DO COLLECTIVE ACTION CLAUSES INFLUENCE BOND YIELDS? NEW EVIDENCE FROM EMERGING MARKETS

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Abstract

This paper provides new empirical evidence relevant to the debate over the desirability of reforms to the way that financial markets and the international community deal with sovereign debt crises. In particular, given the ongoing opposition of investors and some sovereigns to greater use of collective action clauses (CACs) in emerging market bonds, we present new evidence on the way that financial markets have priced the use or non-use of CACs.

We supplement existing evidence that the use of CACs in Euromarket issues has not affected yields on new bond issues through an event study that shows that decisions by issuers to change away from, or to, the use of CACs has also not affected the pricing of issuers' existing stock of debt in the secondary market. We also provide new evidence on the pricing of a large sample of bonds in the secondary market on 31 January 2003. The data show that even after the intense debate about sovereign debt restructuring through 2002, the inclusion or absence of CACs still had no economically or statistically significant impact on yields as of early 2003. Hence we conclude that investors still had not focused on which bonds have CACs, or that they believe that the inclusion of CACs is not relevant to the pricing of debt.

The empirical evidence therefore suggests there is no good reason why there cannot be greater use of CACs, including in bonds sold into the US market. A strong case can be made that investors will benefit from well-targeted reforms to the way that sovereign debt crises are handled. Indeed, Mexico's successful sale of global bonds with CACs on 26 February 2003 – the first placement of bonds with CACs by an emerging market sovereign into the US market – suggests that the long-held opposition to CACs in some quarters may be easing.

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1.   Introduction

There has recently been much debate over crisis prevention and resolution. Although much has been done on crisis prevention, it may be inevitable that there will be occasional sovereign debt crises such as those experienced in recent years by Argentina, Ecuador, Russia and Ukraine. Crises such as these are usually extremely costly for both investors and the citizens of the affected countries, and have prompted debate over what changes could be made to the way that financial markets and the international community deal with sovereign debt crises. However, there is little agreement over what reforms are desirable. The debate appears to hinge on different views as to how to meet the goal of facilitating the speedy restructuring of unsustainable debt burdens in a way that minimises both the dislocation to the affected country and the loss of value to creditors, while ensuring that borrowers that can repay their obligations do so.

Official proposals have focused on either a contractual or a statutory approach to the problem. A contractual approach would involve borrowers placing clauses in their debt contracts that would spell out the various procedures that might be followed in the event that debt servicing problems arise, including procedures for qualified majorities of bondholders to change the payment terms of bonds (see Taylor (2002)). These clauses would draw heavily on the collective action clauses (CACs) that already exist in many bonds issued in the Euromarket. Proposals for a statutory approach are continuing to evolve as the International Monetary Fund (IMF) develops its proposal for a sovereign debt restructuring mechanism (SDRM).[1] The purpose of the SDRM would be to move the framework for dealing with sovereign debt problems closer to the bankruptcy frameworks that exist within national economies. An important aspect of these two approaches is that neither would force restructuring on creditors or borrowers: they would simply

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[1]   See IMF (2003) for further details of the proposed sovereign debt restructuring mechanism.

provide a framework by which a super-majority (say 75 per cent) of creditors could come together and agree to change the payment terms if they viewed it as being in their collective interest.

Despite support for both the contractual and statutory approaches from the international organisations and major industrial countries, there has been little support for either approach from either investors or emerging market issuers. Investors (and the financial markets more generally) were for a long time strongly opposed to a contractual solution (wider use of collective action clauses), arguing that the status quo of voluntary exchange offers for dealing with debt problems was sufficiently flexible to deal with debt servicing problems.[2] Although private sector organisations have recently been more supportive of a contractual approach and have drafted a set of model CACs,[3] the strength of this support is unclear, with some arguing that they are unwilling to discuss moving toward a contractual approach as long as the statutory approach remains on the table.

Emerging market borrowers have also tended to oppose most reforms, with some citing concern that reforms would increase their borrowing costs. In many respects the lack of support from borrowing countries appears to be related to opposition from financial markets. Indeed, Boorman (2003) notes that despite the absence of credible evidence that collective action clauses have increased spreads 'the private sector seems to be going around to emerging market countries and trying to scare the hell out of them about the fact that either the use of collective action clauses or the SDRM will lead to an increase in spreads'. An important recent development, however, was the inclusion of CACs in a global bond issue by Mexico on 26 February 2003, which we discuss further in the conclusion.[4]

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[2] See e.g., Chamberlin (2002) for a summary of private sector views from the head of one leading trade association.

[3] See the 31 January 2003 letter from the heads of seven private sector organisations to G-10 Finance Ministers, available at <http://www.emta.org/ndevelop/Final_merged.pdf>.

[4] Global bonds are bonds issued simultaneously into the US market, Euromarket and other markets. This appears to be the first sovereign issue into the US market with CACs, although there are instances of bonds issued into the Euromarket under New York governing law that include CACs (see Footnote 9).

This paper makes no judgment on the relative benefits of a contractual versus a statutory approach.[5] Instead, it presents new evidence, based on market prices, about the way that markets have viewed contractual clauses that can facilitate debt restructuring. In particular, since a significant proportion of the outstanding stock of sovereign bonds – from mature as well as emerging market countries – already includes CACs, we are able to analyse the pricing of bonds with and without CACs.

This paper adds to the literature on the pricing of CACs in two regards. First, it provides an additional test as to the historical pricing of CACs. In particular, previous empirical evidence has suggested that the use of CACs in a bond issue did not increase the cost of borrowing for that particular bond.[6] Previous evidence has also shown that the use of CACs did not affect bond pricing in the secondary market after the issuance of the bond.[7] However, if the use or non-use of CACs is something that markets consider as relevant in pricing bonds (e.g., because it signals something about repayment probabilities), then we would expect that when a new bond issue occurs that involves a change in the contractual terms (towards or away from CACs), this should result in a change in the value of the existing stock of issuance from that issuer. We test this hypothesis via an event study and find no evidence that decisions about the contractual terms of new bond issues have affected the pricing of the existing stock of debt. This is an additional piece of evidence that CACs have historically not been viewed as a factor that influenced bond yields.

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[5] One obvious difference, however, is that a statutory approach would be a more comprehensive solution, since it would overcome problems such as aggregation of different bond issues (see e.g., Boorman (2003)).

[6] See Becker, Richards and Thaicharoen (forthcoming) and Tsatsaronis (1999). By contrast, Eichengreen and Mody (2000) suggest that CACs decrease borrowing costs for higher-rated issuers and increase borrowing costs for lower-rated issuers, though Becker, Richards and Thaicharoen suggest these results may be due to data problems and the instrumental variables technique used by the former to control for possible endogeneity in the use of CACs.

[7] See Becker, Richards and Thaicharoen (forthcoming), Petas and Rahman (1999), and Dixon and Wall (2000).

Second, this paper provides a very recent update on the pricing of bonds with and without CACs. Although Becker, Richards and Thaicharoen (forthcoming) have shown that the use of CACs had no impact on the pricing of a large sample of bonds in the secondary market in mid 1998 and mid 2000, much has happened since then. In particular, the November 2001 IMF proposal for the SDRM and the default by Argentina – the largest emerging markets issuer – have highlighted the problems of debt crises, which may have resulted in new focus by market participants on the role of CACs in pricing emerging market sovereign bonds. We therefore test whether there is a significant difference in the pricing of bonds with and without CACs as of 31 January 2003. The results indicate that there is still no evidence that CACs have had an economically or statistically significant impact upon bond pricing in the secondary market. Accordingly, we conclude that market participants have still not – as of early 2003 – focused on which bonds have CACs, or that they do not believe that the presence or absence of CACs should influence the value of a bond.

The rest of the paper is organised as follows. Section 2 provides some background on the nature and use of CACs. In Section 3 we present the results of the event study of decisions about CACs and their impact on the pricing of the outstanding stock of debt over 1994–2003. Section 4 contains the tests of the pricing of the CACs in a large sample of bonds in the secondary market on 31 January 2003. Section 5 concludes.

2.   Background on Collective Action Clauses

Collective action clauses have been commonly used in international sovereign bond documentation since becoming market practice under English law for corporate bonds in the nineteenth century.[8] The CACs included in modern-day sovereign bonds generally contain two main types of provisions:

- majority restructuring clauses: enabling changes to be made to the financial terms of a bond instrument by a qualified majority (say 75 per cent) of bondholders, thus binding all holders of that bond issuance to the new terms; and

- majority enforcement clauses: allowing a majority of bondholders to limit the ability of an individual creditor to enforce its rights against the sovereign (e.g., to declare the bond payable, or to initiate litigation) in the event of default.

Although the design of these provisions may vary amongst bonds, they typically include – in the case of majority restructuring clauses – rules related to the conduct of bondholder meetings, quorum requirements and voting rules, while majority enforcement clauses often specify that the proceeds of any litigation against the sovereign be shared amongst all creditors.

While CACs are traditionally included in bonds issued under English governing law, and also in bonds issued under Luxembourg and Japanese governing laws, they are not traditional in sovereign bonds issued under New York or German governing laws. In the case of the US, this has been a matter of market practice rather than legal requirement. In particular, although the *Trust Indenture Act* of 1939 precludes the modification of payment terms without unanimous approval of all holders of corporate bonds, the law does not cover sovereign bonds, which could contain CACs. Instead, sovereign bonds issued into the US market have – at least until the path-breaking Mexican issue of 26 February 2003 – used similar

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[8]   See IMF (2002) for further details of the nature and use of CACs.

documentation to the corporate indentures that US investors are familiar with, thereby not including CACs.[9]

Because CACs are traditional in some markets but not in others, it turns out that sovereign borrowers frequently switch between the use and non-use of CACs in their bond issuance. Table 1 provides data from Dealogic's *Bondware* database for the 20 largest emerging market sovereign issuers over the period January 1991–January 2003. We separate issuance in international markets into three groups, based on the governing law of the bond contracts. The first includes bonds issued under English, Luxembourg and Japanese governing laws, for which the use of CACs is customary. The second includes the two major governing laws, New York and German, for which the use of CACs is not customary. The third group includes other governing laws. Table 1 indicates that 17 of the 20 most active sovereign borrowers have switched between issuing bonds with and without

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[9] However, there are exceptions to the correspondence between governing law and existence of CACs in emerging market bonds. One exception is the case of Brady bonds, which are typically under English governing law, but exclude CACs for historical reasons. Another oft-cited exception is a (non-sovereign) US$300 million Euromarket issue by a Thai public utility in October 1998 with New York governing law, but which nonetheless included CACs. We have investigated further as to whether there may be additional Euromarket issues with New York governing law that include CACs, and searched for the offering documents for all Euromarket issues under New York governing law with an issue size of at least US$400 million. Of the 15 bonds where we were able to check offering documents, we found 6 cases where a bond issued under New York governing law appears to include CACs. These included 2 issues from each of Egypt, Lebanon and Qatar. Accordingly, the analysis that follows adjusts for this additional information on the use of CACs.

The results of this exercise are something of a caveat (albeit probably not a major one) to the series of papers that have studied the pricing of CACs in sovereign issuance, assuming a perfect correspondence between governing law and the presence of CACs. However, we suspect that the overall conclusion from most earlier work – that CACs do not affect bond pricing – remains quite robust. Indeed, we suspect that this evidence that CACs are used more frequently in the Euromarket than had earlier been assumed strengthens the case for the proposition that CACs have not previously been noticed by investors and *a fortiori* have not increased borrowing costs.

CACs over this period.[10] Furthermore, 96 per cent of the total issuance of these 20 borrowers is from issuers who have used both types of contractual form.

At one level, the data in Table 1 might be viewed as comprehensive evidence that the existence or absence of CACs cannot be a major influence on borrowing costs. In particular, if the presence or absence of CACs were a major influence on borrowing costs, we would expect borrowers to decide which type of contractual form provided the cheapest (or otherwise most appropriate) form of financing for them, and then to always use those contractual terms. By contrast, borrowers switch frequently between contractual forms, suggesting that the presence or absence of CACs is not a major influence on borrowing costs.

However, this view might be somewhat simplistic, given that issuance in certain currencies or certain markets may in practice constrain the use or non-use of CACs based on what is traditional for that particular market. For example, issuance in Japanese yen is invariably under Japanese governing law and therefore inevitably includes CACs. Accordingly, in the analysis that follows, we concentrate on a subset of issuance where one can plausibly make the case that there is some choice in the use or non-use of governing law. In particular, we focus on issuance in US dollars and euro (and some of its predecessor currencies). In each case, an analysis of governing law usage indicates that borrowers have the choice between issuance in the Euromarket with CACs, or the Euromarket or US (or global) market without CACs.

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[10] The number of sovereigns to have used both types of contractual form would also include Korea if we also included quasi-sovereign issuance in the table. In particular, the Republic of Korea has made only two bond issues in its own name (in April 1998) but the state-owned Korea Development Bank was a frequent borrower prior to this (sometimes using CACs), and was viewed as representing a sovereign credit.

Table 1: Use of Collective Action Clauses in International Bond Issuance
January 1991–January 2003 – US$ billion

Country	CAC governing law	Non-CAC governing law	Other governing law	Total issuance
Argentina	18.1	38.6	0.6	57.3
Mexico	4.9	33.0	0.1	38.0
Turkey	12.9	24.0	–	36.8
Brazil	12.3	20.3	–	32.6
Hungary	10.1	6.1	1.1	17.3
Russia	14.0	1.8	–	15.8
Colombia	0.8	12.0	0.1	12.9
Philippines	5.1	7.3	–	12.4
Lebanon	3.1	6.5	–	9.6
Venezuela	0.3	8.3	0.1	8.7
South Africa	2.9	4.7	–	7.6
China	1.9	5.7	–	7.5
Poland	4.6	2.0	–	6.6
Panama	–	4.2	–	4.2
Malaysia	0.8	3.3	–	4.0
Korea	–	4.0	–	4.0
Uruguay	0.4	3.3	–	3.7
Croatia	3.3	0.2	0.1	3.6
Ukraine	3.5	–	–	3.5
Tunisia	1.9	1.4	–	3.3
Total	100.9	186.4	2.1	289.4

Notes: The data are calculations by the authors based on data from *Bondware* and include all bond issuance into international markets by those emerging market sovereigns that are among the 20 largest issuers over January 1991–January 2003. The first column of data includes issuance under English, Japanese and Luxembourg governing laws, while the second column includes issuance under New York and German governing laws (subject to the adjustments noted in Footnote 9). Columns and rows may not add due to rounding.

3. Did Decisions on Collective Action Clauses on New Issues Affect Secondary Market Spreads?

3.1 Introduction

The argument that the use or non-use of CACs should influence yields and borrowing costs is usually made along the following lines. Opponents of CACs have generally argued that the likelihood that borrowers will choose to honour their obligations may be altered by the use or non-use of CACs, and that the inclusion of CACs will signal a reduced likelihood of full repayment to bondholders. In essence the argument is that if restructuring is made easier then borrowers are more likely to seek to restructure and reduce their obligations, even if they are perfectly able to honour them. By contrast, proponents of CACs have typically argued that history shows that sovereign borrowers do not willingly seek to renege on their contracts so that the use or non-use of CACs contains no signal about creditworthiness. However, in the event of the financial distress of the borrower the inclusion of CACs will increase the probability of a smooth restructuring rather than a messy default, and will therefore result in reduced losses to bondholders.

The tests in this section make no assumptions about which of these effects is the dominant one, and whether proponents or opponents of CACs are 'correct'. Instead, we initially simply seek to test if we can find any evidence that the use of CACs has affected yields at all, without any priors about which direction this effect should take.

Our test is based on the notion that if the decision to use or not use CACs contains information that is important to investors, then it influences not only the value of a bond at the time of issue but also affects the value of the outstanding stock of previously issued bonds. For example, if a borrower has previously issued bonds without (with) CACs, then the decision to issue bonds with (without) CACs may – if there is any merit to the argument of the opponents of CACs – signal a decline (improvement) in the creditworthiness of the borrower. This should be reflected not only in higher (lower) borrowing costs for the bond that contains the change in contractual terms, but also higher (lower) yields on the outstanding stock of bonds,

because the latest issuance decision conveys information to the market that is relevant for the valuation of those bonds.

Alternatively, even if there is no signal about the borrower's willingness to repay, the arguments of the proponents of CACs might suggest there could still be an impact on yields, albeit in the opposite direction to the effect posited in the previous paragraph. For example, a shift towards CACs may convey information about the likelihood of a smooth (and value-preserving) restructuring rather than a messy (and value-destroying) default. For example, if the probability of a smooth restructuring is a function of the proportion of bonds with or without CACs, then decisions to change the type of issuance convey information about the likely ease of restructuring and could therefore result in changes in yields and prices in the secondary market.

3.2   Methodology

The preceding discussion can be re-expressed as a testable hypothesis: if the use or non-use of CACs is value-relevant for investors, changes in the nature of the majority action clause relative to previous issuance will impact on the value of the issuer's outstanding stock of debt.

We test this hypothesis via an event study of abnormal returns in the secondary market pricing of the existing stock of debt. We divide all debt issues (or events, denoted by i) in our sample based on whether the issue included CACs or not, and whether it represented a change in the use of CACs from the previous issue. This enables us to create four mutually exclusive dummy variables: $D1_i$, where the issuer did not use CACs in either the current issue or the previous issue; $D2_i$, where the issuer used CACs in both the current issue and the previous issue; $D3_i$, where the issuer used CACs in the current issue but not in the previous issue; and $D4_i$, where the issuer did not use CACs in the current issue, but did so in the previous issue.

One key methodological question in conducting the test is the definition of the abnormal return and the 'event window'. For every event we know the day when the bond issue was announced to the market as occurring on that day. If this was indeed the day that the market learned everything about the issue, then we could

conduct an event study for abnormal returns on that day. However, for most bond issues, the marketing of an issue typically occurs for some period before the announcement to the market that the issue is taking place on the day in question. Any assumption of the standard period of 'pre-marketing' will be somewhat arbitrary, but for the purposes of this study we choose to focus on a five day event window, starting three trading days before the announcement, and ending one day afterwards. Thus treating the day of the announcement of the issue as $t = 0$, our event window is defined as the period from $t = -3$ to $t = +1$. We would not argue that all investors become aware of the nature of the contractual terms of the issue in this window, merely that a sufficiently large fraction of investors learn about the terms of the bond in this window to have an effect on secondary market pricing if the news about the contractual terms is indeed value-relevant.

Given the definition of the event window, we define the 'estimation window' as the 100 day interval from $t = -103$ to $t = -4$. We then estimate a market model for this window for each event i and borrower j, by regressing the daily return on the relevant emerging market issuer (r_{ijt}) on the return on a broad portfolio of emerging market bonds (r_{imt}). To take account of possible illiquidity in secondary market bond pricing, we estimate our market model using overlapping five-day returns. The equation we estimate is therefore given by:

$$r_{ij,t-5,t} = \beta_0 + \beta_1 r_{im,t-5,t} + \varepsilon_{ij,t-5,t} \tag{1}$$

Using the parameter estimates from Equation (1) we calculate a predicted return for the five-day event window, and then define the abnormal return (r^{abn}) as the actual return less the predicted return. We then regress this abnormal return on the four dummy variables for the nature of the contractual terms, and the size of the bond issue as a ratio to national GDP, denoted $issuesize_t$:[11]

$$r^{abn}_{ijt-3,t+1} = \beta_0 D1_i + \beta_1 D2_i + \beta_2 D3_i + \beta_3 D4_i + \beta_4 issuesize_i + \varepsilon_i \tag{2}$$

In addition to estimating Equation (2) using abnormal returns, we also estimate it in standardised terms, i.e., by dividing the event-window abnormal returns by the standard error of the predicted return (based on Newey-West standard errors to

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[11] Since the four dummy variables are mutually exclusive, we do not include a constant term.

account for the moving average error term that is introduced through the use of overlapping returns). The distribution of these standardised abnormal returns will have a unit variance if event-window returns are drawn from the same distribution as estimation-window returns.

3.3   Data

Data for this part of the study are based on bond issuance data in the *Bondware* database and secondary market bond index data from JPMorgan Chase.

From *Bondware*, we obtained data for all issuance (excluding Brady bonds) by sovereigns rated A+/A1 or lower by Standard and Poor's, and Moody's. We then focused on issuance in US$ or major European currencies into the Euromarket, US market or global market. We then limited the sample to all issuance that occurred under New York, German, English or Luxembourg governing laws. Since CACs are not customary in bonds issued under the first two governing laws, those bonds represent the issuance that occurred without CACs, while bonds issued under the latter two governing laws represent our sample of bonds issued with CACs.

The resulting sample of bonds from *Bondware* represents a sample where we can reasonably say that even after deciding on the currency of issue, borrowers had a choice in whether or not to use CACs. We then focus on countries that switched between using or not using CACs on at least two occasions in the sample.

We obtained data for total return indices for the existing secondary market stock of bonds from JPMorgan Chase. We use the EMBI Global indices which are available on a daily basis from the start of 1994. These indices measure the daily change in the valuation of the stock of securities issued by each country that meet certain requirements in terms of size and liquidity of each issue. In each case we required the existence of a sufficiently long time-series of returns to enable the estimation of a market model prior to the event window. We use the US dollar indices in all cases, even in cases where the bond issue was denominated in a European currency. The implicit assumption is that the two markets are not totally segmented and that news that is revealed in one market will also be reflected in pricing in the other market.

The intersection of the *Bondware* and JPMorgan Chase data leaves us with data from 10 countries which have switched at least twice between using and not using CACs, and for which we have the required secondary market returns data. One potential problem with the data is that they are heavily weighted toward Argentina, given that country's heavy issuance over 1991–2001. To reduce the weight of Argentina, we limit our universe of Argentinean issues to those greater than US$400 million in size.

The resulting sample includes 204 bond issues from the 10 countries, including Argentina, Brazil, Croatia, Malaysia, the Philippines, Poland, Russia, South Africa, Turkey and Venezuela. The sample includes 87 events where the borrower switched in its usage of CACs (43 to using CACs, and 44 from using CACs), and 117 events where there was no change in contractual form (26 using CACs and 91 not using CACs).

3.4   Results

The data for abnormal returns for the 204 events described above have a mean that is slightly negative, at around –0.15 per cent. This might be viewed as evidence that new issuance is typically associated with a very slight fall in the value of the existing stock of debt, because it represents an addition to the outstanding stock of debt. However, when we add a variable for the size of the new issuance as an explanator of the abnormal return, the parameter estimate is far from statistically significant (although it is negative) so we cannot attribute much of the average negative abnormal return to a 'supply-shock' explanation.[12]

The results from estimating Equation (2) are provided in Table 2. If the use of CACs was viewed negatively by the markets, changes from using CACs to not using CACs should be associated with positive abnormal returns whereas changes to using CACs should be associated with negative abnormal returns. Furthermore, decisions to continue the use of CACs should be associated with more negative returns than decisions to continue not using CACs. However, the first column of

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[12] It may not be surprising that the change in secondary market prices is largely independent of the size of the new issue if issuers typically have sufficient flexibility in new issuance to adjust its timing and magnitude to minimise the impact on the existing yield curve (i.e., by not proceeding with a planned issue if it is likely to result in a substantial increase in yields, and in increasing the size of an issue if there is strong demand for it).

results provides no support for these propositions with none of the parameter estimates being statistically significant.

Table 2: Do Decisions on the Use or Non-use of CACs Influence Secondary Market Abnormal Returns?

Explanatory variable	Dependent variable	
	Abnormal return	Standardised abnormal return
D1		
CACs not included, no change in contractual form	–0.22(1.8)	–0.23(1.7)
D2		
CACs included, no change in contractual form	–0.05(0.3)	–0.26(1.3)
D3		
Change in contractual form to CACs	–0.07(0.5)	–0.06(0.4)
D4		
Change in contractual form to excluding CACs	0.08(0.5)	–0.08(0.5)
Issue size/GDP	–0.14(0.9)	–0.14(0.7)
Adjusted R^2	0.0012	–0.0073

Notes: This table shows the results from an event study to investigate if decisions on whether or not CACs are included in new bond issues affect the pricing of a country's existing debt in the secondary market. The results show estimates of Equation (2) with the dependent variable first defined as the abnormal return (in per cent) around the event date and then as the standardised abnormal return around the event date. The variables *D1–D4* are mutually exclusive variables defined by whether or not CACs are included in a new issue, and whether this was a change from the previous issue. *T*-statistics are shown in parentheses based on heteroskedasticity-consistent standard errors.

Similarly, the results for standardised abnormal returns also fail to show any evidence consistent with the view that the use of CACs is penalised by the financial markets. Indeed, what is striking about these results is that the adjusted R^2 for both regressions are approximately zero, suggesting the abnormal returns on

the existing stock of debt are essentially independent of decisions about the governing law of bonds (and the size of the new issue).[13]

These results are complementary to, but consistent with, the results of Becker, Richards and Thaicharoen (forthcoming) and Tsatsaronis (1999). Whereas those authors show that an issuer's decisions about the use or non-use of CACs have historically had no impact on the pricing of its new debt issues, the current results show that these decisions have also had no impact on the pricing of issuer's existing stock of debt. These results would appear consistent with the reality that issuers have frequently switched between using CACs and not using CACs, and investors have been apparently unconcerned by decisions on the exact form of the contractual terms of bonds.

4. Were Collective Action Clauses Priced in Early 2003?

4.1 Methodology

In this section, we largely follow the methodology of Becker, Richards and Thaicharoen (forthcoming) in examining the impact of the presence or absence of CACs in the pricing of a large sample of bonds trading on the secondary market. Whereas those authors concentrated on market pricing as of 30 June 1998 and 30 June 2000, we focus on a more recent date, namely 31 January 2003.

Our dependent variable is the log of the ratio of the yield on the emerging market bond i to the yield on the corresponding mature market benchmark bond, and is denoted by $log(r_{i,em}/r_{i,bm})$.[14] We initially include the full sample of bonds from all emerging market countries. We regress the yield variable against a number of variables for the characteristics of the bond. These include: the average credit

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[13] As a robustness check, we have also examined the impact of including credit ratings interaction terms with the dummy variables, and still find no evidence that choices on contractual terms affect abnormal returns. In addition, since 131 of the 204 events in the sample relate to just three issuers (Argentina, Brazil and Turkey) we have also estimated the equations excluding these three large issuers. The results are little changed.

[14] The reason we use this transformation rather than the log of the spread is that the latter approaches negative infinity as the spread approaches zero, implying that bonds with very low spreads may have an undue impact on the estimates.

rating for the bond from Moody's and Standard and Poor's (rat_i);[15] the modified duration of the bond (dur_i); the US dollar equivalent of the amount of each bond on issue ($size_i$); and a dummy for US dollar-denominated (rather than European currency denominated) bonds ($dollar_i$).

Since theory offers little guidance as to the exact functional form of the relationship between the explanatory variables, we tested different functional forms in search of a parsimonious equation that explained the data reasonably well. The basic equation is as follows:

$$log(r_{i,em} / r_{i,bm}) = \beta_0 + \beta_1 rat_i + \beta_2 rat_i^2 + \beta_3 dur_i + \beta_4 dur_i * rat_i \\ + \beta_5 log(size_i) + \beta_6 dollar_i + \varepsilon_i \quad (3)$$

The squared rating term is included to allow for a non-linear relationship for lower-rated bonds, and the term interacting the duration and ratings variable is included to allow for the observation that, for poorly rated borrowers, yields often fall rather than rise with duration.

We then included a dummy variable (CAC_i) taking the value of unity if the bond includes CACs (based on English governing law). In addition, since some have argued that the impact of CACs on yields should be somewhat dependent upon the credit quality of the issuer, we also included an interaction term with the credit rating variable.

Although most major emerging market issuers have issued bonds with and without CACs, many of the bonds in our sample of secondary market yields are from countries that have issued bonds with only one type of contractual form. If the decision by countries to choose a particular contractual form were related to their creditworthiness (or to some other determinant of spreads), then it would be possible that estimates of the impact of governing law might be biased due to endogeneity. In practice we believe this is not a major issue, based both on market

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[15] The credit rating variable is expressed in terms of the standard numerical rating, with AAA/Aaa set to 1 and B–/B3 set to 16.

practice,[16] and because we expect that our credit rating variable is a fairly comprehensive measure of the information about creditworthiness that is available at any time.

Nonetheless, to address the possible problem of endogeneity we also estimate an equation for yields including only those countries that have bonds outstanding with and without CACs. As discussed by Becker, Richards and Thaicharoen (forthcoming) this is equivalent to a fixed effects correction for endogeneity and enables us to avoid the problems of endogeneity corrections based on instrumental variables. In estimating this model, we include a dummy variable for each country, but no longer need to include the credit ratings variables.

4.2 Data

We obtained data for secondary market yields for a large sample of sovereign bonds (excluding Brady bonds) from the Merrill Lynch Global Index database. We also obtained data for the currency and modified duration of each bond from Merrill Lynch. We focus on data for 31 January 2003. The sample includes sovereign borrowers rated by Standard and Poor's, and Moody's between A+/A1 and B–/B3. We omit issuance in Japanese yen, and limit our sample to issuance in US dollars and major European currencies.

We obtained data on the governing law of all bonds in our sample from *Bondware* or Bloomberg. Data on long-term foreign currency debt ratings were obtained from Bloomberg and transformed into a numerical variable (as described in Footnote 15). In the event of a split rating between Moody's and Standard and Poor's we use the average numerical rating.

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[16] Becker, Richards and Thaicharoen (forthcoming) provide analysis showing that the use of governing law is highly correlated with factors such as the currency and market of issue, and the nationality of the investment bank that is the lead manager of the issue. Dammers (2002) also notes that the choice of governing law and use of CACs is not a primary decision for issuers or investors, but is likely to reflect the type of documentation typically used by the lead manager's lawyers.

Our final sample includes 216 bonds from 39 countries.[17] The sample of countries with bonds both with and without CACs includes 119 bonds from 13 countries, including Brazil, Croatia, Hungary, Israel, Lebanon, Malaysia, the Philippines, Poland, Russia, Slovenia, South Africa, Tunisia and Turkey. The latter group includes 48 bonds with CACs and 71 bonds without CACs.

4.3   Results

The initial specification tests to determine the functional form shown in Equation (3) were conducted before the inclusion of the CACs variable(s). In addition to the variables shown in Equation (3), we include separate country dummies for three countries (Brazil, Mexico and Turkey) that each represent more than 10 per cent of the total number of bonds in our sample (though the results that follow are not dependent on this). The parameter estimates for the basic model are shown in the first column of results of Table 3.[18] The results show that yields are higher for bonds with poor credit ratings and longer durations, and for dollar-denominated issues (relative to issuance in European currencies). The signs of each of these estimated impacts accords with conventional wisdom on market pricing, and the interaction terms also take the expected signs. The estimate on the variable for the size of the issue is negative, which may reflect a liquidity effect, with larger bonds with greater liquidity having lower yields.

We test for the importance of CACs in determining yields by first including a simple zero/one dummy variable that takes the value of one for English law bonds. The results in the second column suggest that the use of CACs was associated lower yields for the full sample of bonds. Although the parameter estimate is statistically significant, we hesitate to rely too much on any particular estimate, given that the previous work of Becker, Richards and Thaicharoen (forthcoming)

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[17] The countries include Bahrain, Barbados, Brazil, Chile, China, Colombia, Costa Rica, Croatia, Cyprus, Dominican Republic, Egypt, El Salvador, Estonia, Guatemala, Hungary, Israel, Jamaica, Kazakhstan, Korea, Latvia, Lebanon, Lithuania, Malaysia, Mexico, Panama, Peru, Philippines, Poland, Qatar, Romania, Russia, Slovenia, Slovak Republic, South Africa, Thailand, Tunisia, Turkey, Ukraine and Uruguay. Based on the information in Footnote 9, we define six issues by Egypt, Lebanon and Qatar as including CACs, even though they occurred under New York governing law.

[18] For brevity, we do not show the separate country dummies for Brazil, Mexico and Turkey for the first three specifications, nor the 13 country dummies in the last two specifications.

shows that such coefficient estimates tend to jump around somewhat, while never deviating much from zero.

We then test whether the impact of CACs might be somewhat dependent upon credit quality by including a term that interacts the CAC dummy with the numerical ratings variable. The results in the third column indicate that the interaction term is completely insignificant, and that the basic CACs variable is no longer significant, although the parameter estimate remains negative.

Table 3: Did the Use of Collective Action Clauses Affect Secondary Market Yields on 31 January 2003?

Explanatory variable	Sample – all 216 bonds from 39 issuers			Sample – 119 bonds from 13 issuers with bonds both with and without CACs	
	No CAC variable	CAC dummy variable included	CAC dummy and interaction term included	CAC dummy variable included	CAC dummy and interaction term included
Constant	–0.293(1.4)	–0.283(1.4)	–0.314(1.5)	na	na
Rating	0.100(2.9)	0.098(2.9)	0.103(3.0)	na	na
Rating-squared	0.002(1.5)	0.002(1.6)	0.002(1.5)	na	na
Duration	0.066(4.7)	0.068(4.7)	0.068(4.6)	0.054(3.4)	0.055(3.3)
Duration* rating	–0.009(6.2)	–0.009(6.2)	–0.009(6.2)	–0.009(5.5)	–0.009(5.4)
Dollar-denominated	0.152(4.7)	0.109(3.0)	0.111(3.0)	0.123(4.4)	0.117(4.0)
Log (amount)	–0.053(3.6)	–0.043(2.6)	–0.043(2.6)	–0.031(1.2)	–0.025(0.9)
CACs	na	–0.087(2.8)	–0.049(0.6)	0.022(0.9)	–0.057(0.8)
CACs* rating	na	na	–0.003(0.5)	na	0.007(1.1)
Adjusted R^2	0.891	0.896	0.895	0.959	0.958

Notes: This table shows estimates of Equation (3) to estimate the effect of the inclusion of CACs on yields on emerging market bonds. The dependent variable is given by $log(r_{i,em}/r_{i,bm})$, i.e., the log of the ratio of the yield on the emerging market bond relative to the yield on the corresponding mature market benchmark bond. *T*-statistics are shown in parentheses and are based on heteroskedasticity-consistent standard errors.

When we limit our sample to 13 countries to conduct a test equivalent to the fixed-effects endogeneity correction, we exclude the rating and rating-squared variables, and instead include separate country dummies for each country. The results are shown in the fourth column, and for brevity exclude the parameter estimates for the country dummies. The results indicate that the CACs variable is now modestly positive, though it remains statistically insignificant. Our final set of results in the fifth column also includes a variable interacting the CACs variable with the numerical ratings variable. The point estimates suggest that CACs are associated with lower yields for high-rated issuers, but higher yields for low-rated issuers. However, these impacts are not statistically significant since both CACs variables are insignificant.

We summarise the results from Table 3 (and other related results which are not shown) as follows. While some of the results suggest that CACs are associated with higher yields, others suggest they are associated with lower yields, and most of the estimates are insignificant: the only significant result was in the second column and was that CACs were associated with lower yields. This pattern of variable, but almost always insignificant, estimates is exactly what one would expect if CACs have no impact on yields. These results from a large sample of bonds in early 2003 are similar to the results obtained for earlier samples in Becker, Richards and Thaicharoen (forthcoming) and suggest that the presence or absence of CACs is not a factor that is priced in the secondary market trading of emerging market bonds.

5. Conclusion

This paper has presented further evidence that the inclusion of CACs has not influenced borrowing costs over the past decade or so. This is consistent with the weight of earlier empirical studies and is not surprising given the evidence cited in Becker, Richards and Thaicharoen (forthcoming) that the market-place has historically paid no attention to this particular aspect of bond contracts. It is also consistent with observations by market participants (e.g., Petas and Rahman (1999) and Dammers (2002)) that the inclusion of CACs has simply not been an important decision variable for borrowers or investors.

However, the paper has also presented new evidence about the pricing of bonds with and without CACs in the secondary market as of 31 January 2003. By comparing the yield on bonds issued in the Euromarket with CACs, and bonds issued in the US market and Euromarket without CACs, we show that the inclusion of CACs in bonds issued in the Euromarket did not impact secondary market yields as of early 2003. This suggests that even after the extensive debate over possible reforms to crisis resolution, financial market participants had still not focused on which bonds had CACs or that they did not believe that the existence or absence of CACs was relevant to the pricing of bonds.

The challenge for greater use of CACs will be to change market convention and have these terms included in new bonds issued into the US market. The fact that the bond market currently prices existing bonds with and without CACs no differently, and that many US investors already hold bonds with CACs – apparently often without being aware of it – suggests that there is no good reason why bonds with CACs cannot be sold into the US market at similar yields to bonds without CACs.

Of course, opponents of CACs might well argue that the use of CACs in all bonds, including in the US market, would represent a regime change and might signal that bond restructurings would become a more frequent phenomena and that investors will lose from this. However, the historical record provides little to suggest that emerging markets would rush to restructure in the event that there were reforms to make restructuring somewhat smoother. Indeed, recent crises suggest that elected officials and policy-makers in emerging markets are too slow rather than too eager to deal with incipient debt-servicing problems. The result of their delay in approaching their creditors is invariably to make losses for creditors far larger than they need be. One can therefore make a strong case that investors will benefit from well-targeted reforms – either the SDRM or greater use of CACs – that make it more likely that debt-servicing problems are addressed before they develop into full-blown crises.

Indeed, the successful placement by Mexico of bonds with CACs into the US market on 26 February 2003 – which occurred after the results in this paper had been finalised – suggests that US investors have come to realise that the use of well-designed CACs is not inconsistent with protection of creditor rights. The placement of US$1 billion of bonds due in 2015 occurred at a yield that was almost exactly in line with Mexico's 2013 and 2016 issues, which do not contain CACs. Following the issue a senior Mexican official was quoted as saying that 'Now everyone understands that if properly designed, [CACs] represent a benefit both for the issuers and the holders, so there is no reason for a premium to be paid'.[19]

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[19] See 'Mexico Sells $1 Bln of Bonds With Default Clauses', Bloomberg L.P., 26 February 2003.

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