



Fairness in Sovereign Debt Restructuring

Christian Engelen

Johann Graf Lambsdorff

Diskussionsbeitrag Nr. V-50-07

Volkswirtschaftliche Reihe ISSN 1435-3520

**PASSAUER
DISKUSSIONSPAPIERE**

**Herausgeber:
Die Gruppe der volkswirtschaftlichen Professoren
der Wirtschaftswissenschaftlichen Fakultät
der Universität Passau
94030 Passau**

Fairness in Sovereign Debt Restructuring

**Christian Engelen
Johann Graf Lambsdorff**

Diskussionsbeitrag Nr. V-50-07

Volkswirtschaftliche Reihe ISSN 1435-3520

Adresse der Autoren:

Dipl.-Kfm. Christian Engelen
Professor Dr. Johann Graf Lambsdorff
Wirtschaftswissenschaftliche Fakultät
Universität Passau
94030 Passau

Telefon: (0851) 509-2444

Telefon: (0851) 509-2550

E-Mail: engelen@uni-passau.de

E-Mail: jlambsd@uni-passau.de

Für den Inhalt der Passauer Diskussionspapiere ist der jeweilige Autor verantwortlich.
Es wird gebeten, sich mit Anregungen und Kritik direkt an den Autor zu wenden.

Fairness in Sovereign Debt Restructuring

Christian Engelen and Johann Graf Lambsdorff ¹

University of Passau

August 07

Abstract

Experience from events of sovereign debt restructuring over the last decade exemplifies that the prevailing process is mainly shaped by exchange-offer launched by the debtor. This suggests that negotiations for changing the repayment terms of the debt take place in an Ultimatum Game which centres virtually the whole bargaining power on the debtor side. Creditors vote according to reservations values that might be influenced by fairness consideration both vis-à-vis the debtor and their fellow creditors. And as fairness is usually a highly subjective influence this can result heterogeneity of reservation values which might impede effective intra-creditor coordination for the benefit of the debtor.

¹ Johann Graf Lambsdorff holds a chair position in economic theory at the University of Passau, jlambsd@uni-passau.de. Christian Engelen is research assistant at the University of Passau, Germany, engelen@uni-passau.de. The authors can be reached at Innstrasse 27, University of Passau, D-94030 Passau, Germany. For valuable comments and helpful discussions, we are grateful to Bernhard von Stengel, an anonymous referee, the editor and the Brown Bag Sessions at the University of Passau. The authors alone are responsible for any remaining errors.

I. Introduction

Avoiding conflict of interest among creditors has always been a central aspect in the debate regarding an institutionalized restructuring process for an insolvent sovereign debtor (see Bank of England 2005 as well as Roubini and Setser 2004). Currently, this debate focuses on a market-based approach that centers on the inclusion of so called Collective Action Clauses (CACs) in emerging market bonds. These clauses would allow a supermajority of creditors to bind together in order to form a holdout minority in a proposed restructuring of defaulted debt. The goal is to secure inter-creditor equity by eliminating the incentives for a free ride. However, according to the nature of majority voting, the bound minority loses its bargaining power in the negotiation process. CACs thereby implicitly allow the fact that the negotiation process that occurs between the debtor government and the creditors will focus on the pivotal creditor whose acceptance will complete the necessary supermajority. Therefore, the majority voting might cause conflicts of interest among heterogeneous creditors (Bratton and Gulati 2003).

How do some creditors differ from others? As demonstrated by the Argentinean debt swap in 2005, this question seems to be more complex than some comments regarding the merit of the market-based approach without any third party moderation or coordination would suggest, (e.g., Kletzer 2003). In the course of this largest debt restructuring in history, different creditor groups, e.g., institutional investors, retail investors, vulture funds, proved to embrace substantially different views regarding both how to handle the negotiation process and what an acceptable exchange-offer should look like.² Ultimately, 24% of the creditors, especially the groups of vulture funds and foreign retail investors, rejected the offer made by the

² For a survey on the Argentinean default and its restructuring see Blustein (2005) and Damill et al. (2005).

Argentinean government.³ As this paper suggests, these two groups possessed totally different reasons to reject the offered repayment terms. While the vulture funds specialize in free-riding, the retail investors might have regarded the offer as unfair. This suggests that fairness considerations can be an additional source of potential heterogeneity among creditors. Findings from experimental game theory support the argument that heterogeneity in economic decision-making can be related to fairness considerations. For example, in the classical Ultimatum Game, a proposer makes a suggestion regarding how to divide a joint payoff, and a responder either accepts or rejects the proposal. A rejection of the proposal results in zero payoff for both players. Some responders accept small amounts, while others depart from the perfect payoff maximization by rejecting shares even larger than 20 percent (Camerer 2003: 49).

Taking this into consideration, this paper shows that an exchange-offer proposed by the debtor leads to reservations that might be influenced by fairness. Defining fairness as the aversion of inequality, we conclude that inequality of payoffs between debtor and creditors and also among different creditors or creditor groups can impact the outcome of the restructuring process. Our main contribution is to identify a potential source of heterogeneity among different creditors or creditor groups and the impact that this heterogeneity might have on the effectiveness of intra-creditor coordination in the course of different voting procedures. This paper begins with the bargaining framework surrounding the renegotiation process between a debtor government and its private bondholders (II.). Based on the experiences regarding heterogeneity from the Argentinean debt restructuring (III.), the analysis introduces inequality aversion as an additional cause of heterogeneity (IV.). This will lead to an analysis

³ Vulture funds usually buy defaulted sovereign debt on the secondary market far below face value and initiate litigation for full repayment. As this might threaten the success of the whole restructuring process, some examples of settlement payments to these funds have occurred. Retail investors, in contrast, consist mostly of individuals who invested their pension savings in Argentinean bonds shortly before the default.

of the resulting creditor payoffs in an exchange-offer with inequality among accepting and rejecting creditors (V.) and the employment of majority voting (VI.) as compared to a bondholder meeting (VII.).

II. Restructuring as an Ultimatum Game

Sovereign debtors receive credit from the international capital markets in order to finance governmental investments that are intended to foster the economic development of the economy. The repayment of the debt is guaranteed by tax revenues, which are expected to grow in the future. However, sometimes expectations are too high, or reality is unfavorable, which might result in the debtor traveling on a debt path that is not sustainable. A characteristic of this type of unsustainable development is that the present value of future repayment obligations is higher than the present value of future repayments that can still be regarded as sustainable in both economic and political terms. The debtor country is in a state of insolvency that necessitates restructuring the debt including a haircut that the private creditors must take on their claims. The goal is to return the debtor back to a sustainable debt path and thereby back to solvency.

The main difference for sovereign debtors from the insolvency of a private company is that the future repayments do not represent the maximum payment capability but rather the debtor's maximum payment willingness, which is strongly influenced by political sentiments. The reason for this is that sovereign debtors are not liable to any legal jurisdiction, which has led to very few cases of successful legal enforcement of contractual claims.⁴ Therefore, besides the threat of litigation, the incentive to avoid measures of economic punishment from creditors – like the temporal exclusion from the international financial markets – encourages the fulfillment of these obligations (Eaton and Gersovitz 1981). Political pressure can also act

⁴ See Sturzenegger and Zettelmeyer (2006: 72-73) for a list of such cases.

as an incentive for contractual conformity. Such pressure might come from multinational financial institutions or governments of countries that host the leading international financial centers.

This shows that the barrier to the insolvency of a sovereign debtor is at least partially determined by debtor government discretion. For example, in the case of the latest Argentinean debt restructuring, the debtor government under president Nestor Kirchner signaled its willingness to aim at an average primary budget surplus for the subsequent 25 years of 2.6% Gross Domestic Product (GDP) (GCAB 2005).⁵ However, the Global Committee of Argentina Bondholder (GCAB), which operated as an umbrella representation body for various committees of private creditors, based their valuation on a primary budget surplus projection of 3.3% GDP for the same time period. Based on the estimates of the committee, this difference in the primary surplus projections would have had an impact on the present value of future repayments equivalent to USD 17 billion. This shows that the process of sovereign debt restructuring includes the bargaining of a specific future repayment plan in a range between “minimum payment willingness” and “maximum payment capability”.⁶ The difference can be regarded as a “pie” that must be divided between the debtor and the creditors. Various models in bargaining theory reveal that the bargaining framework is the key to the division of the pie. Which side is allowed to make the first proposal? Who makes a second or even third proposal? How costly are rejections? Will an opportunity be provided for communication prior to making proposals? Is an independent third party involved for

⁵ “GCAB Investor Roadshow Presentation – July 2004”, available at www.gcab.org. This figure is calculated using identical assumptions for GDP growth.

⁶ Most of the models on sovereign debt restructuring recognize this difference between payment capacity and willingness (Haldane et al. 2002, 2005 and Ghosal and Miller 2003). The most prominent argument in favor of this difference is to provide an incentive for the debtor to undertake costly economic reforms because a positive difference would mean that the debtor country would participate in any improvement of the economic conditions of the country.

arbitration? These are the crucial issues that are organized by the bargaining framework, and they are essential to determine the bargaining power between the debtor and creditors (Camerer 2003: ca. 151-194).

How is bargaining currently structured? Different versions are suggested in the literature. Actually, this is the most crucial aspect of the discussion regarding an institutionalized mechanism for an orderly restructuring process of sovereign debt. The reason for this dispute is that the structure of bargaining has been changing as the debt profile of sovereign debtors evolves, particularly from bank loans to bonds as the primary source of external financial resources.

Motivated by the Latin-American debt crises of the 1980s, the advocates of a pure market based approach– which means no third party intervention into the crises resolution – are on one side, like Kletzer and Wright (2000).⁷ They assume that the bargaining power is one-sided and located with the creditors since they would propose the terms of any revised repayment schedule to the debtor.⁸ However, the experience with sovereign debt restructuring over the last decade tells a different story. Accompanied by the rise of bond markets as the major source for emerging market financing, the restructuring procedure has changed

⁷ In a sense, the case of the Argentinean debt restructuring should have been the first resolution process without major (third party) official sector intervention, e.g., by the IMF or other multinational institutions, and, therefore, should have been an example of this still evolving market-based restructuring process. However, due to commitment tactics, the case of the Argentinean debt exchange-offer introduced a caveat to this. The Argentinean exchange-offer received a participation rate of 76%. Since the bonds that were included in the restructuring did not provide the possibility for majority voting, the Argentinean government must receive all old bonds to resolve the default. Hence, continuing to launch further (possibly higher) exchange-offers until all bonds in default are exchanged would be a common procedure. However, through the inclusion of a “most favored creditor clause” in the new bonds and the passage of a law that prohibits the government from making a higher offer, Argentina generally committed itself to not making higher offers. This causes opacity with regard to the future of the rejecting creditors and thereby to the development of the market-based restructuring process (Porzecanski 2005, Scott 2006, and Miller and Thomas 2006).

⁸ Actually, this is also a necessary assumption to sustain their renegotiation-proof reputation equilibrium.

substantially toward a process of exchange-offers proposed by the debtor to its creditors (Roubini and Setser 2004). This offer mostly comprises the swap of old bonds for new ones containing revised financial terms for repayment. The creditors then can solely choose between acceptance and rejection.

Miller and Garcia-Fronti (2003) and Dhillon et al. (2006) seized this topic and analyzed the Argentinean debt restructuring of February 2005 in the tradition of Bulow and Rogoff (1989) by applying the concept of a Rubinstein Game with alternating offers. In this game, the creditor can also solely decide between acceptance and rejection of the offer made from the countervailing party. However, if he rejects the proposal in the current period, he becomes the one to propose in the next period. So, both parties, proposer and responder, know that if the game moves to the next round of bargaining, they will switch positions.

When applied to the case of the Argentinean debt restructuring, the authors interpreted the reaction from the GCAB after the debtor made its first offer in Dubai (2004) to be such an alternating offer.⁹ However, the final result of the Argentinean debt restructuring questions the interpretation of a Rubinstein Game. The committees recommended its members to reject the second offer made by the debtor and tried to get involved in a bilateral dialogue by offering what they regarded as acceptable terms. However, the Argentinean government simply ignored these proposals and continued with their unilateral approach. Ultimately, a large majority of creditors accepted the Argentinean proposal despite the lack of dialogue between the debtor and the creditors (“A victory by default? - The successful restructuring of Argentina's debts has set a painful new benchmark for creditors”, *The Economist*, 5. March 2005). This means that, although the committees might have had a different perception of their role, they simply did not have the power to become a bargaining participant in such a

⁹ The GCAB, as the representation body of private creditors at that time in line with the credit markets, strongly dismissed this repayment offer and demanded more than double the size of the proposal.

Rubinstein Game.¹⁰ Apparently, the debtor government did not care about the representation bodies as long as the majority of creditors would accept their offer. However, this does not mean that a debt restructuring can never become a Rubinstein Game, but it would require a high degree of effective coordination among different creditor groups. The representation body is a serious player in the bargaining process only if it can make a credible threat to impose sanctions, such as advancing to the next renegotiation round in case the offer is too low. An example of a representation body of private creditors that exhibited this type of credibility is the Bank Advisory Committees from the 1980s. They guaranteed a high degree of coordination among the creditor banks during the restructuring process (Rieffel 2003).

However, what kind of bargaining framework was used in the case of Argentina? The Argentinean government refused to participate in a clearly structured negotiation process but rather unilaterally proposed the following two repayment offers: the Dubai and the Buenos Aires proposal.¹¹ The Dubai was merely a public announcement of the key details for a possible exchange-offer and was presented in 2004 at the IMF/Worldbank meeting in Dubai. These details were strongly rejected by the creditors. The second, slightly improved proposal was made at the beginning of 2005 with a six-week tender period, during which 76% of the creditors exchanged their old bonds for new ones, thereby accepting an implicit haircut on the nominal value, including past due interest, of around 70%. With regards to the bargaining framework, these facts suggest an Ultimatum Game framework between the debtor government and the creditor side, at least for the creditors lacking a powerful representation.,

¹⁰ Dhillon et al. (2005) suggested that this disempowerment was at least partially caused by New York investment funds that took over as a negotiating counterparty at considerable cost to the average creditor as they admit.

¹¹ Other examples of unilaterally proposed exchange-offers are the debt restructurings in Pakistan (1999), Ukraine (1998-2000), Ecuador (1999-2000), Russia (1998-2000), Moldova (2002), Uruguay (2003), and the Dominican Republic (2005). For a detailed description of the restructuring terms offered see Sturzenegger and Zettelmeyer (2006).

In contrast to a Rubinstein Game, the positions of proposer and responder remain the same in case of rejection in an Ultimatum Game where negotiation rounds advance. Therefore, total bargaining power in the next stage will again be on the side of the current proposer. Hence, the decisive difference between a Rubinstein Game and an Ultimatum Game is that in the latter one only one side makes proposals for the division of the pie. Apart from rejection, the receiving side, therefore, has no influence on the shares offered. Actually, the GCAB admits this lack of influence in the approach to the second and final offer. In its last investor road-show presentation, it stated, “Argentina has not engaged in constructive dialogue with leading creditor groups. The current proposal does not reflect any input from GCAB.”, GCAB (2005).

III. Heterogeneity among Creditors

In bargaining theory, the subgame perfect Nash equilibrium in an Ultimatum Game is quite unspectacular. In such a game, the proposing side exhibits the whole bargaining power and can, therefore, secure virtually the whole pie. However, why did a majority of creditors accept the offer while a minority rejected the offer? This would imply heterogeneous reservation values among creditors. Apparently, the groups of foreign retail investors and vulture funds must have possessed higher reservation values than the other creditor groups since they mostly rejected the offer (Sgard 2005 and Gelpern 2005).

Haldane et al. (2005) presented a model containing different holdout costs among creditors caused by different investment horizons, compensation structures, or different degrees of risk aversion. Although not explicitly stated by the authors, the same rationale would also be valid for differences in litigation costs (e.g., due to judicial experience) among creditors. These different holdout-costs translate into heterogeneous outside options, e.g., net proceeds in the

case of litigation.¹² However, as each creditor accepts an exchange-offer only if it is higher than his outside option, different reservation values with the lowest holdout cost comprising the highest reservation value result. When applied to the case of the Argentinean debt restructuring, this argument might be convincing to justify the behavior of vulture funds and other so-called bottom-fishers as these investors are highly specialized in the handling of distressed debt. However, it is not truly convincing in the case of the retail investors. Actually, retail investors tend to have relatively higher holdout-costs as compared to institutional investors due to a higher degree of risk aversion or less experience in litigation. Therefore, according to Haldane et al. (2005), this creditor group should have an even lower reservation value than the institutional investors.

Therefore, some commentators suggest that the retail investors lacked the ability for sophisticated information processing of the economic data (Gelpern 2005 and Salmon 2004). This would lead retail investors to a wrong supposition regarding the maximum that could be achieved in this type of negotiation process. This uncertainty would be amplified when creditors prefer to follow the choice of the majority of creditors but are uncertain about what others will do (Engelen and Graf Lambsdorff 2005). Understandably, households often do not have the ability and knowledge to realistically assess these issues. Nevertheless, this argument is not completely sound because badly informed retail investors may also erroneously accept a low offer. Whether an average lack of information increases rejection or not remains indeterminate.

Finally, some sources also argued that the side deals that were offered to some creditor groups

¹² Since legal enforcement of debt claims by a sovereign entity is limited, very few cases of successful holdout litigation in recent sovereign debt restructurings have occurred (Sturzenegger and Zettelmeyer 2006 and Miller and Thomas 2006). Furthermore, as these cases involved complex legal strategies to achieve the resulting enforcement, different litigation costs might be essential in explaining heterogeneity among creditors.

would have been a decisive element in this restructuring, thereby leading to heterogeneous behavior.¹³ Although such deals are hard to judge and are not typically publicly announced, such elements surely occurred between the government and the Argentinean pension funds. Unquestionably, these deals have influenced the pension funds' early decision to accept the second offer. However, this logically was not solely responsible for a participation rate of 76% since this would imply that all but the rejecting creditors would have benefited from such side deals; this is an argument that is not truly convincing.

IV. Fairness and Reservation Values¹⁴

An alternative argument for the decision by the retail investors to reject the offer made by the Argentinean government is that this offer was considered unfair. Experimental game theory shows that such considerations influence the economic decisions that people make. Especially in the Ultimatum Game framework, the theoretical equilibrium has become a rare result. Many experiments have illustrated that on average a 60/40 offer characterizes the results in contrast to 99/1 (Berninghaus et al. 2006: 221-224). An unfair offer of 80/20 is rejected in about 25% of all cases. This relation can further change due to factors like gender, academic major, race, testosterone level, or cultural background (Camerer 2003: 64-74). Based on these findings, some models from the field of behavioral game theory have evolved aiming to capture preferences for equity as opposed to pure income maximization. Precisely these considerations can impact the renegotiation of sovereign debt.

¹³ E.g., Sturzenegger and Zettelmeyer (2005: 40) noted the following in their assessment of the quasi-par bond that was offered in the Argentinean debt restructuring: "This bond was issued in indexed pesos only and targeted specifically to local pension funds, which were coaxed into an agreement under which they received the quasi par bond along with regulatory benefits."

¹⁴ Although somewhat limiting, the terms fairness and social preferences are used interchangeably in the course of this analysis.

In order to analyze this impact of fairness considerations on the creditor decision, we apply the model of Fehr and Schmidt (1999), which achieved great success in explaining experimental results. This model is based on a consideration of inequality aversion — envy in case of disadvantageous inequality and guilt in case of advantageous inequality. We assume a repeated Ultimatum Game, which, due to a high discount on future payments, boils down to a simple decision by the creditor to accept some unfairness now or see the pie shrink. Apparently, this decision is similar to a one-shot Ultimatum Game.¹⁵

A pie of value 1 is to be divided between a debtor and each of his $n+1$ creditors. The debtor offers $\omega \in (0,1)$ of the pie to each creditor.¹⁶ In case the creditor rejects the offer, the debtor will make a new offer, $\hat{\omega} > \omega$, in the next period. However, since the continuation of bargaining incurs costs to both parties, the future bargaining results are discounted by $\delta \leq 1$.¹⁷ We assume that the discount rate is rather large, so that $\omega > \delta\hat{\omega}$. This leads to the following value function for creditor i if he accepts the exchange-offer:

$$(1) \quad V_i^a(\omega) = \omega - \alpha_i(1 - 2\omega) - \beta_i(1 - a')(\omega - \delta\hat{\omega})$$

This value function consists of three components. The first describes the pure monetary value of the exchange-offer. Concerning the three subsequent terms, some working assumptions were necessary. In laboratory experiments, players observe the income of other players and view their own payoffs in comparison to these. In reality, such a reference group of other

¹⁵ Experimental studies have shown that, due to a reputation argument, the average behavior is more competitive and that conflict rates are higher when subjects play against the same opponent repeatedly (Slembeck 1999). For simplicity, however, we disregard these reputation effects.

¹⁶ The debtor in default is unlikely to offer more than half of the pie, which is a result that is seldom observed in experimental Ultimatum Games.

¹⁷ A discount rate below unity indicates that the pie is decreasing over time so that an efficient outcome requires an immediate settlement. However, as Dhillon et al. (2006) showed in their analysis, the pie is possibly increasing over time as the debtor experiences a substantial economic recovery. In this situation, waiting from both sides would be value enhancing so that efficiency requires a settlement in the future.

players is more difficult to determine. We posit that each player (creditor) compares his own income to the income that the debtor obtains from him but feels indifferent about how much money the debtor obtains from others.¹⁸ Thus, if a creditor is given an unequal share, i.e., less than $\omega = 0.5$, he envies the debtor by $\alpha_i(1 - 2\omega)$. The parameter $\alpha_i > 0$ captures the aversion of the creditor for disadvantageous inequality (envy). This parameter is multiplied with the difference of the debtor's income from bargaining ($1 - \omega$) and that of the creditor (ω).

Each player (creditor) also compares his own income to that of his fellow creditors. The logic could be that all creditors' actions help to discipline the debtor. Therefore, free-riding on the joint goal of sanctioning the debtor might induce sentiments of guilt, which is captured by $\beta_i(1 - a')(\omega - \delta\bar{\omega})$. The parameter β_i depicts the aversion to advantageous inequality vis-à-vis other creditors (guilt). Standard assumptions are $0 \leq \beta_i < 1$ and $\beta_i \leq \alpha_i$. Guilt is felt toward those creditors that reject the offer, leaving them the reduced income $\delta\bar{\omega}$. Their absolute share is denoted by $0 \leq a \leq n$, but, for the sake of convenience, we write the relative share $a' = a/n$ with $0 \leq a' \leq 1$. We introduce the working assumption that the representative creditor cares as much about comparisons of his own income to that of all other creditors as comparisons with the debtor. This is an arbitrary assumption. While empirical research would have to determine its adequacy, we feel that it is not totally at odds with intuition. Due to the working assumption, the last term is multiplied by a' . Obviously, if $a' = 1$, fairness has an influence on the value for the creditor, except when $\omega = 0.5$, which indicates that the debtor offers an equal sharing. For the sake of simplicity, we disregard exchange-offers $\omega > 0.5$. Theoretically, such offers might induce creditors' feelings of guilt vis-à-vis the debtor, but little relevance exists for such concerns.

¹⁸ This judgment seems firmly based on experimental findings that third party income has little impact on the outcome in Ultimatum Games (Camerer 2003: 80-81).

In contrast, if the representative creditor rejects the offer, he obtains:

$$(2) \quad V_i^r(\omega) = \delta\widehat{\omega} - \alpha_i(\delta - 2\delta\widehat{\omega}) - \alpha_i a'(\omega - \delta\widehat{\omega})$$

Comparable to the value for acceptance, this term includes the monetary value of the (higher) offer in the next period and the envy that the creditor will bear vis-à-vis the debtor. However, as the present value of this future offer is below the current offer, the creditors that reject the offer in the current period will also envy the accepting fellow creditors. This is depicted in the third term and depends on the share of fellow creditors that accepted the current offer. Comparing the value function in (1) and (2), the decision that is taken by the fellow creditors clearly influences the payoffs of acceptance or rejection.

The creditor will accept the exchange-offer made by the debtor if:

$$\omega - \alpha_i(1 - 2\omega) - \beta_i(1 - a')(\omega - \delta\widehat{\omega}) \geq \delta\widehat{\omega} - \alpha_i(\delta - 2\delta\widehat{\omega}) - \alpha_i a'(\omega - \delta\widehat{\omega})$$

$$(3) \quad \varpi \geq \delta\widehat{\omega} + \frac{\alpha_i(1 - \delta)}{[1 + (2 + a')\alpha_i - \beta_i(1 - a')]}$$

Proposition 1: As a creditor's concern for envy increases, that is, the higher α_i , the offer by the debtor needed for inducing acceptance also increases. The proof follows directly from equation (2).

Proposition 2: Creditors will base their decision whether to accept the exchange-offer on the behavior of their colleague creditors. Acceptance by others may induce acceptance by the representative creditor.

Proof: If $a' = 1$, the expression simplifies to:

$$(3') \quad \varpi \geq \delta\widehat{\omega} + \frac{\alpha_i(1 - \delta)}{[1 + 3\alpha_i]}$$

In contrast, if $a' = 0$, the second term in (2') increases due to the decreasing denominator:

$$(3'') \quad \varpi \geq \delta\widehat{\omega} + \frac{\alpha_i(1-\delta)}{[1+2\alpha_i-\beta_i]}$$

For a given offer ω with $\frac{\alpha_i(1-\delta)}{[1+2\alpha_i-\beta_i]} \geq \varpi - \delta\widehat{\omega} \geq \frac{\alpha_i(1-\delta)}{[1+3\alpha_i]}$, the representative creditor bases

his decision on that of other creditors. He will follow the herd. This effect relates to his dislike for a difference in his income as compared to that of his fellow creditors. He dislikes rejecting if others obtain higher income by accepting. However, he also dislikes accepting while the others engage in jointly penalizing an unfair debtor. The following alternative explanation for why creditors “run with the herd“ has been suggested by Engelen and Graf Lambsdorff (2005): The fixed costs of lawsuit and political campaigns can be shared among creditors, reducing individual costs and the willingness to reject, which increases as more colleague creditors accept an offer by the debtor.

We note in passing that the more diverse the creditors are with respect to the aversion to inequality, the more heterogeneous are their reservation values. As retail investors are in general perceived to react more emotionally than institutional investors, this might suggest a possible explanation for their behavior.

V. Herding and Intra-Creditor Fairness

When the debtor extends an exchange-offer, he can use certain contractual elements in order to support acceptance among creditors. For example, in the Argentinean debt restructuring, the debtor employed a most favored creditor clause, which is contingent bonus payments and exit consents with the goal to achieve a more favorable outcome.

The most favored creditor clause should guarantee to every creditor that accepted the offer in

the first place participation in any potential improvement that would be offered to the remaining creditors. So the accepting creditors would receive an additional payment in the case that some holdouts continued to successfully negotiate with the debtor. However, this clause was not flawless as it includes ways to circumvent this contractual commitment. Additionally, the Argentinean government announced the extension of the volume of the most preferred par bonds that can be interpreted as a contingent bonus arrangement. Because the par bonds offered were distributed among the accepting creditors, this was an incentive to favor a participation rate just above the threshold for the larger amount but not higher as this would reduce their personal share of par bonds. Finally, the debtor used exit consents to support the acceptance of his exchange-offer by threatening to change the non-financial terms of the bonds. As control of a super-majority of the bonds is usually sufficient, even under U.S. law, to change the non-financial terms of the bond (e.g., the listing on a secondary market), this is a threat to a rejecting minority. A debtor may fail to bind in this minority in the change of the financial terms. However, he can threaten to modify non-financial terms and reduce the value of their bonds. Therefore, the question of how much influence can fairness in the form of inequality aversion have on the effect of those contractual elements is interesting.

All these additional contractual arrangements employed in the Argentinean debt restructuring had one common element, which is that all would increase the difference of nominal payoffs to creditors that fail to vote collectively. Hence, all of these clauses aim at increasing the inequality of payments between accepting and rejecting creditors. Consequently, fairness considerations in the form of intra-creditor inequality aversion alter the reservation value of the respective creditor and foster herding behavior:

$$\begin{aligned}
& \omega - \alpha_i(1 - 2\omega) - \beta_i(1 - a')(\omega + \varepsilon - \delta\widehat{\omega}) \geq \delta\widehat{\omega} - \alpha_i(\delta - 2\delta\widehat{\omega}) - a'\varepsilon - \alpha_i a'(\omega + \varepsilon - \delta\widehat{\omega}) \Leftrightarrow \\
(4) \quad & \omega \geq \delta\widehat{\omega} + \frac{(1 - \delta)\alpha_i}{(1 + (2 + a')\alpha_i - \beta_i(1 - a'))} - \frac{((1 + \alpha_i)a' - \beta_i(1 - a'))\varepsilon}{(1 + (2 + a')\alpha_i - \beta_i(1 - a'))}
\end{aligned}$$

In this case, the term ε captures the effect of contractual elements that aim to increase the inequality in payments if creditors can not coordinate on a collective vote. As all of these contractual elements have the same impact, this ε can be interpreted either as a bonus payment to the accepting creditor due to the effect of a most favored creditor clause or as a loss to the rejecting creditors due to the effect of exit consents. Thereby, if ε is interpreted as a bonus payment for the accepting creditors, the first two terms on the left hand side would be altered as the bonus payment would increase the monetary value of the current offer. This would make accepting even more favorable. However, for simplicity, we abstain from this detailed differentiation between certain contractual elements. As for the herding effect, only the difference in payoffs between accepting and rejecting creditors is decisive. This shows that once acceptance is sufficiently high, ($a' > \frac{\beta}{\alpha_i + \beta}$), the effect of herding is amplified so that the reservation value decreases, which benefits the debtor.

Proposition 3: If the debtor employs contractual elements that increase the difference in payoff between accepting and rejecting creditors, then these elements will foster herding behavior.

Proof: If $a' = 1$, the expression (3) gives:

$$(4') \quad \varpi \geq \delta \widehat{\omega} + \frac{\alpha_i(1-\delta) - (1+\alpha_i)\varepsilon}{[1+3\alpha_i]}$$

In contrast, if $a' = 0$, the term increases to:

$$(4'') \quad \varpi \geq \delta \widehat{\omega} + \frac{\alpha_i(1-\delta) + \beta_i\varepsilon}{[1+2\alpha_i - \beta_i]}$$

A comparison of the above terms with (3') and (3'') shows that, as long as $\varepsilon > 0$, the herding effect among creditors is amplified. The reason for this is that, in the case that all fellow

creditors accept the offer ($a'=1$), rejecting becomes even less favorable for the single creditor than in (3') due to the disadvantageous effect of the additional contractual elements. Therefore, the single creditors will accept an even lower current exchange-offer if he believes that all fellow creditors will accept as well. In contrast, for the case that all creditors reject the current offer, the single creditor will need a higher exchange-offer to induce him to diverge from his fellow creditors. The amplification of this herding results from the fact that deviation from the majority of the fellow creditors is more costly as the additional contractual elements widen the payoff difference between accepting and rejecting creditors.

VI. Fairness and Majority Voting

After years of intensive debate, experts agree that the employment of majority voting is a crucial element to avoid conflict of interests among creditors or creditor groups. The concept of majority voting is based on the desire to protect the restructuring from the potentially disruptive influence of vulture funds. This should be achieved by the coercive inclusion of the holdout creditor in the debt swap as long as a sufficient majority of creditors accepted the restructuring terms. Motivation for this is based on the fact that, as long as the legal claims are at least theoretically enforceable, every creditor can veto the restructuring and demand the full repayment. So if the group of vetoing creditors is small enough, the debtor may find that paying these holdouts in full is advantageous and then finishes the restructuring with the other creditors. However, since this free-riding by a minority contradicts the concept of intra-creditor equity, the inclusion of CACs – and thereby a majority voting – should help to mitigate a potential conflict of interests among creditors.¹⁹ Therefore these CACS are the key

¹⁹ Some scholars question whether CACs increase the efficiency of the renegotiation process. For example, Haldane et al. (2005) presented a model of bilateral bargaining with two-sided information asymmetries. In this context, the inclusion of CACs reduces the probability of reaching an agreement in the first period, thereby increasing the inefficiency of the bargaining process.

element of the market-based approach of crises resolution.

CACs usually allow a certain supermajority to change the financial terms and thereby reduce the contractually agreed debt repayments. So, if there are CACs included in the bond contracts, the debtor targets the supermajority threshold to achieve success with his exchange-offer. As we have demonstrated, the debtor, therefore, needs to offer at least the reservation value of the pivotal creditor who is necessary to fulfill this supermajority. Following from equation (3), as the remaining creditors are bound once the necessary acceptance rate is reached, the pivotal creditor's decision becomes:

$$\omega - \alpha_p(1 - 2\omega) \geq \delta\bar{\omega} - \alpha_p(\delta - 2\delta\bar{\omega}) - \alpha_p a'(\omega - \delta\bar{\omega})$$

(5)

$$\omega \geq \delta\bar{\omega} + \frac{\alpha_p(1 - \delta)}{[1 + (2 + a')\alpha_p]}$$

The decisive difference for equation (3) is that the pivotal creditor implicitly votes for the rest of the rejecting creditors because if he accepts the financial terms as offered, all rejecting creditors are bound. In contrast, if he rejects, the debtor can not gain the necessary support so that the financial terms of the bond remain unchanged. Therefore, the pivotal creditor can never feel guilt for the rejecting creditors, so the term on the left side lacks this influence, which reduces his reservation value.

Proposition 4: When CACs are employed, intra-creditor inequality aversion reduces the pivotal creditor's reservation values. The proof follows directly from the difference between equations (3) and (5).

So, the employment of majority voting clauses reduces the nominal amount that is necessary to make the pivotal creditor indifferent between accepting and rejecting as compared to a situation without such clauses.

VII. Fairness in a Bondholder Meeting

However, the exchange-offer is not the only possible structure for a bilateral restructuring process. Alternatively, the voting can take place in a bondholder meeting. The main difference between an exchange-offer and such a meeting is that, in a bondholder meeting, creditors can conditionally accept an offer based on the decisions of other creditors. Therefore, the set of feasible strategies is increased. Acceptance would be conditioned commonly on a supermajority also accepting. Therefore, the choice of the pivotal creditor affects the payoffs to all fellow creditors regardless of their acceptance or rejection of the offer. If majority voting is employed, this pivotal creditor is the one that completes the threshold level.²⁰

The pivotal creditor, therefore, determines collective behavior because an acceptance rate below the voting threshold is not sufficient to change the financial terms of the bond. The other accepting creditors get the new terms proposed only if the pivotal creditor accepts. In contrast, in an exchange-offer, the creditors who accepted receive the new bonds independent of the pivotal creditor's decision. So, in an exchange-offer, the acceptance rate can become a variety of values. In a bondholder meeting, however, the overall acceptance can only be either zero or one. This means that, as the pivotal creditor's decision applies to all fellow creditors, acceptance becomes favorable when:

$$\omega - \alpha_p(1 - 2\omega) \geq \delta\hat{\omega} - \alpha_p(\delta - 2\delta\hat{\omega})$$

(6)

$$\omega \geq \delta\hat{\omega} + \frac{\alpha_p(1 - \delta)}{[1 + 2\alpha_p]}$$

Proposition 5: If creditors vote in a bondholder meeting, the pivotal creditor's reservation

²⁰ If no majority voting is employed, then the creditor with the highest reservation value is the pivotal creditor as unanimity among creditors is required to change the financial terms of the bond.

value is not affected by herding among creditors. The proof follows directly from the difference between (5) and (6).

The lack of herding is caused by the fact that the pivotal creditor's decision is binding for all fellow creditors irrespective of whether he accepts or rejects the terms proposed. As revealed by (6), this increases the reservation value demanded by the pivotal creditor and, thus, the overall offer that a debtor must make. The reason rests with the fact that a rejecting pivotal creditor can not experience envy towards accepting colleagues, as his decision forced them equally into rejection.

VIII. Conclusion

Up to now, the debate about an institutionalized process for restructuring sovereign debt has generally remained vague regarding the question about the specific structure of the negotiation processes between a debtor and its private creditors. However, the most prominent common element of all restructuring processes over the last few decades between a sovereign debtor and its private creditors has been that the debtor launches an exchange-offer that can be either accepted or rejected by the creditors. This suggests that the bargaining framework takes the form of an Ultimatum Game with only minor outside options since third party enforcement seems to be limited. As commonly found in an Ultimatum Game, the equilibrium strategy for the single creditor is characterized by a reservation so that the creditor accepts any exchange-offer above that threshold level. Furthermore, taking into consideration the experiences from the most recent Argentinean restructuring process, these reservations might be heterogeneous among different types of creditors.

Following the arguments made in this essay, heterogeneity concerning fairness consideration might be a possible influence that can lead to different reservation values. The more the

creditor envies the debtor in an unequal sharing of the surplus from the resolution of the debt dispute, the higher his reservation value becomes. Additionally, the more he dislikes the unequal treatment as compared to his fellow creditors who accept the current offer, the lower his reservation value becomes. This implies that his incentive to run with the herd is higher. The application of additional contractual elements (e.g., most favored creditor clause, contingent bonus payments, or exit consents) enables the debtor to lower his restructuring costs by fostering the herding effect among creditors.

Further, this herding can have an effect on the results of different voting procedures because the prevailing concept of a market-based approach allows the debtor to decide which way he prefers to approach his creditors for restructuring unsustainable sovereign debt. He can propose his demanded changes of the financial terms of the bond either by making an exchange-offer to swap old for new bonds or calling for a bondholder meeting. As we indicated, only the latter process is free of herding as the bondholder meeting does not allow for an unequal treatment of creditors irrespective of their voting behavior. This might suggest why debtor countries seem to have a clear preference for exchange-offers since a bondholder meeting supports coordination among different creditors or creditor groups.

References

- Bank of England (2005): "Resolving sovereign debt crises: The market-based approach and the role of the IMF", Financial Stability Review 2005, Bank of England
- Berninghaus, S., K.-M. Ehrhart and W. Güth (2006): "Strategische Spiele", 2. Auflage, Springer Verlag, Berlin.
- Blustein, P. (2005): "And the Money Kept Rollin in (and Out): Wall Street, the IMF and the Bankruptcy of Argentina", Public Affairs, New York.
- Bratton, W. and M. Gulati (2003): "Sovereign Debt Reform and the Best Interest of Creditors", *Vanderbilt Law Review*, January 2004, 57(1), Pages 1-79.
- Bulow, J. and K. Rogoff (1989): "A Constant Recontracting Model of Sovereign Debt", *Journal of Political Economy*, February 1989, 97(1), Pages 155-78.
- Camerer, C. (2003): "Behavioral Game Theory", Princeton University Press, Princeton NJ.
- Damill, M., R. Frenkel and M. Rapetti (2005): "The Argentinean Debt: History, Default, and Restructuring", Working Paper Series, Initiative for Policy Dialog (IPD), New York: Columbia University.
- Dhillon, A., J. Garcia-Fronti, S. Goshal and M. Miller: "Bargaining and Sustainability: The Argentine Debt Swap of 2005", *The World Economy*, April 2006, Vol. 29, Pages 377-398.
- Eaton, J. and M. Gersovitz (1981): "Debt with Potential Reputation: Theory and Estimation.", *Review of Economic Studies*, April 1981, 48(2), Pages 289-309.
- ECB (2005): "Managing Financial Crises in Emerging Market Economies: Experience with the Involvement of Private Sector Creditors", ECB Occasional Paper, No. 32, July 2005.
- Eichengreen, B. (2002): "Financial Crises", New York: Oxford University Press
- Engelen, C. and J. Graf Lambsdorff (2005): "Hares and Stags in Argentinean Debt Restructuring", Discussion Paper V-40-05, Department of Economics, University of Passau.
- Fehr, E. and K. M. Schmidt (1999): "A Theory of Fairness, Competition and Cooperation", *Quarterly Journal of Economics*, Vol. 114, No. 3, Pages 817-868.
- Gelpert, A. (2005): "After Argentina", Policy Briefs, No. Pb05-02, Institute of International Economics, Washington.
- Ghosal, S. and M. Miller (2003): "Co-ordination failure, Moral Hazard and Sovereign Bankruptcy Procedures", *The Economic Journal* 113, April 2003, P. 276-304.
- Haldane, A., A. Penalver, V. Saporta and H.S. Shin (2002), "Binding-in the private sector", Bank of England mimeo.
- Haldane, A., A. Penalver, V. Saporta and H.S. Shin (2005): "Analytics of Sovereign Debt Restructuring", *Journal of International Economics*, Volume 65, Issue 2, March 2005, Pages 315-333.

- Kletzer, K. (2003): "Sovereign Bond Restructuring: Collective Action Clauses and Official Crisis Intervention", IMF Working Paper 03-134, International Monetary Fund
- Kletzer, K. and B. Wright (2000): "Sovereign Debt as Intertemporal Barter", *American Economic Review*, June 2000, 90(3), Pages 621-39.
- Krueger, A. (2002): "A new Approach to Sovereign Debt Restructuring", International Monetary Fund.
- Miller M. and J. Garcia Fronti (2003): "Argentina in Default: The Renegotiation Game", mimeo, University of Warwick, www.csgr.org.
- Miller, M. and D. Thomas (2006): "Sovereign Debt Restructuring: The Judge, The Vultures and Creditor Rights", Discussion Paper No. 5710, Centre for Economic Policy Research, London
- Porzecanski, A. C. (2005): "From Rogue Creditors to Rogue Debtors: Implications of Argentina's Default", *Chicago Journal of International Law*, Vol. 6, No. 1, Summer 2005.
- Reiffel, L. (2003): "Restructuring Sovereign Debt", Washington: Brookings Institution Press.
- Roubini, N. and B. Setser (2004): "Bailouts or Bail-ins?", Washington: Institute of International Economics.
- Salmon, F. (2004): "Stop selling bonds to retail investors", *Georgetown Journal of International Law*, Volume 35:4.
- Scott, H. S. (2006): "Sovereign Debt Default : Cry for the United States, not Argentina", WLF Working Paper No. 140, Washington Legal Foundation.
- Sgard, J. (2005): "La Dette Argentine et le Déclin du FMI", Lettre du CEPIL, No. 241, www.cepii.fr.
- Sturzenegger, F. and J. Zettelmeyer (2005): "Haircuts", IMF Working Paper 05-137, International Monetary Fund, Washington.
- Sturzenegger, F. and J. Zettelmeyer (2006): "Debt Defaults and Lessons from a Decade of Crises", MIT Press.

Volkswirtschaftliche Reihe der Passauer Diskussionspapiere

Bisher sind erschienen:

- V-1-98 Gerhard Rübel – Can adjustments to working hours help reduce unemployment?
- V-2-98 Martin Werding – Pay-as-you-go Public Pension Schemes and Endogenous Fertility: The Reconstruction of Intergenerational Exchange
- V-3-98 Carsten Eckel – International Trade, Direct Investment, and the Skill Differential in General Equilibrium
- V-4-98 Reinar Lüdeke – Das Staatsbudget und intergenerationelle Umverteilung, Das Staatsvermögen als Instrument intergenerativer Verteilungspolitik und der "generational accounting"-Ansatz: Alter Wein in neuen (höherwertigen) Schläuchen?
- V-5-98 Anja Klüver und Gerhard Rübel – Räumliche Industriekonzentration und die komparativen Vorteile von Ländern - eine empirische Studie der Europäischen Union
- V-6-98 Klaus Beckmann und Elisabeth Lackner – Vom Leviathan und von optimalen Steuern
- V-7-98 Martin Werding – The Pay-as-you-go Mechanism as Human Capital Funding: The "Mackenroth hypothesis" Revisited
- V-8-98 Reinar Lüdeke und Klaus Beckmann – Social Costs of Higher Education: Production and Financing. The Case of Germany (1994)
- V-9-98 Gerhard Rübel – "Faire" Löhne und die Flexibilität von Arbeitsmärkten in einem Zwei-Sektoren-Modell
- V-10-98 Klaus Beckmann – Notizen zum Steueranteil von Rentenversicherungsbeiträgen im Umlageverfahren
- V-11-98 Christian Jasperneite und Hans Joachim Allinger – Trendwende am westdeutschen Arbeitsmarkt? - Eine ökonometrische Analyse

- V-12-98 Christian Jasperneite und Hans Joachim Allinger – Langfristige Perspektiven für den westdeutschen Arbeitsmarkt: Was sagen die Gesetze von Okun und Verdoorn?
- V-13-98 Hans Joachim Allinger und Christian Jasperneite – Saisonbereinigung von Arbeitsmarktdaten bei aktiver Arbeitsmarktpolitik
- V-14-99 Reinar Lüdeke und Klaus Beckmann – Hochschulbildung, Humankapital und Beruf: Auswertung einer Längsschnittbefragung Passauer Absolventen 1988 - 1998
- V-15-99 Gerhard Rübel – Volkseinkommenssteigerung durch ausgabenfinanzierte Steuersenkung - Eine Umkehrung des Haavelmo-Theorems für offene Volkswirtschaften
- V-16-99 Silke Klüver – Konzentrationsursachen in der europäischen Versicherungsbranche - eine empirische Untersuchung
- V-17-99 Reinar Lüdeke – Familienlastenausgleich, Elternleistungsausgleich und die Neufundierung der umlagefinanzierten Altersversorgung
- V-18-99 Anja Klüver und Gerhard Rübel – Industrielle Konzentration als Kriterium für die Geeignetheit eines einheitlichen Währungsraums – Eine empirische Untersuchung der Europäischen Union von 1972 bis 1996
- V-19-00 Carsten, Eckel – Fragmentation, Efficiency-seeking FDI, and Employment
- V-20-00 Christian Jasperneite – Understanding Hysteresis in Unemployment: The German Case
- V-21-00 Jörg Althammer – Reforming Family Taxation
- V-22-00 Carsten Eckel – Labor Market Adjustments to Globalization: Unemployment versus Relative Wages
- V-23-00 Klaus Beckmann – Tax Competition through Tax Evasion
- V-24-01 Klaus Beckmann – Steuerhinterziehung, begrenzte Rationalität und Referenzab-

hängigkeit: Theorie und experimentelle Evidenz

- V-25-01 Klaus Beckmann – Solidarity, Democracy, and Tax Evasion: an Experimental Study
- V-26-04 Michael Fritsch, Udo Brixly und Oliver Falck – The Effect of Industry, Region and Time on New Business Survival - A Multi-Dimensional Analysis
- V-27-04 Gerhard D. Kleinhenz – Bevölkerung und Wachstum - Die Bevölkerungsentwicklung in Deutschland als Herausforderung für Wirtschafts- und Sozialpolitik
- V-28-04 Johann Graf Lambsdorff – The Puzzle with Increasing Money Demand - Evidence from a Cross-Section of Countries
- V-29-04 Frauke David, Oliver Falck, Stephan Heblich und Christoph Kneiding – Generationengerechtigkeit und Unternehmen
- V-30-04 Roland Engels† – Zur mikroökonomischen Fundierung der Geldnachfrage in allgemeinen Gleichgewichtsmodellen
- V-31-05 Johann Graf Lambsdorff – Between Two Evils – Investors Prefer Grand Corruption!
- V-32-05 Oliver Falck - Das Scheitern junger Betriebe – Ein Überlebensdauermodell auf Basis des IAB-Betriebspanels
- V-33-05 Raphaela Seubert – On the Nature of the Corrupt Firm: Where to Situate Liability?
- V-34-05 Johann Graf Lambsdorff – Consequences and Causes of Corruption – What do We Know from a Cross-Section of Countries?
- V-35-05 Stephan Heblich – Arbeitszeitflexibilisierung Revisited
- V-36-05 Oliver Falck und Stephan Heblich – Das Konzept der eigenverantwortlichen Generation zur Bewältigung des demographischen Wandels
- V-37-05 Florian Birkenfeld, Daniel Gastl, Stephan Heblich, Ferry Lienert, Mascha

Maergoyz, Oksana Mont und Andrius Plepys – Product ban versus risk management by setting emission and technology requirements – the effect of different regulatory schemes taking the use of trichloroethylene in Sweden and Germany as an example

- V-38-05 Johann Graf Lambsdorff – Determining Trends for Perceived Levels of Corruption
- V-39-05 Oliver Falck – Mayflies and Long-Distance Runners: The Effects of New Business Formation on Industry Growth
- V-40-05 Christian Engelen und Johann Graf Lambsdorff – Hares and Stags in Argentinean Debt Restructuring
- V-41-05 Johann Graf Lambsdorff und Mathias Nell – Let Them Take Gifts, and Cheat Those Who Seek Influence
- V-42-06 Hans Joachim Allinger – Bürgerversicherung und Kopfpauschale haben vieles gemeinsam - Anmerkungen zur Diskussion einer Reform der gesetzlichen Krankenversicherung
- V-43-06 Michael Schinke und Johann Graf Lambsdorff – Insider Trading among Central Bankers - a Treatise on Temptation and Policy Choice
- V-44-06 Johann Graf Lambsdorff und Hady Fink – Combating Corruption in Colombia: Perceptions and Achievements
- V-45-06 Oliver Falck und Stephan Hebllich – Corporate Social Responsibility: Einbettung des Unternehmens in das Wirtschaftssystem
- V-46-06 Johann Graf Lambsdorff und Luka Bajec – There Is No Bank Lending Channel!
- V-47-06 Christian Engelen und Johann Graf Lambsdorff – Das Keynesianische Konsensmodell
- V-48-07 Stephan Hebllich – Eigenverantwortliche Individuen und Pro-Aktive Unternehmen
- V-49-07 Christian Engelen und Johann Graf Lambsdorff – Das Keynesianische Konsensmodell einer offenen Volkswirtschaft