

Engelen, Christian; Graf Lambsdorff, Johann

Working Paper

Hares and stags in Argentinean debt restructuring

Passauer Diskussionspapiere - Volkswirtschaftliche Reihe, No. V-40-05

Provided in Cooperation with:

University of Passau, Faculty of Business and Economics

Suggested Citation: Engelen, Christian; Graf Lambsdorff, Johann (2005) : Hares and stags in Argentinean debt restructuring, Passauer Diskussionspapiere - Volkswirtschaftliche Reihe, No. V-40-05, Universität Passau, Wirtschaftswissenschaftliche Fakultät, Passau

This Version is available at:

<https://hdl.handle.net/10419/55021>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.



**Hares and Stags
in Argentinean Debt Restructuring**

**Christian Engelen
Johann Graf Lambsdorff**

Diskussionsbeitrag Nr. V-40-05

Volkswirtschaftliche Reihe ISSN 1435-3520

**PASSAUER
DISKUSSIONSPAPIERE**

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

Hares and Stags **in Argentinean Debt Restructuring**

Christian Engelen
Johann Graf Lambsdorff

Diskussionsbeitrag Nr. V-40-05

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.

Hares and Stags in Argentinean Debt Restructuring

Christian Engelen and Johann Graf Lambsdorff¹

University of Passau

January 06

Abstract

The latest Argentinean debt restructuring was the first time the resolution of a modern financial crisis was completely handed over to the private financial markets without official intervention by public institutions. We argue that the resulting harshest haircut for private creditors in history can be related to a stag-hunt game played by creditors. We show that incentive schemes provided by the Argentinean government were factors facilitating this haircut. The analysis suggests that, contrary to the recognition in the literature, the effects of Collective Action Clauses and Exit Consents within a restructuring process are not equal. In the case of Argentina the inclusion of Collective Action Clauses in the defaulted bonds could have benefited the holdout creditors.

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.

I. Introduction

On March 3rd this year the Argentinean government announced the success of its restructuring process including the harshest haircut private creditors on the international bond markets have ever agreed on.² About 76% of the total debt volume of \$103bn accepted the offer for a debt swap including a major reduction in the present value of the exchanged Argentinean bonds. Hopefully, this paves the way for Argentina to return to the financial markets after several years of default and thereby enables the country to turn its strong economic growth over the last years into a long-term development. But this successful resolution of the Argentinean debt crises – lasting since December 2001 – came at a high price. Creditors that accepted the offer lost about 70% of their bonds' nominal values and creditors that did not tender their bonds are left with an unknown future. These creditors that rejected were mostly European Retail Investors who are now irritated about what to do with their apparently worthless bonds. The best case they can hope for is that Argentina opens a second time a window for its exchange offer to tender their bonds.

This restructuring did not only set a new all-time record line in terms of debt reduction but it was also the first time the restructuring of a modern debt crises of a major emerging market debtor since the early 1990s was completely handed over to the financial markets. In this process neither the IMF nor any other multinational political institution was willing to neither coordinate nor finance the resolution mechanism. This case provides a new benchmark for future debt restructurings with repercussions on the design of the international financial architecture.

The process of sovereign debt restructuring substantially changed over last two decades due to a major shift in the capital flows to the emerging markets from banking loans towards the international bond markets. In most modern debt crises the debtor did not negotiate with the creditors or a representation body but unilaterally offered a bond exchange including a haircut on the amount owed. Creditors then uncoordinatedly decided on accepting or rejecting the offer. Most theoretical work on this topic highlights the threat of coordination failures between the debtor and creditors due to strategic behaviour of both parties caused by asymmetric information, (Haldane et al. 2005). But also among creditors there might appear coordination

² However, the number of comparable debt exchange processes mainly approaching the bond markets are limited, Sturzenegger and Zettelmeyer (2004).

failures due to a lack of effective controls for intra-creditor equity motivating some investors to hold out (Krueger 2001) and difficulties in the aggregation and representation of different claims, (Bartholomew et al. 2004). Several approaches to mitigate these coordination problems in future restructuring processes have been made and were intensively discussed lately, (Roubini and Setser 2004; Reiffel 2003). These approaches vary from pure market based suggestions to rather statutory concepts. But despite the intense discussions on the new design of the financial architecture and progress in the inclusion of Collective Action Clauses in new bond issues as well as the determination of a common Code of Conduct, these elements had only a minor impact on the Argentinean debt restructuring.³ First of all were most of the defaulted bonds issued under New York Law without Collective Actions Clauses and secondly was Argentina the only Emerging Market country not willing to sign the voluntary Code of Conduct arguing that it would negatively influence its restructuring effort.

However, after the experiences with restructuring efforts in Ecuador (year 2000) and Uruguay (year 2002) some academics suggested using Exit Consents as a substitute for Collective Action Clauses as long as these clauses were not yet integrated in most of the Emerging Market bonds currently issued, Chamberlin (2001).⁴ These mostly law academics argue that such consents offer the opportunity to bind in a holdout minority of bondholders by threatening to change the nonfinancial terms of the restructured bond, which could impose a loss to the holdouts. This threat should deter so called vulture investors from buying distressed debt at a discount from the secondary market in order to extort a debtor by disruptively vetoing the restructuring process. In their opinion the effects of Exit Consents should equal those of

³ Collective Action Clauses (CACs) are clauses that determine a common decision-making process by bondholders. The most popular among these clauses are the majority clauses that allow a qualified majority of bondholders to bind in a ruffling minority in a debt restructuring process thereby limiting the vetoing power of each individual bondholder. In most cases (e.g. bonds under UK law) an acceptance by 75% of the overall debt amount is sufficient to change the financial terms (principal, interest payments and maturity) of a bond. However, bonds that were issued under US law do not consist of majority voting clauses with respect to the financial terms of the bond.

⁴ The first time Exit Consents (ECs) became publicly known as a restructuring tool in modern financial crises was in the exchange of Ecuador's bonds in 2000. Every bondholder that accepted the offer was required to vote in favor of a long list of amendments to provisions in the original bond documentation. Since even under New York law only a qualified majority is necessary to change the nonfinancial terms of a certain bond Ecuador used these exit consents to reduce the rights of the remaining bondholders by eliminating certain covenants (e.g. listing at the Luxembourg Stock Exchange). This reduced the attractiveness of the old bond, forcing bondholders to accept the exchange offer, Salmon (2001).

Collective Action Clauses. As we argue in this paper, the effects of the two contractual techniques to bind in these holdouts are dramatically different, with Exit Consents clearly favouring the debtor, one reason that lead to the high haircut in the case of Argentina.

This paper aims to analyse the coordination among creditors and how this process can be influenced by certain features of the exchange offer. Therefore it is necessary to present the exchange offer made by the Argentinean government to the creditors (section II). Based on this exchange offer we describe the resulting stag-hunt game for creditors (section III) and model the decentralised decision making process (section IV). We then extend this model to demonstrate how a most favoured creditor clause increases the coordination problems and therefore benefits the debtor (section V). Additionally, we demonstrate how a sovereign debtor could be tempted to influence the expected acceptance of the exchange offer by specially tailored bonus payments (section VI). Conclusively, the analysis draws attention to the differences in the effects of Collective Action Clauses and Exit Consents (section VII).

II. The Exchange Offer

After experiencing serious macroeconomic instabilities Argentina on the 24th December 2001 defaulted on \$61.8bn in public bonds and \$8bn in other liabilities.⁵ Until the final debt swap offer was launched in January 2005 this amount had increased to a total sum of \$102.6bn including the past due interest payments on the defaulted debt. Two Argentinean proposals for a debt swap with haircuts between 70%-80%, the “Dubai Proposal” and the “Buenos Aires Proposal”, were strongly rejected by the market participants. This changed in late 2004, because of increasing market liquidity and falling spreads on emerging market bonds. The lower risk premium lead to higher present values for the offered debt swaps. This development paved the way for Argentina to launch the third swap offer with only little changes to the previous one. In addition, ambitious marketing by the government pressured the creditors to accept. The swap started on January 14th 2005 and closed six weeks later. Creditors of defaulted debt had the opportunity to tender eligible securities in exchange for either of the three following new securities:

⁵ For a survey of the Argentinian debt history and the current restructuring process see Damill et al. (2005).

- (i) par bonds⁶ due in December 2038 with attached GDP-linked securities;⁷
- (ii) discount bonds⁸ due in December 2033 with attached GDP-linked securities;
and
- (iii) quasi-par bonds⁹ due in December 2045 with attached GDP-linked securities.

The most popular of these newly offered securities among creditors were the par bonds.¹⁰ Therefore the details in terms of total volume and the allocation for this specific bond type was an important element of the exchange offer. Regarding the total volume, Argentina had set a benchmark level of 70% acceptance rate. Should the offer bring a rate above that level, the country would offer a volume of par bonds of \$15bn and only \$10bn if the acceptance were below. Further, Argentina divided the submission period into two periods for purposes of allocation of pars: an early-tender period, comprising the first three weeks of the submission period, and a late-tender period, comprising the remainder of the submission period. Bondholders that tendered during the early-tender period would have priority in the allocation of pars.

III. The Stag-hunt Game in the Argentinean Debt Restructuring

After the Argentinean exchange offer was launched each creditor had about six weeks to decide whether to accept or to reject the offer. Rejecting in this case would mean to possibly sue

⁶ The offered par bond carried the same amount of principle as the old bonds tendered for it but with a longer maturity and with substantially lower coupon payments.

⁷ Each bond in the exchange offer consists of an attached GDP-linked security – comparable to a warrant - that guarantees additional payments in the case that Argentina should achieve GDP growth rates of continuously more than 3%.

⁸ Discount bonds had a discount of 66.3% on its principal but carried a higher coupon payment and shorter maturity than the par bonds.

⁹ Quasi-par bonds had a discount on its principal of about 30% and its coupon payments were between the par and the discount bonds. The quasi-pars mainly addressed institutional investors.

¹⁰ In debt restructuring processes different groups of creditors have different preferences and want different restructuring terms. Banks and retail investors prefer a preservation of the face value whereas institutional investors focus on the market value of the newly offered securities, Roubini and Setser (2004) p. 258.

Argentina for fulfilment of its contractual liabilities. While accepting would yield the market value of the newly issued bond that creditors would receive in exchange for their old ones to determine the payoff structure for the latter alternative is rather complex. The reason is that this “going-to-court” alternative is less a matter of legal ruling and more a matter of political pressure.¹¹ Although some investors – mostly vulture funds – still try to find ground for a legal “guerrilla tactic” the majority of the holdout creditors are retail investors hoping for a political solution for all creditors, hence not a minority trying to gain at the expense of the majority.¹² This political pressure is highly dependable on the success of the exchange offer.

However, success or failure of an exchange offer is difficult to distinguish. The reason is that an offer is regarded to be successful, when international capital starts flowing again. Therefore the market perspective for a minimum participation before granting fresh capital is crucial in this context. Should the debtor with its exchange offer not reach this benchmark then the offer is regarded as a failure and Argentina gets under strong pressure to launch an improved offer. Although all official institutions – especially the IMF – refused to set such a benchmark there were some statements from market participants about a minimum requirement for the participation rate of at least 70%, Deutsche Bank (2005).¹³

This wobbliness over a necessary minimum participation to regard this exchange offer as a successful debt restructuring was one reason hindering a consistent coordination process among creditors. Without knowing what percentage of debt is necessary to veto the offered repayment terms creditors could not clearly distinguish their alternative options. A second reason complicating the coordination process was that the creditor side consisted of different creditor groups with different perspectives on the offer. Only two days after the offer was announced Argentinean pension funds, holding 17% of the debt, issued a statement that they had already tendered, as they had agreed with the government months ago.¹⁴ Other Argentinean bondholders were likely to follow this example. Soon after this statement large foreign institutional investors also signalled their willingness to tender. On the other side the umbrella representation body of the private retail creditors – the Global Committee of Argentinean

¹¹ For details in enforcing debt contracts against a sovereign borrower see Häusler et al. (2003).

¹² “Bond Holdouts gain no ground from Argentina”, Wall Street Journal, 11th July 2005, Pg. C1.

¹³ For a critical view on the role of the IMF in the Argentinean debt restructuring process see Salmon (2004b).

¹⁴ It is presumed that the Argentinean government coaxed the domestic pension funds to accept the offer already before the tender period by granting regulatory benefits, Sturzenegger and Zettelmeyer (2005), p. 40.

Bondholders (GCAB) – recommended its members to reject the offer since the amount of the haircut would be economically unjustified. GCAB was convinced that Argentina – after having experienced a substantial improvement in its economy in the aftermath of the default – could pay much more than the 30 Cents on the Dollar offered, GCAB (2005).¹⁵

This shows that in the last weeks of the tender period it was mainly the group of foreign retail creditors that was reluctant to accept the offer.¹⁶ Taking the numbers of the GCAB retail investors represented about 50% of the total amount of defaulted debt eligible to the exchange offer.¹⁷ If all retail creditors had rejected the offer, it was highly possible that Argentina could not reach the even self-stated minimum participation of 50% and that the whole creditor community could count on an improved offer. But on the other side there was the threat that if half of these retail investors accepted, a participation of just over 70% would be reached and the exchange offer would be regarded as successful. This would extremely reduce the liquidity of the secondary market, a process that was supported by the Argentinean announcement to delist the defaulted securities, Deutsche Bank (2005). And in the end this is what happened. Apparently some of the retail investors accepted the offer.¹⁸ This triggered other investors to follow and in the end – about two hours before the deadline to tender – even the strongly opposing retail bondholder representation, the Argentine Bond Restructuring Agency, accepted the exchange offer. Its chief negotiator, Adam Lerrick, told the Financial Times, “that the high level of participation among other bondholders clinched its decision to agree.”¹⁹

¹⁵ Roubini (2005) strongly criticizes the representation bodies for this advice since in his opinion it was mainly self-serving. In his view, banks and financial institutions had ripped-off small savers by dumping their Argentinean bonds on them and in order not being sued for this the banks are now paying for the representation of these investors. Therefore the representation had to reject the offer as a signal to the retail creditors.

¹⁶ See Salmon (2004a) for arguments why retail investors will always be the most reluctant to accept an exchange offer in a sovereign debt restructuring.

¹⁷ GCAB (2004) shows that about \$49bn (60.5%) of the total \$81bn are held by retail investors. Until the last presentation in January 2005 this figure had decreased to \$37.9bn (46.8%), GCAB (2005).

¹⁸ The majority of these investors accepted the offer by selling their bonds to the secondary markets, Deutsche Bank (2005).

¹⁹ Financial Times, 28th February 2005.

IV. Coordination in a Stag-hunt Game

Resulting from the structure of the restructuring process the private creditors were stuck in a situation comparable to a stag-hunt game.²⁰ We simplify the decision making process by assuming only two investors, each holding (for example) 25% of the bonds, to decide on the exchange offer. Another 50% have already accepted the offer. The exchange offer would be regarded successful if one player accepts, bringing the acceptance rate to 75%. The payoff to the investors would then be depicted by the following matrix:

		Player II	
		accept	reject
Player I	accept	ω	ω
	reject	$\Omega-L$	$\Omega-qL$

Each investor makes a decision whether to accept the offer, ω , or to reject. The upper left (bottom right) term describes the payoff to Player I (II). Acceptance immediately results in a payoff of ω . If an investor rejects the offer he tries to increase political pressure on the country for an improvement of the existing offer. The result is an expected amendment of the exchange offer whose total monetary equivalent including the primary exchange offer is denoted by Ω , ($\Omega > \omega$).²¹

²⁰ That creditor coordination can result in a stag-hunt game has already been demonstrated by Ghosal and Miller (2003). The authors prove that the validity of these results can be extended to a game with n players.

²¹ The condition $\Omega > \omega$ may arise if the debtor country's ability to pay is higher than her willingness. This assumption is consistent with most of the academic literature on this topic, (Haldane et al. 2002; and Ghosal and Miller 2003). The underlying rationale relates to a moral hazard situation: Why should a debtor put maximum effort to increasing her economic performance during the aftermath of a crisis if all the proceeds from this improvement benefit only the creditors and not the debtor country itself? There is no incentive for the debtor for maximum restructuring effort leaving all – debtor and creditor – with less than in a situation where the debtor does not have to transfer all of her economic surplus to the creditors. Concomitant with this argument we may require that the term $(\Omega - \omega)$ decreases when both players reject, because the political pressure on the debtor lowers her incentive to serve the new debt. We disregard this effect here for convenience.

This political path bears direct costs for legal action and political campaigning, denoted by L , ($L > 0$). These costs are largely fixed. If both investors reject the offer they both get the potential increase of the new exchange offer but share the costs. In our two-player game situation this would be indicated by $q = 0.5$. Finding political support may actually become easier the more players are involved, suggesting that q might even be smaller than 0.5.²² A value for $q = 0.25 < 0.5$ thus denotes economies to scale in organizing political campaigns, that is, gains from coordination in our game.

We assume that the fixed amount of legal cost against a sovereign country is larger than the potential gain from an increased offer ($L > (\Omega - \omega)$) but the expected value is lower when many creditors reject ($qL < (\Omega - \omega)$). Assuming perfect information, it is preferable for Player I to accept when Player II accepts and to reject when Player II rejects. There are two Nash equilibria in pure strategies and an additional one in mixed strategies. Because of that each of these two investors aligns his acceptance with the probability that the other one accepts. Let a_1 (b_1) denote the probability for Player I (II) to accept.²³ A mixed strategy requires that Player I and Player II are just indifferent between rejecting and accepting, so that they may render their decision to a random mechanism. This indifference for Player I is given when $b_1 \omega + b_2 \omega = b_1(\Omega - L) + b_2(\Omega - qL) \Leftrightarrow$

$$b_1^* = \frac{\frac{\Omega - \omega}{L} - q}{(1 - q)}.$$

The mixed strategy equilibrium can also be interpreted as the watershed, suggesting which pure strategy to prefer when being uncertain about the other player's behaviour. In this perspective our finding is more intuitive. With an increasing $(\Omega - \omega)$, that is, higher gains from rejection, b_1^* increases, suggesting that for Player I to accept he requires a higher prior probability of Player II to accept also. Likewise, b_1^* decreases in L , the costs of mobilizing political pressure. This implies that Player I would prefer to accept, unless there is a high prior likelihood for Player II to reject. Take the following values as an example: $\omega = 100$, $\Omega = 125$, $L = 50$, $q = 0.25$

²² Haldane et al. (2005) also show a theoretical analysis of the decision process in the case of New York Law bonds. However, in their model the legal costs are independent of the overall acceptance rate. This the main difference between theirs and our analysis since we try to endogenize the political pressure on the debtor country if a large enough fraction of debtors reject the offer.

²³ Hence a_2 (b_2) denotes the probability to reject, $b_1 = 1 - b_2$.

		Player II	
		accept	reject
Player I	accept	100 100	100 75
	reject	75 100	112.5 112.5

In this example $b_1 = 1/3$.

Given the multiple equilibria, which will be the one actually played? One approach for finding a unique solution would be to focus on pure strategies (that is, to disregard the mixed equilibrium) and use risk dominance as the criterion employed by the players in deciding which of the two pure equilibria to prefer, (Harsanyi and Selten 1988). There is no risk involved if A accepts, because irrespective of player B's choice the payoff is ω . On the other hand, joint rejection provides a higher payoff. But this choice is risky for A if B accepts. The risk dominance concept compares these risks and opportunities for A and B jointly by determining a deviation-payoff product for each Nash equilibrium. When accepting (payoff 100 in our example) each player avoids the low payoff obtained when rejecting alone (75 in our example). When rejecting (payoff 112.5) each player increases the income that is obtained when accepting (payoff 100). In general terms, the deviation-payoff product when both accept (payoff ω) is the product of the difference obtained for A choosing reject (payoff $\Omega-L$) multiplied with the same difference for player B due to symmetry: $(\omega-(\Omega-L))(\omega-(\Omega-L))$. This value depicts the avoided risk when choosing acceptance. The deviation-payoff product in case of rejection (payoff $\Omega-qL$) would be the product of the difference obtained for A when accepting (payoff ω) multiplied with the same term for player B due to symmetry: $(\Omega-qL-\omega)(\Omega-qL-\omega)$. This term depicts the potential increase in income resulting from rejection.

Accepting the exchange offer would be risk dominant if both player's deviation-payoff product $(\omega-(\Omega-L))(\omega-(\Omega-L))$ is larger than that in case of rejection, $(\Omega-qL-\omega)(\Omega-qL-\omega)$. Rearranging yields that accepting is risk preferred if

$$(1) \quad \omega > \Omega - (1+q)L/2,$$

that is, if gains from rejection are small, legal costs high and gains from collective action are limited such that q is large. In our numerical example, acceptance would be risk dominant if $\omega > 125 - (1+0.25)50/2 = 93.75$.

Increases in legal costs, L and reduced gains from coordination (increasing q), would provide the debtor with slack according to equation (1). This would allow for a reduced exchange offer, ω . The reason is that with reduced ω there emerge increased gains from rejection, $(\Omega - \omega)$ increases.

The debtor country profits from the strategic uncertainty among the creditors. If these were instead able to coordinate their actions, they could determine the pure Nash-equilibrium that provides them with the highest payoff. An exchange offer would only be accepted if $\omega > \Omega - qL$. Hence, the debtor benefits from individual creditor's fears that other creditors may accept, thus lowering his own chances of a successful political campaign. This in turn makes acceptance preferable even where collective action among creditors would allow squeezing out higher payoffs. In our example collectively choosing to accept would be the dominant strategy only if $\omega > 125 - 0.25 \cdot 50 = 112.5$. So by the stag-hunt game the debtor gets an additional slack for a reduced offer of $112.5 - 93.75 = 18.75$.

V. Effects of a Most Favoured Creditor Clause (MFC)

A most favoured creditor clause provides another opportunity to the debtor to exploit the creditors. Such a clause ensures creditors who accept the offer in the first place to participate in any later improvement of the offer presented to creditors that initially did not accept the offer. In the case of Argentina the inclusion of these clauses was controversially discussed. However, most legal comments on the exchange offer criticized that the clause would not be waterproof.²⁴ Let us depict the probability (as expected by creditors) that Argentina will sharing any improvements with those who already accepted by $p < 1$. Assuming risk neutrality, the payoff from acceptance while others reject increases by $p(\Omega - \omega)$. Considering this we get the following extension of our game situation:

²⁴ This clause for example refers to the Republic of Argentina but not to the institutions and its control, e.g. the Banco Nacion. This provides the opportunity that even if the Government of Argentina is not allowed to make payments to its remaining creditors these institutions can buy back old securities at the markets with a premium and thereby buy out the hold-outs, DekaBank (2005).

		Player II	
		accept	reject
Player I	accept	ω	$\omega + p(\Omega - \omega)$
	reject	$\Omega - L$	$\Omega - qL$

A trivial situation with dominance of acceptance is obtained if $\omega + p(\Omega - \omega) > \Omega - qL \Leftrightarrow 1 - qL/(\Omega - \omega) < p^*$. This implies that for acceptance to be preferred already $p^* < 1$ would suffice. A debtor country does not have to integrate a waterproof most favoured creditor clause in its offer. There is a certain probability (p^*) below unity that is sufficient to make acceptance the only Nash equilibrium. Any further increase of p above that necessary level (p^*) would potentially bear additional costs without any benefit for the debtor country since accepting is already the dominant strategy.²⁵ Assuming $p < 1 - qL/(\Omega - \omega)$ we obtain again two pure Nash-equilibria and one Nash-equilibrium in mixed strategies. Focusing on the question, which pure Nash equilibrium to prefer, the risk dominance concept implies that acceptance is preferred if $(\omega - (\Omega - L))(\omega - (\Omega - L)) > (\Omega - qL - \omega - p(\Omega - \omega))(\Omega - qL - \omega - p(\Omega - \omega))$. Simplification yields:

$$(2) \quad \omega > \Omega - (1+q)L/(2-p).$$

Equation (2) shows that the higher the probability for the MFC to hold (p), the lower a debtor country can set the exchange offer and still keep accepting preferable. In equilibrium there are no actual costs involved for Argentina in arranging a MFC, because joint acceptance is the equilibrium played. Thus, a MFC is clearly a method in favour of the debtor.

²⁵ In a situation of a sovereign debt restructuring there are always vulture creditors specialized in legal processes against countries that have reached a restructuring agreement with the majority of its creditors. In some of these cases debtor countries lost the fight against these rogue creditors and cashed them out (e.g. Peru vs. Elliott Associates, Mandeng 2004). Since the so-called Collective Action Clauses, that aim to bind in these holdout-creditors, were not yet included in the bonds eligible to the Argentinean debt swap offer, the country still faces the threat of legal actions from remaining creditors. Losing the possibility to cash out these creditors in case of a legal defeat without having to improve the terms for all other creditors (due to a higher p) can be interpreted as costs. For a more detailed discussion of the MFC in the Argentinean bonds see Anne Gelpern (2005).

VI. Effects of a bonus payment

Another way of altering the necessary minimum offer would be a bonus payment – called sweetener - given to creditors if a certain participation level is reached. In our two-player game, such a payment (γ) is made when both players accept:

		Player II	
		accept	reject
Player I	accept	$\Omega + \gamma$	Ω
	reject	$\Omega - L$	$\Omega - qL$

We obtain the usual two Nash equilibria in pure and one in mixed strategies. Acceptance is risk preferred if

$$(3) \quad \omega > \Omega - [\gamma + (1+q)L]/2.$$

A bonus payment γ would thus allow a reduction in the offer by $\gamma/2$ while still preserving acceptance as the risk dominant strategy. However, this time this advantage is more than offset by the costs involved in paying the bonus, because this payment is precisely made in the selected Nash equilibrium. The advantage of $\gamma/2$ is thus more than offset by the costs γ .

In the Argentinean exchange offer the par bonds were the most favoured bond type among creditors. Therefore enlarging the amount of issued par bonds once a participation of over 70% is reached can be interpreted as a bonus payment for accepting. But the total amount of par bonds was limited to \$ 15bn and the amount each individual creditor could tender for was \$ 50.000. However, this bonus payment is different to the general bonus payment described above. The main difference is that the value of this bonus payment for each accepting creditor is by itself contingent on how the other creditors decide. Once the necessary benchmark acceptance of 70% is reached the amount of par bonds increases by a certain amount (\$5bn) independent of whether 71% or 99% of the creditors accepted the offer. The only effect of a further increase above the benchmark level is that the share of the bonus payment for the single

accepting bondholder diminishes. Because the higher the overall participation the less likely will the individual creditor receive the amount of par bonds he was entitled to tender for.²⁶

Let a debtor country offer such a contingent bonus payment (z) to the creditors like the additional par bonds in the case of Argentina. In this game each single bondholder would receive z if he accepts while his opponent rejects and just $z/2$ if both accept since each gets a minor share. The game would be the following:

		Player II	
		accept	reject
Player I	accept	$\omega + z/2$	$\omega + z$
	reject	$\Omega - L$	$\Omega - qL$

Then the country could set its offer according to

$$(4) \quad \omega > \Omega - (1+q)L/2 - 3/4z.$$

This demonstrates that the debtor can lower her costs of the exchange offer $3/4z$ compared to additional payments in equilibrium of $z/2$. An even stronger effect could be achieved if a bonus is paid to the creditor contingent on the rejection of the other creditor. Hence, such contingent bonus payments are an advantageous tool for an exchange offer possibly stronger used in future debt exchange offers.

VII. Differences between Collective Action Clauses and Exit Consents

Applying the above developed framework we can now show the crucial difference between the effects of Collective Action Clauses (CACs) and Exit Consents (ECs). These two instruments – contrary to their recognition in the literature (Buchheit and Gulati 2000; Choi and Gulati 2003) – have substantially different effects on the decision process of the individual creditor in a debt exchange offer.

²⁶ Under the assumption that the amount of par bonds each creditor receives in the allocation is the minimum of his pro rata share and the tender limit of \$ 50.000.

Majority voting clauses are the crucial element of the Collective Action Clauses that become increasingly popular in order to mitigate holdout behaviour, a behaviour that is sometimes exploited by vulture funds, IMF (2005). Although Argentinean bonds under New York law did not include these clauses it is interesting to see how the rejecting creditors could have benefited. In contrast to a bond exchange these clauses allow a qualified majority via a bond amendment to restructure the debt by changing the financial terms of the bonds which is then effectual to all bonds in the respective bond category.²⁷ In our context we model Collective Action Clauses as simple majority voting clauses allowing a majority owning 75% of the bonds to change of repayment terms for all bonds. In our example creditors holding 50% of the bonds principle amount already accepted the exchange offer with two creditors left each holding 25%. This results in the following game:

		Player II	
		accept	reject
Player I	accept	ω	ω
	reject	ω	$\Omega - qL$

The worst each creditor can get now is the present value of the exchange offer. Therefore the single creditor can decide independently of his fellow creditors and would accept the exchange offer only if $\omega > \Omega - qL$. Hence, the collective action clause would ensure collective power to reject an unsatisfactory offer and consequently reduces the risk of being left alone as the only one exerting expenses for a political campaign.

Contrary, ECs worsen the situation to the holdout creditors. ECs target the nonfinancial terms of a bond. Each creditor that accepts the bond exchange agrees, as his last act as bondholder to change these nonfinancial terms in order to make the old bond less attractive and reduce the risk

²⁷ The alternative way to achieve a debt restructuring via an exchange offer – as in the case of Argentina - is an amendment of the financial terms of the bond. Necessary is that all creditors in the case of US law bonds or a supermajority of creditors in the case of UK law accept the change at a bondholders meeting. Majority action clauses aim to make a supermajority sufficient for this amendment in the case of US law.

of holdout creditors, Roubini and Setser (2004) p. 168.²⁸ But making a bond less attractive to the remaining bondholders by e.g. reducing its liquidity through a delisting from the secondary market is nothing less than imposing a loss to the rejecting creditors once a necessary majority accepted the offer. In the theoretical framework this situation seems familiar from our earlier analysis. The loss by changing the nonfinancial terms of the bond is denoted by Θ :

		Player II	
		accept	reject
Player I	accept	ω	ω
	reject	$\Omega-L-\Theta$	$\Omega-qL$

This yields that accepting is preferred if

$$(5) \quad \omega > \Omega - [\Theta + (1+q)L]/2.$$

Comparing this equation with (3) it becomes clear that the potential loss imposed through the threat of Exit Consents has the same effect on the decision process as a general bonus payment. But contrary to the bonus payment without the side effect of additional costs for the debtor. Hence, this instrument clearly favours the debtor.

VIII. Conclusion

Our analysis shows that creditors in the latest Argentinean bond restructuring were stuck in a stag-hunt game due to a loss imposed on the rejecting creditors once a – although not clearly determined – benchmark acceptance was reached. This situation enables the defaulted debtor to use certain structural elements of the exchange offer for her own benefit. In the case of Argentina the most favoured creditor clause can be interpreted as such an element. Furthermore, the debtor country used a contingent bonus payment – an additional amount of

²⁸ Argentina integrated exit consents in its exchange offer. In its prospectus of the exchange offer, Argentina several times points out that a potential risk factor for not tendering is that it might delist the old securities from the secondary markets thereby strongly reducing the liquidity of these bonds. However, up to now this delisting of the remaining bonds has not taken place yet.

par bonds – in its own favor. From a debtor's point of view these contingent sweeteners are superior to general bonus payments. Such payments are not beneficial since the costs involved for paying these bonuses exceed their overall benefit. However, the advantageous effect of general bonus payments for the debtor can be replicated by the use of Exit Consents imposing a potential loss on the holdout minority. Exit Consents are often mentioned to be equal to CACs hence making a further introduction of CACs into Emerging Market Bonds redundant. But we demonstrated that the effects of the two mechanisms are not equal. Exit Consents provide debtors with the opportunity to sanction a holdout creditor. Contrary, CACs mitigate the coordination failures among creditors. Hence, the inclusion of CACs in bonds under New York law should be in the best interest of creditors.

References

- Buchheit, L. and M. Gulati (2000): "Exit Consents in Sovereign Bond Exchanges", *UCLA Law Review* 48 (October), Pages 59-89.
- Chamberlin, Michael (2001): "At the Frontier of Exit Consents", <http://www.emta.org/ndevelop/exitcons.pdf>.
- Choi, S. and M. Gulati (2003): "Why lawyers need to take a closer look at exit consents." *International Financial Law Review* September 2003, Pages 15-18.
- 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.
- DB Research (2005): "*Argentina Debt Restructuring – Decision Time*", February 18th 2005, Deutsche Bank.
- DekaBank (2005): "*Umschuldungsangebot sichert nicht eine kurzfristige Lösung der Schuldenproblematik*", January 31st 2005, DekaBank.
- GCAB (2004): GCAB Presentation, July 2004. [/www.gcab.org/images/GCAB_Presentation_7.30.04.pdf](http://www.gcab.org/images/GCAB_Presentation_7.30.04.pdf).
- GCAB (2005): Investor Roadshow Presentation, January 2005. http://www.gcab.org/images/Roadshow_Presentation_-_Final_-_January_23_2005.pdf.
- Gelpert, A. (2005): "What bond markets can learn from Argentina", *International Financial Review*, April 2005, Pages 19-24.
- 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 (2005): "Analytics of Sovereign Debt Restructuring", *Journal of International Economics*, Volume 65, Issue 2, March 2005, Pages 315-333.
- Harsanyi, J. C. and R. Selten (1988): "*A General Theory of Equilibrium Selection in Games*", MIT Press.
- Häusler, G., F. Gianviti and T. Geithner: "Reviewing the Process for Sovereign Debt Restructuring within the Existing Legal Framework," Prepared by Policy Development and Review, International Capital Markets, and Legal Departments. <http://www.imf.org/external/np/pdr/sdrm/2003/080103.htm>.
- IMF (2005): Global Financial Stability Report, April 2005, Washington: International Monetary Fund.
- Krueger, A. (2001): "*International Financial Architecture for 2002: A new Approach to Sovereign Debt Restructuring*", Washington: International Monetary Fund. <http://www.imf.org/external/np/speeches/2001/112601.htm>.
- Mandeng, O.J. (2004): "*Intercreditor Distribution in Sovereign Debt Restructuring*", IMF WP/04/183, Washington: International Monetary Fund.
- Reiffel, L. (2003): "*Restructuring Sovereign Debt*", Washington: Brookings Institution Press.
- Rogoff, K. and J. Zettelmeyer (2002): "*Bankruptcy Procedures for Sovereigns: A History of Ideas, 1976-2001*", IMF Working Paper WP/02/133, Washington: International Monetary Fund.
- Roubini, N. (2005): "*The successful End of the Argentine Debt Restructuring Saga...*", Roubini Blog 2nd March 2005, <http://www.rgemonitor.com/blog/roubini/91192/>.
- Roubini, N. and B. Setser (2004): "*Bailouts or Bail-ins?*", Washington: Institute of International Economics.
- Said, M. (2005): "*Argentina debt restructuring offer*", www.ezilon.com/information/article_1378.shtml.
- Salmon, F. (2001): "The buy side starts to bite back", *Euromoney*, April 2001.

- Salmon, F. (2004a): "Stop selling bonds to retail investors", *Georgetown Journal of International Law*, Volume 35:4.
- Salmon, F. (2004b): "Argentina's creditors brace for lowball offer", *Euromoney*, September 2004.
- Sturzenegger, F. and J. Zettelmeyer (2004): "*Haircuts*", Working Paper, October 2004.
<http://www.utdt.edu/~fsturzen/haircuts4.pdf>.

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 Referenzabhängigkeit: Theorie und experimentelle Evidenz
- V-25-01 Klaus Beckmann - Solidarity, Democracy, and Tax Evasion: an Experimental Study
- V-26-04 Michael Fritsch, Udo Brix 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