. Therefore A measures the success of W . This then leads to the linear transformation from Felsenthal and Machover:

Definition 8. (Felsenthal, Machover, 1998). We put $R(W) \stackrel{\text{def}}{=} \frac{2^{n-1} - |W|}{2^{n-1} - 1}$

This is known as a linear transformation of A which is called a *coefficient of resistance*. n is the number of voters and $|W|$ is the number/amount of winning coalitions. For the simple majority rule (with an odd number of voters) which has the same a priori probability in a positive or negative outcome $R = 0$; $R = 1$ for the unanimity rule which is the most resistant because the great coalition is needed. R gives information about if a rejected plan should have been approved and an approved plan should have been rejected. A high value of R is dangerous because it expresses that lot's of plans get rejected but should have been approved and a low value of A states that the probability that a plan get approved is really low, which both leads to the same conclusion. This theory mainly comes from the analysis of the political body but can be transferred into insolvency law.⁴⁴ The problem in insolvency law is that we don't know the components which are needed in the formulas to calculate A and R ; N , w_i and W^* [W_1, \dots, W_m] are unknown. A very important fact about weighted voting rules is "that if the quota is kept pegged at a constant percentage of the sum of the weights, and if that percentage is greater is than 50%, then as the number of voters increase the resistance tends to grow at an increasingly steep rate".⁴⁵ With this knowledge it is possible to make statements about voting requirements in the observed countries.

To make statements about logical consequences which spring from different legal requirements in the insolvency law we need to compare the requirements with each other. In Germany and the US the double requirements differ in the weighted requirement; the numerosity majority is the same, viz. 50% of those voting. This required simple majority can be expressed by:

Definition 9. (Felsenthal & Machover, 1998). Let $I_n =_{\text{def}} \{1, \dots, n\}$ be a 'canonical assembly'. Then for any positive integer k such that $k \leq n$, define $M_{n,k}$ as the SVG whose winning coalitions are just those subsets of I_n that have at least k members. As a matter of shorthand, we denote (i) the simple majority SVG as $M_{n,(n/2)+1}$, and (ii) the unanimity SVG as $M_{n,n}$.

⁴⁴ Cf. Felsenthal, Machover (2001), pp.456-457

⁴⁵ Ibid.

$M_{n,(n/2)+1}$ expresses the simple majority. $(n/2)+1$ always secures that more than 50% of n is reached. From this definition the German requirement can be expressed by

$[50; w_1, \dots, w_2] \not\sqsupseteq M_{n,(n/2)+1}$ because the German law requires two simple majorities as the double requirement. The weighted requirement depends on different weights from each creditor and therefore can't be simplified. The US law states that a two-third majority has to be reached in the weighted requirement. From this follows $[66.66; w_1, \dots, w_2] \not\sqsupseteq M_{n,(n/2)+1}$ (see table 2.) Now we can compare the two requirements and state that if the same classes of creditors exist which have the same legal requirements in the numerosity rule, then the probability that a plan of reorganization being approved in Germany is never less than in the US and the resistance R of the US rules will tend to be higher than the German rules as N increases. Recall from above that if the percentage is higher than 50% and the number of voters increases R will increase very quickly and tends to its maximal value. (see Definition 8, 9 ongoing)

Under certain assumptions this statement is correct, but in reality the fact that shareholders have the right to vote in the US as well is totally missed. Only secured and unsecured creditors were compared. The claim is therefore limited. A comparison to the UK law is also not possible because the UK law doesn't include secured creditors and doesn't obtain double requirements; the code only requires weighted rules. Therefore it also depends on each creditor's claim and therewith with his vote's weight w_i . From this follows that it is not possible to say where more winning coalitions exist and in which country (UK or US) the probability of approval of a plan is more likely.⁴⁶

From this statement you may say that the higher the quota q_i the less probable it is that a plan is being approved. The quote - as a reminder - is the needed percentage to approve a plan. (See Definition 5.) It seems also to be the case that the more component games there are the less probable it gets that a plan is being approved. The question now is what happens if coalitions form and alter the outcome of the vote. One assumption is that only minimal winning coalitions (MWC) will form. This assumption is not far off from reality because why should anything else but winning coalitions form? "In n -person, zero-sum games with side payments, participants create coalitions just as large as they believe will ensure winning and no larger".⁴⁷ The important step here is to allow the assumption from Definition 4 where we said that v describes SVGs as zero-sum games where only winning coalitions get a positive value; "the winner takes it all".⁴⁸ This is not totally transferable into the idea of insolvency law. If a coal-

⁴⁶ Cf. Braham, Steffen (2002), pp. 426-430

⁴⁷ Ricker (1992), pp. 32-33

⁴⁸ Braham, Steffen (2002), p. 425

tion votes not in favor of a plan of reorganization but the plan is getting approved they don't go home with zero. They get at least the value that they would receive on liquidation floor. The winning coalition then distributes the value gained through the approval among its members. The fewer members there are in the winning coalition the more value each creditor becomes in the distribution. If the coalition exists out of more members than needed to be a MWC the less value each member obtains after approval. "This provides a strong incentive for a winning coalition to pare off superfluous members"⁴⁹ before they defect. This leads to minimal winning coalitions MWC W^m . (see Definition 1.) If winning coalitions allow more members than needed they become vulnerable. Losing coalitions could try to get enough defectors to become a winning coalition. It is assumed that the members of MWC are completely and perfectly informed. Hence members of MWC know exactly how many members are needed to constitute a MWC. This is one major point of criticism. Complete und perfect information does not exist, therefore MCWs are unstable. To stabilize the MWC there are excess members as a security in case that other members are joining another coalition. This has the aim to always secure the amount of voters needed for a MWC. But the danger for the existence of MWC is limited anyways because the MWC is not vulnerable to defectors after court ratified the plan of reorganization. After this point the MWC can not collapse anymore.⁵⁰

Recall the conditions from the calculations of A and R (see Definition 7, 8). The numerator of the fraction $|W|$ was the amount of winning coalitions. It was just said that in theory only MWC W^m will form. From this could follow that $|W|$ can be replaced by W^m . But this is not the case. $|W^m|$ is only weakly decreasing in q . This means that as q increases - and the weights and the assembly stay stable - the number of MWC W^m may be the same or decrease. The number/amount of winning coalitions needed in the numerosity rule $M_{n,(n/2)+1}$ always decreases if the needed majority gets greater. An increase in q has an ambiguous effect on the weighted rule. The number of winning coalitions may rise or fall. If the required majority gets higher it doesn't follow that less MWC can be formed. Actually the number can increase. In general it would be the case that, if q raises more voters are necessary to form a MWC. This would lead to a reduction of $|W^{*m}|$ ($|W^{*m}|$ is the amount of winning coalitions in case that both, the weighted and numerosity rule is fulfilled). On the other hand it is possible that an increase in q makes some voters more important than they were before. As a result they are now in more MWC than they were before. This leads to an increase of $|W^{*m}|$. It can be stated

⁴⁹ Braham, Steffen (2002), pp. 434-435

⁵⁰ Ibid.

that again the outcome depends on N and the distribution of weights. From this follows that if the resistance R is measured by $|W^{*m}|$ it can be the case that the German and US rules have the equal resistance, if only MWCs form.⁵¹

5. Conclusion

The national bankruptcy law of each country is very important in terms of the stability of the distressed firms. Through the assumption that corporations exist forever it is undeniable that firms will suffer from financial distress in their lifetime. Each code has its advantages and disadvantages. The most important factors to judge a bankruptcy code should be the costs and the duration. Both are positive correlated because the longer the process of bankruptcy is the more expensive it gets for the already distressed firm. With this point of view there is potential for improvement in the US. On the other hand if countries develop a new insolvency law they adopt many attributes from the US code, e.g. the ability to reduce pre-mature inefficient liquidations through the implementation of automatic stays against claims. The problem here is that there is a trade-off between automatic stay and costs effects. The costs are lower if the process is fast but a fast process has the consequence of more pre-mature liquidations, viz. in the UK where receivership is quick but mostly leads into liquidation. Another important aspect is the position of the failed management. The debtor in possession in the US retains a strong position in the distressed firm whereas in Germany and the UK the management is fired and creditors take over control. The philosophy of the US is unique whereas in Europe the attitude of “once failing always failing” dominates. A similarity of all codes is that the creditors decide how the future will look like through a vote. The law gives the regulatory framework for the legal requirements of a vote. These requirements differ again from country to country. Higher required majorities and higher standards don't make the system resistible that voters can alter the outcome. As shown in this paper higher majorities may have the effect that even more MWC can build. Double requirements in votes are very important because if there is no numerosity rule there is definitely an incentive for arrangements under creditors. This could be seen as a lack in the UK law. The outcome of a vote is vulnerable by its actors, but vulnerable in a greater or lesser extent.

Each of the observed codes has its advantages and disadvantages for everyone who is involved. It is impossible to say which code is the best. There are attributes of each code which

⁵¹ Cf. Braham, Steffen (2002), pp. 436

are good and less good and if a new insolvency code gets developed it should be looked at the defects of the existing codes.

References

- Albert, Max (2003): The Voting Power Approach: Measurement without Theory, in: European Union Politics 2003, pp. 351-366
- Balz, M., Landfermann, H.-G. (Eds.). (1999). Die neuen Insolvenzgesetze. Düsseldorf: IDW-Verlag.
- Braham, Matthew/ Steffen, Frank (2002): Voting Rules in insolvency law: a simple-game theoretic approach, in: International Review of Law and Economics 22 (2003), pp. 421-442
- Brown, David T. (1989): Claimholder Incentive Conflicts in Reorganization: The Role of Bankruptcy Law, in: The Review of Financial Studies, Vol. 2, No. 1 (1989), pp. 109-123
- Brouwer, Martina (2006): Reorganization in US and European Bankruptcy law, in: Eur J Law Econ (2006) 22, pp. 5–20
- Depré, Peter/ Eikmann, Dieter/ Flessner, Axel/ Kayser, Godehard/ Kirchhof, Hans-Peter/ Keller, Ulrich (2008). Insolvenzordnung. C.F. Müller, 2008
- Felsenthal, Dan S./ Machover, Moshé (1997): Ternary Voting Games, in: International Journal of Game Theory (1997), Vol. 26, pp. 335-351
- Felsenthal, Dan S./ Machover, Moshé (2001): The Treaty of Nice and qualified majority voting, in: Soc Choice Welfare (2001), Vol. 18, pp. 431-464
- Franks, Julian R./ Torous, Walter N. (1992): Lessons from a comparison of US and UK Insolvency Codes, in: Oxf Rev Econ Policy. 1992; 8, pp. 70-82
- Franks, Julian R./ Nyborg, Kjell G./ Torous, Walter N. (1996): A Comparison of US, UK and German Insolvency Codes, in: Financial Management, Vol. 25, No. 3, Special Issue: European Corporate Finance (Autumn, 1996), pp. 86-101
- Gibbard, Allen (1973): Manipulation of Voting Schemes: A General Result, in: Econometrica, Vol. 41, No. 4 (Jul., 1973), pp. 587-601
- Halsbury's Statutory Instruments. (1991). Insolvency rules 1986 (Vol. 3). London: Butterworths.
- Henry, S. M. (Ed.). (1999). The portable bankruptcy code and rules: 1999. Chicago: American Bar Association.
- Insolvenzordnung (InsO)

- Kaiser, Kevin M. J. (1996): European Bankruptcy Laws: Implications for Corporations Facing Financial Distress, in: *Financial Management*, Vol. 25, No. 3, Special Issue: European Corporate Finance (Autumn, 1996), pp. 67-85
- La Porta, Raphael et al. (1998): Law and Finance, in *Journal of Political Economy*, 1998, vol.6, no.6, pp. 1113-1152
- Osborne, Martin J./ Rubinstein, Ariel (2001). *A Course In Game Theory*. Cambridge: MIT Press, 2001
- Remmert, Andreas (2002): Introduction to German Insolvency Law, in: *International Company and Commercial Law Review*, 2002, pp. 427-437
- Riker, W. H. (1962). *The theory of political coalitions*. New Haven: Yale University Press.
- Taylor, Allen/ Zwicker, William (1992): A Characterization Of Weighted Voting, in: *American Mathematical Society*, 1992, pp. 1089-1094