

To: Members of PS 313
From: Mike Tomz
Date: February 24, 2002
Re: Seminar on March 4

As some of you know, I am revising a book manuscript about sovereign debt during the past three centuries. The book examines the factors that encourage sovereign governments repay debts to foreigners, and it shows how private bondholders and banks take those factors into account when allocating capital.

Broadly speaking, there are two perspectives on why countries repay their foreign debts. The first argues that countries repay to avoid punishment by a cartel of creditors, which might retaliate against default by organizing a financial embargo against the debtor, cutting off its access to international trade, or subjecting the debtor to diplomatic and military sanctions. The second says that countries repay to maintain or enhance their reputations in international capital markets. An inexcusable default would signal to markets that the debtor is a “lemon” that lacks the resolve or competence to meet its foreign debts. Countries that are not lemons repay to avoid being misperceived as such.

My manuscript advances the second perspective. I propose a theory about how reputations form in international finance and how they affect the behavior of debtors and creditors. I then test the theory against its competitors, using both quantitative and qualitative data since the 1700s. The evidence strongly supports the particular theory of reputations that is proposed in the manuscript. In contrast, there is very little empirical support for theories of punishment by creditor cartels.

Rather than distribute the manuscript, which would be too much to read for one seminar, I am attaching **three shorter items** related to the project. The **first** is an APSA paper about how reputations form in global capital markets. It contains evidence that appears in one chapter of the book. The paper and book manuscript rest on a theory of reputation that could potentially be formalized. To this end, the **second** item is a draft of a formal model, based on a modeling approach that Jim Fearon suggested. The model generates many but not all of the key predictions I discuss in the book. I am now working on extending the model to make it match more closely the argument in the book. Finally, the **third** item is an empirical chapter that evaluates the importance of trade sanctions as a tool for enforcing debt contracts. The chapter may be of interest for two reasons: it treats an important alternative to the reputational approach, and it contains a case study of Argentine debt policy during the 1930s. Readers may be surprised to learn that Argentina repaid its debts during the Great Depression, though not for reasons typically cited by theorists and historians!

This is work in progress, and I would welcome any suggestions about how to improve the theory, empirical analysis, or presentation. Thanks in advance for your comments!

- Mike

How Do Reputations Form?
New and Seasoned Borrowers
in International Capital Markets

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Abstract

This paper shows how reputations formed across two centuries of international financial history. Evidence from the 1700s and 1800s indicates that investors used Bayesian logic to update their beliefs about the creditworthiness of sovereign borrowers. In particular, lenders offered worse credit to unproven borrowers than to better-known entities, to compensate for the risk that the newcomers could be “lemons.” Countries that paid faithfully over a number of years, thereby distinguishing themselves from lemons, saw their risks premiums decline asymptotically toward the baseline rate of more “seasoned” debtors. Countries that defaulted, on the other hand, could not raise additional capital until they offered an acceptable settlement to creditors. The evidence, based on primary sources compiled here for the first time, shows that reputations formed in a particular way and profoundly influenced the flow of international capital.

1. Introduction

In the literature on reputation in international relations, there is a contradiction between two conventional wisdoms, one theoretical and the other empirical. The theoretical wisdom holds that concerns about reputation should play an important role in world politics. For centuries scholars and practitioners of international relations have cited reputation as a motive for keeping one's word. A government that honors its commitments can acquire a reputation for reliability, which should help it attract partners for cooperative endeavors, whereas a government that breaks its commitments may signal that it cannot be trusted, prompting others to exclude it from beneficial international agreements. This argument, which appears in classical works of international relations as well as modern analyses of political economy, has achieved the status of conventional theoretical wisdom.

The empirical wisdom, in contrast, holds that concerns about reputation exert surprisingly little effect on world affairs. The mismatch between theory and evidence is well documented in research on military deterrence. For instance, the classic study by Snyder and Diesing found little proof that statesmen infer the resolve of an opponent from its behavior in previous crises.¹ Statistical research points in a similar direction: policymakers seem to assign reputations only within narrow geographic regions, if at all.² Finally, recent qualitative work on military crises of the twentieth century uncovered few cases in which reputation transferred from one conflict to another.³ Paul Huth aptly summarized the state of our scientific knowledge: "There is a substantial gap," Huth wrote, "between the intuitive believe that reputations are an important cause of international conflict and the development of a compelling logical argument and empirical evidence to support such a conclusion."⁴

The clash between theory and evidence is also apparent in international political economy, particularly among students of international debt. In their massive study of sovereign debt since the 1850s, Lindert and Morton conclude that "investors seem to pay little attention to the past repayment record of borrowing governments. [T]hey do not punish governments with a prior default history, undercutting the belief in a penalty that compels faithful repayment."⁵ Other studies, focusing on more limited time periods, concur. Cardoso and Dornbusch (1989), Jorgensen and Sachs (1989), and Eichengreen (1991) all maintain that governments that defaulted on foreign bonds during the Great Depression did not receive significantly worse terms of credit when they resumed borrowing after the Second World War. The lesson of history, it seems, is that international creditors ignore history!

In previous work I proposed a theory that reconciles these two conventional wisdoms, at least in the field of international debt.⁶ Specifically, I argued that *a government alters its reputation by surprising creditors – by doing the opposite of what creditors expect, given circumstances beyond its control*. For instance, a government that pays despite war and adverse

¹ Snyder and Diesing (1977), p. 187.

² Huth (1988).

³ Mercer (1996); Press (2001).

⁴ Huth (1997), p. 97.

⁵ Lindert and Morton (1989), p. 40.

⁶ Tomz (1999a, 1999b).

economic shocks, such as rising world interest rates or deteriorating commodity prices, will improve its standing in the eyes of creditors. By the same logic, a government that defaults under favorable economic conditions will see its reputation sink. But creditors will not deprecate a borrower that defaults under duress, nor will they esteem a government for paying when the yoke is light. Credit history does affect reputation, but only under certain conditions.

As a first step toward testing this theory, I examined the behavior of capital markets during the 1930s and immediately after World War II. Using statistical and qualitative evidence, I identified several governments that surprised creditors by paying despite economic hardship, and I showed that those governments acquired favorable reputations that helped them borrow when others could not. My analysis also demonstrated that creditors reacted harshly toward surprising defaulters, who paid less than external circumstances seemed to warrant, but treated “expected” payers and “expected” defaulters roughly the same. Thus, creditors did discriminate between defaulters and payers, *but* only after taking mitigating circumstances into account.

This paper extends the empirical analysis by testing three additional implications of my theory of reputation. First, investors should offer worse credit to an unproven government than to better-known entities, as compensation for the risk that new borrower could be a “lemon.” The compensation will take the form of a lemon premium: an extra interest charge, above and beyond the baseline rate that a “seasoned” borrower would pay for access to foreign capital. Furthermore, the premium should be roughly the same for all new borrowers in the same cohort, especially under conditions of low information when other data are not available, and credit histories offer the basis for discriminating across borrowers.

Second, if the new borrower services its debts punctually over a number of years, thereby distinguishing itself from a lemon, its access to credit should eventually improve. The improvement should occur even if the borrower pays during good times, but should be especially pronounced if it honors the debt when external conditions would seem to warrant a default. Interestingly, this seasoning process should exhibit diminishing marginal returns, with each additional payment enhancing reputation by a smaller amount. At some point, when investors become highly certain that the government is not a lemon, paying during a good situation will only preserve – not improve – the government’s reputation. Thus, the risk premiums of seasoned borrowers should converge asymptotically to a baseline rate.

Third, impenitent defaulters should not be able to raise new capital on international markets. If the borrower defaults and refuses to offer adequate compensation, rational investors will shy away from extending new loans, for fear of throwing good money after bad. Only when the debtor makes an adequate settlement, thereby proving that it is not a lemon, will investors commit new funds. Put another way, only a costly signal will wipe the lemon stain from a country’s credit record.

I test these hypotheses against a unique collection of data from the eighteenth and nineteenth centuries. Specifically, I identify key moments when new borrowers emerged on the scene, and I ask how the markets treated those newcomers, relative to more established ones. I also investigate the dynamics of reputation by testing whether the lemon premium declined over time, conditional on a healthy record of repayment. Finally, I follow the history of countries that

defaulted on their foreign debts to see whether they could raise new capital without first offering a settlement to creditors. The empirical analysis, based on primary sources that have been compiled here for the first time, strongly supports the all three hypotheses about how reputations form in capital markets.

The analysis proceeds in several steps. In Section 2, I sketch the theory of reputation that I have developed at greater length elsewhere, to motivate the three hypotheses considered in this paper. Sections 3 through 5 test the hypotheses against evidence from the 1700s, the 1820s, and the 1870s, and Section 6 concludes.

2. A Theory of Reputation in Capital Markets

I argue that, either consciously or subconsciously, most investors learn according to Bayesian principles: they update their beliefs about the likelihood of default in response to new information. At each stage in the learning process, investors develop a posterior belief that represents a compromise between their pre-existing views and the newly arriving data. If the incoming data corroborate what investors already thought, beliefs will remain roughly the same. In this case, the confirmatory data will give investors greater confidence in their estimates but should not lead them to modify the estimates themselves. If, on the other hand, the data challenge existing perceptions about the debtor's propensity to meet financial commitments, investors will adjust their beliefs by taking a weighted average of their prior views and the new data. The greater the reliability of recent evidence, relative to historical information summarized in prior opinions, the more investors will disregard their preconceptions and assign a heavy weight to breaking news.

My argument does not require that all people possess identical cognitive abilities or apply Bayesian precepts to all spheres of daily life. After all, psychologists have identified a conservative bias in human learning: once people form a first impression, they often downplay dissonant evidence and give undue weight to their initial view.⁷ The proper question is not whether people think like Bayesians in all circumstances, but under what conditions their reasoning most nearly approximates the Bayesian ideal. For two reasons, the approximation should be close when people act in their capacity as international investors. First, investors -- and the rating agencies that advise them -- have a strong profit motive to update their beliefs in response to new information, instead of clinging to outmoded views that could lead to financial ruin. Moreover, investors generally do not have an ideological stake in defending views about the creditworthiness of a foreign government, whereas they might respond defensively to data that challenged their religious convictions. Thus, I argue that most international investors behave as intuitive Bayesians, even though they may not know the precise mathematical formulation of Bayes's rule.

When learning about the likelihood of default, investors and rating agencies can use Bayesian logic to analyze many sources of information. For instance, they can study data on

⁷ A clear discussion of this phenomenon appears in Nisbett and Ross (1980, ch. 8). Most psychologists rely on laboratory experiments with undergraduates, but Tetlock (1999) has found a similar conservative bias in studies of "expert" decisionmakers.

economic and political conditions affecting the borrower and the territory it governs. Some variables, such as the endowment of natural resources and the incidence of wars and revolutions, have been available to investors for hundreds of years. Other indicators, including national income, were only developed in the early 1900s and collected systematically after the Second World War. These sources of information can help investors update their beliefs about a particular borrower, but they may not provide a complete picture of the risks and potential returns. To improve their forecasts of repayment, investors must also consider the borrower's history of *behavior*, particularly its record of compliance with international debt contracts. Credit histories, carefully recorded by investors and institutions for centuries, can shed light on political and economic characteristics that would be difficult or impossible to measure directly. I now explain how investors use Bayesian principles to analyze the credit history of a government and sort debtors into categories, depending on the perceived risk of default.

Investors understand that defaults can arise due to circumstances beyond the debtor's control. Most countries are small in relation to global markets, and therefore wield little influence over the real international interest rate and the prices of tradable goods. These exogenous factors directly affect a sovereign's ability to obtain the foreign exchange for servicing international debts. Countries are also powerless to prevent droughts, floods, hurricanes and earthquakes from destroying crops and manufacturing facilities. Through their effect on the domestic economy, natural disasters can reduce government revenues and divert resources from debt servicing to immediate domestic needs. Other things equal, a government is more likely to interrupt payments when suffering from rising interest rates, declining terms of trade, and natural disasters than when external conditions are relatively favorable. Investors take such contingencies into account when negotiating international loan contracts.⁸ This explains why, on average, governments that are vulnerable to external shocks must pay higher interest premia and accept smaller loans than countries that are better insulated from adverse developments.

Investors also understand that governments respond differently to similar exogenous shocks. Some governments pay their debts under virtually any conditions. When the price of their exports falls or the supply of international capital dries up, these "stalwarts" tighten their belts, thereby leaving enough public revenue and foreign exchange to uphold their contractual obligations to foreigners. Other governments are "fair-weather payers" who remain faithful during auspicious years but default when external conditions deteriorate. Still other governments are "lemons" that tend to break their contracts, regardless of the external situation. If these lemons could attract foreign capital, they would fall into arrears or even repudiate their debts because of domestic political pressure or incompetence in managing economic affairs. My theory focuses on three ideal types of debtors: stalwarts, fair-weather payers, and lemons. In practice, some governments may fall between these stylized categories, but a simple theory with three types will generate many interesting predictions and provide a basis for empirical work. Adding more types would complicate the analysis without yielding additional insights.

⁸ Some have argued that debt contracts are implicitly state-contingent. See, e.g., Aizenman and Borensztein (1989), Alesina (1988), Calvo (1989), Carlson, Husain et al. (1997), Grossman and Van Huyck, (1988), and Obstfeld and Rogoff (1996), p. 360-61.

Credit histories can help investors discern the type of debtor they are confronting. In practice, bondholders and banks cannot directly observe the resolve and competence of a foreign government, but they do have beliefs about whether they are dealing with a stalwart, a fair-weather payer, or a lemon. These beliefs constitute the image or reputation of the debtor in the eyes of international investors. As with all beliefs, assessments of the hidden characteristics of a foreign debtor may prove erroneous, but they represent the best guesses that investors can make with the information at their disposal. One important source of information is the record of government responses to exogenous shocks. Investors can easily observe whether a government paid its foreign debts, and they have good records of national disasters, changes in global interest rates, and fluctuations in commodity prices that might have compelled a government to break its contracts. By considering these two pieces of information – exogenous shocks and actual payments – investors can draw inferences about the resolve and competence of the government. Thus, credit histories can provide data on characteristics of the debtor that would be difficult or impossible to measure directly.

I contend that a government can change its image by acting contrary to its perceived type, given widely recognized circumstances beyond its control. A few examples should illustrate this prediction, which follows Bayesian rules of inference. Suppose that a government is widely perceived as a fair-weather payer. If this government defies expectations by servicing its debts under austere conditions, it will improve its standing in the eyes of investors by exhibiting greater resolve and competence than previously anticipated. By the same logic, a decision to default under favorable circumstances will cause the government's reputation to sink. But a putative fair-weather payer that meets expectations by defaulting under duress and paying when the yoke is light will experience no change in reputation. In these cases, the payment history conveys no new information about the government's reverence for international obligations or its proficiency as an economic manager. Thus, governments that are perceived as fair-weather payers should not suffer much reputational loss by defaulting during moments of external crisis such as a world war or a global economic contraction, provided that they offer an acceptable settlement (partial payment) to creditors.

A parallel prediction applies to other types of debtors. Consider a putative stalwart, a government that is widely believed to honor its obligations during good times and bad. Any default by this government would seem surprising and lead investors to assign lower credit ratings, reflecting news that the government was not always willing or able to service its international debts. Given their preeminent reputations, alleged stalwarts must run if they hope to stand still: preserving a class-A rating requires paying under nearly all circumstances. At the opposite extreme, governments with lemon-like ratings have many opportunities to enhance their reputations. By offering an adequate settlement on defaulted debt and servicing any loans it manages to receive, a reputed lemon can elevate its standing and regain fuller access to international capital markets. In all these examples the lesson is the same: investors change their beliefs about type when a government acts in surprising ways. A summary of these predictions appears in Figure 1.

Figure 1: Reputations change when governments act contrary to their perceived type (Arrows indicate the direction of change in reputation. X's indicate no change)

	Reputed Stalwart		Reputed Fairweather		Reputed Lemon	
	Favorable conditions	Adverse conditions	Favorable conditions	Adverse conditions	Favorable conditions	Adverse conditions
Repay	X	X	X	↑	↑	↑
Default	↓	↓	↓	X	X	X

I claim that bondholders and bankers calibrate the terms of credit based on beliefs about the debtor's type. Other things equal, putative stalwarts will receive easier credit than reputed fair-weather payers, which, in turn, should enjoy better access to international capital markets than governments that have been classified as lemons. Any government that is widely believed to pay during good times and bad will attract large loans at nearly risk-free rates, without having to provide collateral or other legal enhancements. Investors will rely more heavily on risk premiums and contractual protections when dealing with apparent fair-weather payers, since those governments are expected to default when external conditions turn sour. Finally, investors will refuse requests for loans to proven lemons and governments that have not settled their existing defaults. These prospective borrowers pose such great risks that credit rationing is the optimal course of action.

My argument has several important corollaries that are the focus of this paper. First, investors should charge the highest risk premium to unfamiliar borrowers, who are not yet known to be different from lemons.⁹ In an efficient market, the premium should be sufficient to compensate for the risk that some new borrowers could be lemons. Moreover, the lemon premium should be approximately the same for all new borrowers in the same cohort. Especially when direct measures of economic and political conditions are not available, the principle of insufficient reason comes in to play, causing rational investors to assign the same lemon probability (and premium) to each of the unknown entities. The premium will exist in all markets, but its magnitude may vary across time, depending for example upon the known proportion of lemons in the general population.

Second, the lemon premium should decline over time, provided that the government continues to service its debts. This phenomenon should occur even in the absence of an external shock that puts the debtor to the test. The potential existence of lemons makes possible this improvement during "good times." Investors know that stalwarts and fair-weather payers honor their debts under auspicious conditions, whereas lemons tend to default even during relatively favorable periods. Thus, a government that pays during good times can distinguish itself from a lemon. Whether this behavior has any effect on reputation depends on prior beliefs about the government. If investors knew the government was not a lemon, the behavior would simply confirm expectations and cause no change in reputation. If, on the other hand, investors thought the government might have been a lemon, payment would count as contrary evidence and cause

⁹ Diamond (1989) offers a similar argument, but his model is not suited for the international context, since it presumes that lenders can foreclose on the assets of defaulters, and it allows no room for exogenous shocks. See also Eaton (1996).

a reputational gain. This process will exhibit diminishing marginal returns, with each additional payment enhancing reputation by a smaller amount. At some point, when investors become highly certain that the government is not a lemon, paying during a good situation will only preserve – not improve – the government’s reputation.

Third, a government that defaults – whatever the circumstance – will find itself unable to raise new capital until it offers a satisfactory settlement to creditors.¹⁰ Governments that pay nothing cannot pass themselves off as something better than a lemon. How much a debtor needs to pay may depend on a variety of factors, of course. In theory, there may be some critical amount that no lemon would pay to extricate it from default, such that any government that offered a payment of that magnitude would be welcomed back into the fold. The required payment might also depend on the circumstances that motivated a default: other things equal, a country that defaulted in response to an adverse external shock would probably face a lower settlement hurdle than a country that rebuffed its creditors without good cause. Most likely, the evaluation would need to be made on a case-by-case basis, perhaps by a committee of bondholders that could investigate the circumstances and opine on the fairness of a settlement. In fact, bondholder committees have existed since the 1700s for precisely this purpose.

Having sketched the theory, I now turn to an empirical assessment of the aforementioned corollaries. I begin by considering the role of reputation in the Amsterdam market of the 1700s.

3. Reputation and the Amsterdam Market

During the eighteenth century, many sovereign governments borrowed money on international markets. With few exceptions they turned to the Dutch province of Holland, a region of unrivaled wealth and commercial supremacy, and one with surplus capital that could be channeled abroad.¹¹ The leading governments of the world and a number of minor principalities all floated bonds on the Amsterdam market during the 1700s. Lending expanded steadily throughout the century, reaching a peak just before the Napoleonic Wars that brought the system to a halt. By investigating how Dutch investors treated new versus seasoned borrowers, we can gain a clearer sense of how reputations formed during this critical period.

Dutch investors of the 1700s did not possess detailed information about the socio-economic health of foreign borrowers. According to James Riley, “neither the political nor the commercial news available in Dutch periodicals was sufficient to evaluate credit worthiness among debtor states. Nor were government revenue and expenditure accounts often published elsewhere.”¹² Without reliable information about political and economic fundamentals that affected the propensity to default, Dutchmen probably leaned on the credit history of governments when deciding where to invest.

¹⁰ Cole, Dow and English (1995).

¹¹ Other important financial centers included Geneva, Hamburg, Genoa, Frankfurt, Vienna, and London, but Amsterdam dominated the market for foreign government loans.

¹² Riley (1980), p. 39.

To see whether investors demanded higher yields from new borrowers, I needed information about *when* each country raised debts in Amsterdam. Working with a colleague at the University of Utrecht, I built an inventory of every major foreign government loan that was launched on the Amsterdam market between 1695 and the Napoleonic wars. Data came from the Netherlands Economic History Archive (home to nine boxes of original prospectuses concerning Dutch loans to foreign states) and from a variety of published sources.¹³ Our final list contained 465 bonds, the first issued in 1695, when Deutz & Soon underwrote a 1.55 million guilder loan to the government of Austria with an interest rate of 5 percent and a maturity of 12 years. Although we may have overlooked a few bonds, our inventory of Dutch loans is the most comprehensive and detailed in existence, and it allows reasonably precise measurement of when countries borrowed in Amsterdam during the eighteenth century.

Bond yields were more difficult to compile. The yield, often measured as the nominal interest rate divided by the market price, allows us to compare the riskiness of loans. The earliest surviving quotations appear in a handwritten report from Vizconde de la Herreira, Spanish Ambassador to the Hague, to his foreign minister, the Marqués de Grimaldi. Herreira's report, on deposit at the General Archive of Simancas in Spain, contains interest rates and prices for several government loans that were traded in Amsterdam during July 1771.¹⁴ Presumably the Marqués wanted such information for reference and comparison, since Spain had tapped the Dutch market only one year earlier. I used the data in Herreira's report to compute current yields for sovereign borrowers.¹⁵

Table 1 reports the bond yields, along with the years in which the countries first borrowed. In this table and throughout the paper, I define a new borrower as a country with a credit history of less than ten years. According to the table, the average yield on loans to new borrowers was a full percentage point higher than yields for more seasoned debtors. In relative terms this represents a substantial difference: new borrowers were charged approximately 25% more than more established participants in capital markets. Moreover, this estimate does not include the outsized commissions that underwriters almost certainly demanded from new borrowers, to cover the extra risk and labor costs of marketing the bonds of unproven states.

¹³ Printed sources included Buist (1974), Elias (1903/5), Riley (1980), and van Winter (1977). I thank Joost Joonker and Nico van Horn for their work in the Dutch archives. The sample begins with 1695. There were earlier Dutch loans, the first taking place in 1616 when a single individual advanced 250,000 to the elector of Brandenburg. But most Dutch capital flows during the seventeenth century were what we would now call foreign *direct* investment, rather than international lending.

¹⁴ *Archivo General de Simancas* (Spain), Sección de Estado, Legajo 6364, Vizconde de la Herreira to Marqués de Grimaldi, 19 November 1772, con anexo.

¹⁵ For each country, I identified the lowest nominal interest rate on bonds that were not guaranteed by a foreign power, and then calculated yields based on the average of the minimum and the maximum quoted price for bonds at that interest rate. The report also contains interest rates and price quotations for loans to plantation communities in the West Indies, including Essequibo/Demerara, the Danish Islands, Grenada, and Surinam. As these were not sovereign, and thus not comparable with countries like Denmark and Sweden, I excluded them from the analysis. Herreira did not list prices for two seasoned borrowers, England and France. Fortunately, in 1771 France issued a 4% bond, which I used to approximate the yield. Yields on English bonds were at least as low, so the addition of England in Table 1 might only accentuate the difference between seasoned and new borrowers. Herreira also failed to include an entry for one new borrower, Prussia, which floated its first bond in 1769 at 5%, the level charged to new borrowers at the time.

Table 1: Investors demanded higher yields from less seasoned borrowers
Amsterdam Capital Market, July 1771

	Earliest loan <u>after Jan 1695</u>	Yield in <u>July 1771</u>
Seasoned Borrowers		
Austria	1695	3.9
France	1720	4.0
Saxony	1730	4.0
Danzig	1734	4.9
Denmark	1757	4.0
Average		4.1
New Borrowers		
Leipzig	1764	4.2
Mecklenburg	1766	5.0
Sweden	1767	5.2
Brunswick Luneburg	1767	5.1
Russia	1769	5.1
Spain	1770	6.1
Average		5.1

Source: Yield data came from the report of Vizconde de la Herreira, 19 November 1772. The yield for France is approximated from the 4% bond that it launched in 1771. Loan dates were obtained from Herreira and from prospectuses at National Economic History Archive, Amsterdam.

The considerable disparity in yields almost certainly did not arise by chance. A simple *t*-test for equality of means indicates a probability of less than 1 in 100 of observing a difference this large, if investors truly did not discriminate according to the length of the credit history.¹⁶ This result is robust to the elimination of any country in the list and to changes in the “cut-date” that separates new from seasoned borrowers.¹⁷ Further note that, within the class of new borrowers, the yield apparently fell with experience. Leipzig, the most proven of the new entrants (with approximately 7 years of faithful repayment), boasted a yield only slightly higher than the average of its fully seasoned counterparts. Thus, the best surviving data show that investors demanded a premium from countries that lacked a substantial credit history.

The gap in Table 1 gradually narrowed as the new borrowers repaid their debts, demonstrating that they, too, could be trusted. By the 1780s the risk differential in Table 1 had almost completely disappeared. Having distinguished themselves from lemons through more than a decade of punctual repayment, countries like Russia and Sweden could borrow in the 1780s at the same low rates as Austria and Denmark. At precisely that moment, however, Poland and the United States approached the Dutch market for the first time. Investors charged those new borrowers a premium, perhaps to guard against the risk of lemons.

Evidence comes from a second unique document, a “price courant of the diverse obligations that existed in Amsterdam” on October 6, 1783. For several foreign securities, the

¹⁶ The difference in means is 0.96 percentage points, with a standard error of 0.30 and a *t*-statistic of 3.2 with 8.8 degrees of freedom. The probability of observing a difference this large in repeated draws from populations with equal means is 0.01. The 95 percent confidence interval around the difference in means runs from 0.28 to 1.63.

¹⁷ For instance, reclassifying Leipzig as a seasoned borrow only strengthens the result, and shifting Denmark to the set of new borrowers weakens the finding only slightly.

document gives nominal interest rates and bid-ask prices, which I used to compute the current yield.¹⁸ The results appear in Table 2, which gives yields of the principal foreign borrowers. The top portion of the table contains the most seasoned borrowers, all of which had issued debt on the Dutch market before the 1760s. The middle cluster is composed of sovereigns that launched their first bonds in Amsterdam during the years 1764-1770, and the bottom section reports the yields of two new states, Poland and the United States, which did not approach the Dutch market until 1776 or later.

Table 2: Yields of established borrowers converged, but new borrowers were charged a lemon premium
Amsterdam Capital Market, October 1783

	Earliest loan after Jan 1695	Yield in Oct 1783
Long-Established Borrowers		
Austria	1695	4.0
France	1720	3.9
Saxony	1730	4.9
Danzig	1734	5.0
Denmark	1757	4.1
Average		4.4
Recently Seasoned Borrowers		
Leipzig	1764	4.0
Mecklenburg	1766	4.0
Sweden	1767	4.1
Brunswick Luneburg	1767	5.0
Russia	1769	4.2
Spain	1770	5.4
Average		4.4
New (Unseasoned) Borrowers		
Poland	1776	5.0
United States	1782	5.1
Average		5.0

Source: Author's calculations from Oudermeulen (1791). Loan dates are from Herriera and from prospectuses at National Economic History Archive, Amsterdam

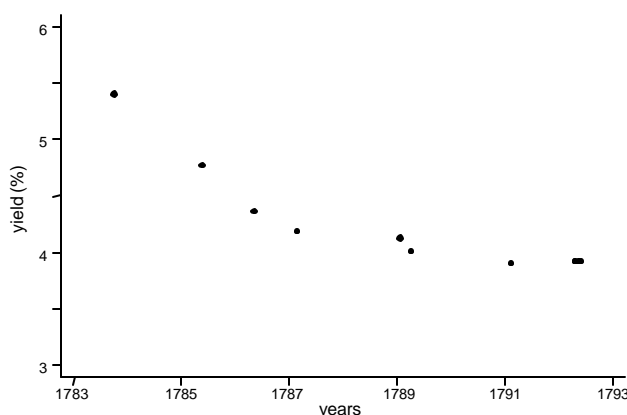
A comparison of the yields across these three clusters supports the theory of reputation in Section 2. On average, bonds of highly seasoned borrowers in the top panel carried a yield of 4.4 percent. Those countries had long ago demonstrated their commitment to pay, causing investors to waive the lemon premium. Additional years of borrowing and repayment did not, therefore, convey new information about the creditworthiness of the borrower, which helps explain why the yield on bonds in the top panel was no lower than what investors had demanded in 1771. By continuing to borrow and repay during the late eighteenth century, countries such as Austria, Denmark and France simply confirmed what investors already knew.

¹⁸ Oudermeulen (1791), Vol II, Part 2, p. 263-68. As with the Herriera data, I identified the lowest nominal interest rate on bond that was not guaranteed by a foreign power, and then calculated yields based on the average of the minimum and the maximum quoted price for bonds at that interest rate. In the case of Poland this was not possible, since the only entry pertained to a 5% bond guaranteed by Russia, which must have improved the marketability of the issue. Thus, the yield for Poland in Table 2 probably represents a lower bound.

Remarkably, countries in the middle panel also boasted yields of 4.4 percent on average, down from 5.1 percent a decade earlier. By 1783 investors had monitored the repayment patterns of newcomers like Russia and Sweden for more than a decade, and had been satisfied with the punctual record of repayment. Consequently, most of the countries in the middle panel joined the 4-percent club. Based on the data in Table 2, it is impossible to distinguish the yields of long-established borrowers with those in the intermediate group.¹⁹ Apparently, the new borrowers of 1765-70 had become proven veterans of the 1780s.

The result holds even if we eliminate small principalities and focus on major powers: Austria, France and Denmark in the top panel, and Russia, Sweden, and Spain in the middle. Using that subset of data, the mean for well-established debtors is approximately 4 percent, while the average for more recently seasoned borrowers is half-point higher. Though substantial, a gap of that size represents a marked improvement over the 1.5 percentage-point differential that separated the seasoned and new powers a decade earlier. This difference would continue to narrow over the next few years. Figure 2 traces the evolution of bonds for Spain, whose relatively high yield in 1783 raised the average for the intermediate group. The figure shows that, by the late 1780s, Spanish yields had converged asymptotically with the other more seasoned states. At that point, all six powers could borrow in Amsterdam at the same low rate of 4 percent.

Figure 2: Yields on Spanish bonds
Amsterdam Market, 1783-1793



Source: Author's calculations from Oudermeulen (1791) and the *Nederlandsche Mercurius*, which reported on auctions of leading securities beginning in 1782.

How did investors treat the new borrowers in Table 2? The bottom panel displays the yields for Poland and the United States, which raised debt on the Dutch market for the first time in the late 1770s and early 1780s. Investors demanded the standard new-country rate of 5 percent from both states, repeating a pattern of discrimination that we had observed in 1771. The United States, in particular, had trouble raising money in Amsterdam, and John Adams decried

¹⁹ The difference between the average yields of the two groups is only 9 basis points (0.09 percentage points), with a 95% confidence interval that runs from -0.69 to +0.87.

the high interest rates and commissions that his government was required to pay.²⁰ Although the United States did not always maintain punctual service on those early loans, Hamilton's funding plan of 1790 helped reestablish the credit of the United States, which eventually proved its creditworthiness and joined the ranks of low-risk borrowers.

Consider a final piece of evidence from this period: the yields of foreign borrowers clustered at two levels, 4 and 5 percent, during the late 1700s. This bimodal distribution is perfectly intelligible given the information-poor environment of the eighteenth century. Investors distinguished seasoned borrowers from unseasoned ones, but within each category it proved difficult to split hairs, since standard economic indicators of wealth, revenues and foreign trade were not available on a timely and consistent basis. Consequently, the credit history of the country assumed an overriding importance, virtually dictating the rate that the borrower was charged. By the nineteenth century, the publication of basic indicators introduced more "noise" into the data, thereby raising the variance within each category, but – as we will see – it did not undermine the fundamental discrimination between seasoned and unseasoned borrowers. Despite the proliferation of economic and political data, reputation remained the most important factor in the foreign investment equation.

In summary, Dutch investors of the 1700s applied a simple rule when lending to foreign governments: charge higher rates to unseasoned borrowers than to those with a track record of repayment. Through a policy of regular annuity payments and punctual amortization, governments could signal their creditworthiness and obtain lower interest rates, but diminishing returns eventually set in. In the Amsterdam market the yields of proven borrowers asymptotically approached 4 percent, the baseline rate for seasoned sovereigns.²¹ Empirically, the process of convergence took anywhere from ten to twenty years. Thus, the patterns of the 1700s accord closely with the theory in Section 2.

Dutch lending reached its peak in the 1770s-90s, only to be interrupted by the Napoleonic wars. When French troops occupied Amsterdam in 1793, the underwriting of new debt virtually ground to a halt. The crisis naturally led to a pandemic of defaults across Europe, but all the major borrowers settled their arrears and resumed payment after the hostilities ceased. For instance, Russia defaulted in 1812 in response to the Napoleonic invasion, but restarted payments soon after Waterloo. According to Marten Buist, the quick resumption of payment after an excusable default "earned Russia a reputation for creditworthiness and solidity ... from which she was to profit until the collapse of the czarist régime in 1917."²² In the aftermath of war, though, a new financial center had emerged, one located not in Holland but across the North Sea in England. In the next section, we investigate the London market of the 1820s to see how reputations formed in that era.

²⁰ Van Winters

²¹ Riley (1980, p. 55, 93-94) provides qualitative confirmation of these results. "Numerous sources indicate that investors judged borrowers chiefly by the regularity of annuity payments and the punctuality of reimbursements. Those satisfied, Dutch rentiers were confident in the integrity of their investment and, when service was paid regularly, generally willing to reinvest in prolongations or take up fresh loans."

²² Buist (1974), p. 274.

4. The London Market in the Early 19th Century

The British lending boom began in 1817, when Baring Brothers collaborated with the Dutch house of Hope & Co. to underwrite a loan for France. A year later, N.M. Rothschild arranged the first postwar foreign loan denominated in sterling: a 5 million pound credit for the Kingdom of Prussia. By the mid 1820s, most European governments had raised debt on the London market, as had the new Latin American states that had recently won independence. The sheer number of new entrants makes this an interesting period to test the hypotheses that were presented in Section 2.

Like their Dutch predecessors, British investors of the early nineteenth century operated under conditions of poor information. “The financial press was virtually non-existent,” so investors could not turn to specialized financial newspapers and journals for information about the creditworthiness of foreign states.²³ Indeed the standard references of the nineteenth century, including the *Bankers Magazine* and the *Economist*, only began publication in the 1840s. Before then, investors learned about foreign countries through popular travel accounts, an occasional investment manual, and a money-market column that first appeared in the London *Times* and other newspapers around 1822. It is worth emphasizing that British papers did not station correspondents in Latin America and other distant regions, but instead relied upon merchant reports and foreign newspapers that arrived via mail packet. Under such circumstances, the reputation of the foreign borrower may have assumed prime importance.

As in the previous section, I compare the yields of new versus established borrowers. Table 3 summarizes the data in six-month intervals from July 1824 through July 1825. The upper half of the table gives yields for seasoned borrowers, who had proven their mettle on the Amsterdam exchange, thereby demonstrating a propensity to repay foreign debts. In contrast, the bottom half reports the yields for new states of Latin America and Europe that emerged after the Napoleonic wars and borrowed for the first time in the 1820s. The dates in parentheses represent the first known loan that the government floated on world markets since 1695. In this table, “Colombia” refers to the territory of Gran Colombia, which comprised the future nations of Colombia, Ecuador, and Venezuela.

²³ Dawson (1990), p. 17.

Table 3: Yields for new borrowers exceeded yields for seasoned ones
London Capital Market, 1824-1825

(dates in parentheses indicate the earliest loan since 1695)

	Yields in <u>7/1824</u>	Yields in <u>1/1825</u>	Yields in <u>7/1825</u>
Seasoned Borrowers			
Austria (1695)	5.3	5.2	5.1
Denmark (1757)	5.1	4.9	5.0
France (1720)	5.0	4.8	4.9
Naples (1807)	5.7	5.5	5.4
Portugal (1802)	5.7	5.6	5.7
Prussia (1769)	5.1	5.0	4.9
Russia (1769)	5.3	5.2	5.2
Average Yield	5.3	5.2	5.1
New Borrowers			
Argentina (1824)	7.0	6.5	6.5
Brazil (1824)	n/a	5.9	6.1
Chile (1822)	8.0	7.0	7.4
Colombia (1822)	7.4	6.5	6.9
Greece (1824)	10.8	8.7	12.0
Mexico (1824)	9.2	6.3	6.6
Peru (1822)	10.1	7.3	8.0
Average Yield	8.7	6.9	7.7
Difference in Yield	3.4	1.7	2.5
Standard Error	0.6	0.4	0.8

Source: Author's calculations from *Course of the Exchange*, various issues. Data are not available for Brazil in 7/1824, since it did not borrow until October of that year.

I chose July 1824 as a starting date to maximize the number of borrowers in the sample. As the table shows, the young states did not raise debt simultaneously, but instead floated loans in a staggered fashion. Colombia, Chile and Peru borrowed in 1822, but Argentina, Brazil, Mexico and Greece waited until 1824. By delaying the start date until July 1824, I incorporated these four states into the sample. Setting the start date at July 1824 also increased the number of seasoned borrowers. Although Austria and Portugal had amassed records on the Amsterdam market, they did not borrow in London until late 1823, so quotations were not available for these states during the earliest phase of British lending.

The ending date, July 1825, was chosen to minimize the number of defaults. For many investors the lending boom of the 1820s ended with a discouraging bust, in which European and Latin American countries suspended payment on their foreign debts. The theory in Section 2 implies that new borrowers should pay a lemon premium, which should decline over time *provided that* the borrower repays, thereby signaling its reliability. The act of default, on the other hand, would throw the debtor into a lemon-like class from which it could emerge only by offering an acceptable settlement to creditors. Thus, a rigorous test of the seasoning hypothesis should compare the yields of new versus established borrowers that are not currently in default. By January 1826 several Latin American states had suspended payments, and investors began to anticipate arrears by others. To prevent these events from contaminating the test, I ended the sample in July 1825, before the rash of defaults took place.

The start and end dates do exclude a few countries, but their absence should not noticeably affect the results. In the category of new borrowers, the first omitted entry is Poyais, a fictitious state that nonetheless borrowed on the London market in 1822! Poyais does not appear in Table 3, because investors discovered the fraud in 1823 and ceased to trade the worthless paper. Nevertheless, we will soon revisit the case of Poyais, which has interesting implications for our theory of reputation. The second excluded newcomer is the United Provinces of Central America, a confederation that included Costa Rica, El Salvador, Guatemala, Honduras, and Nicaragua. These Central American states floated their first bond in November 1825, after the sample period ended. Including them would not have changed the conclusions, however. Through the beginning of 1826 the yield on Central American bonds fluctuated between 9.0 and 10.9 percent, roughly in line with other new borrowers at the time and considerably higher than more seasoned states.

The start date also excludes one seasoned borrower, Spain, which defaulted in May 1824. One could make a strong case that Spain should be dropped anyway, on grounds that it was qualitatively different from other borrowers in the sample. In 1820 a military uprising toppled the regalist government and forced Ferdinand to accept the liberal constitution, which the Cortes of Cadiz had drafted in 1812. The revolt inaugurated a three-year period of constitutional rule in which Spain contracted two loans on the London market. Judging from the initial yields on these bonds (up to 17 percent at launch), it is clear that investors assigned a very high risk of default. The risk became reality in April 1823, when French intervention brought the Constitutional Triennium to a close and restored Ferdinand as absolute monarch. Upon resuming power, Ferdinand quickly annulled all the acts of the Cortes, including the debts contracted under the constitutional government. Bondholders greeted the news with alarm, which explains why the yields on Spanish bonds surged in 1823 and early 1824, well in advance of the missed payments. Given that bondholders anticipated the default long before it actually occurred, it would have made sense to exclude Spain, even if the start date were pushed earlier than July 1824.

At all three dates in Table 3, British investors required a lemon premium from new borrowers. The mean yield for newcomers always exceeded the mean for seasoned ones, sometimes by a considerable margin. For instance, in July 1825 bonds of the seasoned states were trading at 5.1 percent, on average, while the bonds of new entrants yielded 7.7 percent, leaving a gap of 2.5 percentage points. The yield differential fluctuated across the three dates, with the largest difference in July 1824 and the smallest in January 1825, but the general pattern is clear. Moreover, within any given column the *minimum* yield among the new borrowers always exceeded the *maximum* yield of a seasoned state, suggesting that the averages do not mask a high degree of variance. To verify this, the final row of the table reports the standard error around each difference in yield. The differences are at least three times larger than their standard errors, satisfying any reasonable test of statistical significance. Even with such a small sample, the probability that the observed differences arose purely by chance is less than 1 in 100.²⁴

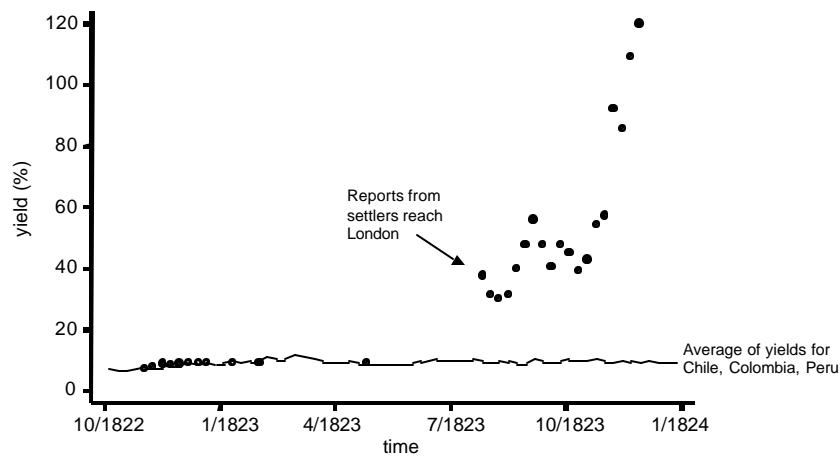
These patterns are consistent with more qualitative statements from the period. For instance, the London *Times* emphasized to investors that these were “new states” and that anyone

²⁴ The 95% confidence intervals around the differences are 1.8 to 5.0 for July 1824, 0.9 to 2.6 for January 1825, and 0.6 to 4.4 for July 1825.

who bought South American bonds was doing so “at his own risk.”²⁵ In 1828, after nearly all the new states had defaulted, bondholders convened to see what assistance they could obtain from British authorities. During the meeting, Alexander Baring, M.P., reminded the participants that investors had demanded “very high interest” rates from those new states, “it must have been pretty generally understood” that there was a “proportionate risk” of the loans going sour.²⁶ As it turned out, all but one of the new borrowers disappointed investors by suspending payment of its foreign debts.

Particularly during the early years of the lending boom, investors found it extremely difficult to distinguish among Latin American states. Evidently, the credit history was a critical piece of information. States without such a record looked the same and were priced at low levels, reflecting the risk of dealing with a potential lemon. The inability to distinguish among Latin American countries was best illustrated by a loan to the fictitious Central American country of Poyais, which managed to borrow on the same terms as the legitimate states of Chile, Colombia, and Peru! Figure 3 depicts the yields on Poyaisian bonds (the 0’s), compared with a thin solid line that traces the average yields for the three genuine Latin American states that had borrowed around the same time. When investors discovered the fraud and certified Poyais as the sourest of all lemons, yields soared above 120% and trade in the worthless paper ceased. The story of Poyais is worth recounting, because illustrates how investors could lump unfamiliar borrowers into a single, undifferentiated category and charge them an identical lemon premium, just as theory predicts.

Figure 3: Yields on Poyaisian bonds compared with yields of Chile, Colombia, and Peru London Market, 1822-1824



Source: Author’s calculations from end-of-week quotes in *Course of the Exchange*

Gregor MacGregor, a Scottish adventurer, devised the Poyaisian fraud during a trip to the Mosquito Coast, a 200-mile stretch along the Caribbean shore of modern-day Nicaragua. When MacGregor landed on the swampy littoral in 1820, he found several wandering tribes of

²⁵ *Times* (London), August 27, 1825 p. 2.

²⁶ *Morning Chronicle* (London), May 2, 1828 p. 3; and *Times* (London), May 2, 1828 p. 3.

Mosquito Indians that had once allied with Britain in wars against Spain. MacGregor befriended the Mosquito King, who – allegedly after many glasses of whiskey – granted the Scotsman a concession of 8 million acres along the Rio Tinto. The adventurer quickly returned to London and attempted to raise money for his imaginary country, which derived its name from the Poyer Indian tribe.

To excite interest in the new land, a book entitled *Sketch of the Mosquito Shore, including the Territory of Poyais* was published in Edinburgh in 1822. The author, who styled himself as “Captain of the First Native Poyer Regiment and Aide-de-Camp to His Highness Gregor, Cazique of Poyais,” offered a dazzling portrait of a fertile and hospitable land that was ripe for colonization. As it turned out, the sketch was a hoax, and many passages had been cribbed from descriptions of Jamaica and the West Indies. Far from the paradise that Strangeways described, Poyais was “a paltry town of huts and long houses.”²⁷

It took more than a year for news of the fiction to spread among British investors. In the meantime, MacGregor managed to raise 200,000 pounds sterling on the London market at 6 percent interest.²⁸ His “Poyais Bond” was offered in October 1822 on an installment plan at 80 percent of par value (implying a yield of approximately 7.5 percent), with 15 pounds down and the balance due in January and February 1823. As Figure 3 shows, the yields on Poyaisian bonds quite closely paralleled those of legitimate Latin American states for at least six months. Evidently, investors treated Poyais like any other new-world country.

The fraud was exposed in August 1823, when reports from the first Poyaisian settlers reached London. In addition to issuing bonds, MacGregor had sold land grants to Scottish highlanders who dreamed of a new life in this “free and independent state, under the government of its own Cazique.”²⁹ The first group of 70 would-be colonists sailed in January 1823 on the *Honduras Packet*, and another 170 followed a month later. Before departing, most surrendered their English and Scottish pound notes to agents of MacGregor in exchange for Poyaisian currency, which had been specially engraved for this purpose. When the settlers arrived, they found not the paradise described in advertisements, but four shacks and a hostile Indian tribe. Most contracted tropical diseases and began to die from fever or starvation.³⁰

When news of the scandal eventually reached Great Britain, prices of Poyaisian bonds plummeted. The *Times* decried the Poyais fraud, saying that the adventurer had “gulled” investors into buying a “sham security.”³¹ Exposed in Britain, MacGregor next fled to France, where he applied for a loan of 10,000 Francs in 1824. By then, “the credit of the Cazique had fallen on the Paris as well as on the London Exchange,” and the request for funds was denied.³² According to the *Times*, “every reader who can read” knew about the swindles perpetrated by His Highness Gregor I.

²⁷ Hasbrouck (1927), pp. 443-45.

²⁸ *Times* (London), October 28, 1822, p. 2.

²⁹ The quote is from an advertisement in the *Sentinel* (Glasgow), July 22, 1822.

³⁰ Gregg (1999).

³¹ *Times* (London), September 1, 1823, p. 2. See also August 25, p. 3 and August 26, pp. 2-3

³² *Times* (London), October 24, 1824, p. 2

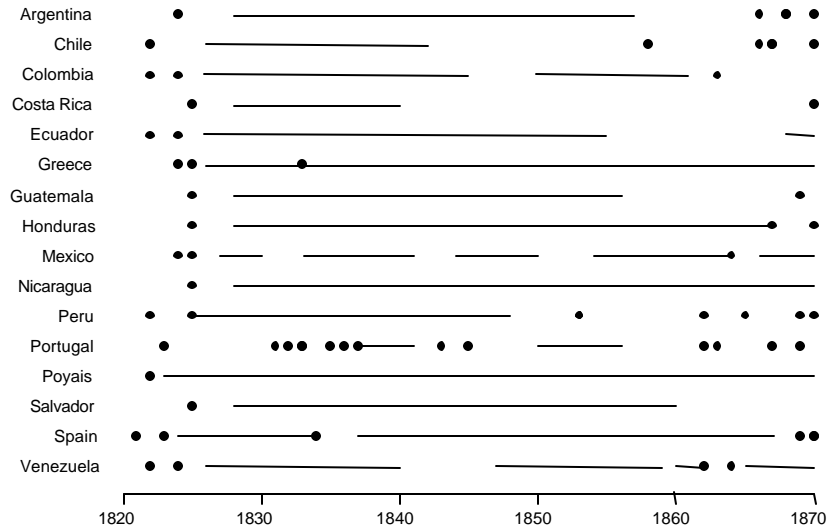
The Poyaisian episode illustrates a classic market for lemons: under conditions of imperfect information, investors could not distinguish between genuine and imaginary countries, which were all charged a similarly high rate of interest. The account also reveals how bondholders updated their beliefs in response to disastrous news from settlers and futile attempts to redeem their interest coupons for cash. By August 1823, investors had obtained enough information to distinguish the bonds of Poyais from the securities of legitimate countries. The pooling equilibrium of October 1822 had become a separating equilibrium a year later.

The Poyaisian bonds were not the only securities to fall into default. With the notable exception of Brazil, every new borrower in Table 3 suspended payments of interest and principal during the late 1820s. Spain and the United Provinces of Central America, not listed in Table 3, also ceased to service their debts.

How did the market treat these defaulters? The theory in Section 2 implies that, until borrowers offer an acceptable settlement to creditors, rational investors will refuse to extend new loans. Events unfolded as we might expect. Figure 4 proves that countries that defaulted could not borrow anew until they had offered creditors an acceptable settlement. Each dot in the figure represents a new loan that the country contracted on the London market between 1820 and 1870. The horizontal lines, in contrast, mark the years in which the country was in default on its foreign debts. The lines end only when bondholders accepted the settlement. The striking lesson from this figure is that, with only one exception (Greece in 1833), countries simply could not float new bonds until they settled their previous defaults. The result stands in stark contrast with the notion, advanced by economic historians cited in the introduction to the paper, that creditors ignore history. On the contrary, they mind history in precisely the way that the theory in Section 2 predicts.

Figure 4: Countries could not reborrow until they settled their defaults
London Market, 1820-1870

The dots in this figure represent new loans, and the horizontal lines mark the episodes of default. Only one state, Greece (1833), borrowed while in default.



Source: New Loans taken from Corporation of Foreign Bondholders (1878) and Clarke (1878). Default intervals from Suter (1992)

Only one country, Greece, presents a challenge to this pattern. Greece borrowed for the first time on the London market in 1824 and issued a second bond one year later. The last payment on these loans took place in January 1826, after which the government entered a phase of default that lasted for more than a half-century. During this protracted period of nonpayment, Greece raised an additional 60 million francs on the London market. The loan of 1833, which appears prominently in the middle of the Greek default line in Figure 4, appears puzzling until one considers the special circumstances that enabled the loan to transpire.

In 1827 England, France, and Russia intervened to assist Greece in its struggle for independence from Turkey. Having secured the autonomy of this new state, the protecting powers chose Prince Otto of Bavaria as the first king of modern Greece. By the terms on which Otto accepted the throne, the three powers agreed to guarantee a loan.³³ Investors undoubtedly accepted the loan – which was not even quoted on the London stock exchange – not because they had developed a renewed faith in the creditworthiness of Greece, but because the loan came with the backing of three seasoned borrowers, all of whom had upheld their domestic and foreign obligations during the 1820s.

The loan prospectus not only mentioned the tri-power guarantee, but it also pledged “all the revenues of Greece” as security for the new debt. This feature of the contract sparked angry protests from existing bondholders, since those same revenues had been hypothecated for

³³ Levandis (1944).

payment of the bonds that were now in default. Holders of the 1824 and 1825 bonds voiced their complaints to Lord Palmerston, the British secretary of war, who sympathized with the injustice but argued that the establishment of a regular government in Greece would benefit all bondholders. Aggrieved creditors also appealed to Lord Aberdeen and the House of Lords, all to no avail. The foreign policy interests of Britain had trumped the interests of bondholders, allowing the flotation of a loan that would not have occurred under normal market conditions.³⁴

What about the governments that paid? By keeping their promises, the seasoned borrowers in the top section of Table 3 confirmed their reputation for creditworthiness. Thomas Fortune wrote in the 1833 edition of his *Epitome of the Public Funds*, the leading investment handbook of the day, that Danish loans had “always enjoyed great favor with the public” on account of the “punctuality and straightforwardness which the government ... has hitherto observed in all its financial dealings.” He expressed a similar view of the debts of Austria, France, Naples, Prussia, and Russia.³⁵ For all these countries, the policy of consistent repayment during the 1820s reinforced what investors knew. Consequently, the risk premiums on seasoned borrowers declined only slightly from their levels in the 1820s.

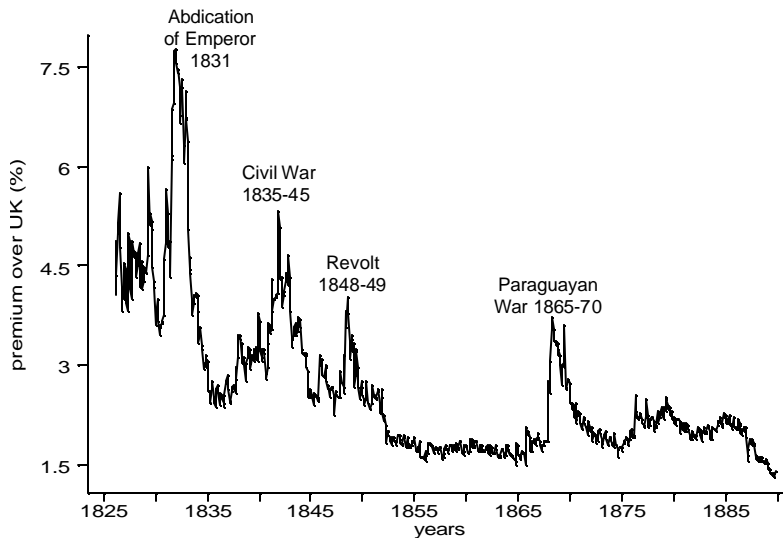
In contrast, the risk premium associated with Brazilian debt dropped dramatically over the next thirty years. Among the new borrowers who paid lemon premiums in the early 1820s, only Brazil honored its debts to the last shilling. This behavior distinguished Brazil from the lemons, causing its risk premium to converge asymptotically toward the baseline rate for seasoned borrowers. Figure 5 displays the premium, defined as the spread over UK consolidated debt, from 1825 through 1890. The figure shows a consistent downward curve that bottomed-out at about 1.5 percentage points by the early 1850s. A few sharp spikes interrupted the progression, but they arose from easily identifiable events such as the abdication of the Portuguese emperor in 1831, the civil wars that raged from 1835 until 1845,³⁶ the Revolt of the Confederation of the Equator in 1848-49, and the war with Paraguay from 1865 through 1870. Notwithstanding the spikes, Figure 5 shows the kind of asymptotic trajectory that we would expect from our theory of reputation.

³⁴ *Times* (London), August 24, 1832 p. 3. The loan of 1833 proved to be a costly commitment, not for the bondholders who extended the money, but for the guarantors that were incessantly called to make good on their pledge. Greece offered a few token payments, but in general it neglected not only the bonds of 1824 and 1825, but also on the tri-power loan of 1833. Finally, in exasperation, the Great powers repaid the principal in 1871.

³⁵ Fortune (1833), p. 116, 118, 122, 129, 145.

³⁶ Civil wars raged in Santa Catarina, Rio Grande do Sul, Pará, Maranhao, Minas Gerais and Sao Paulo, among others. The bloodiest conflict, the Cabanagem rebellion in Northern Brazil, left 30,000 dead.

Figure 5: Brazil consistently repaid its debts,
and investors gradually waived the lemon premium
London Market, 1825-1890



Source: Author's calculations from data in Taylor (2001)

What explains the downward trend? Market analysts attributed the fall in yields to a consistent policy of debt repayment. As early as 1833, the leading investment manual remarked that “there seems to be an anxiety” on the part of Brazilian leaders “to stand well with their creditors” in England. By 1841 the *Times* of London could count Brazilian debt “as one of the first foreign stocks in the market,” precisely because of “the punctuality which has hitherto been observed” in the payment of interest and principal.³⁷

When the risk premium touched bottom in the 1850s, Brazilian debt traded at approximately the same rates as Belgian, French, and Russian securities. In his *Epitome of the Public Funds*, Fortune offered a convincing explanation: “throughout all its difficulties and embarrassments – and there were many and great – the Government punctually and honorably provided for the dividends as they became due, and at no period have its foreign creditors suffered in the smallest degree.” Fortune added that “the punctuality of the payment of dividends, and the disposition evinced to preserve the credit of the country” gave Brazilian debt a first-rate standing. The other leading bond manual, *Fenn's Compendium of the English and Foreign Funds*, concurred: “the credit of the empire of Brazil has always been well maintained” and is now “inferior to no country in the London Money Market.”³⁸ Thus, the leading investment analysts joined the popular press in saluting Brazil's impressive record, and they attributed its low yields to a punctilious habit of repayment.

In summary, evidence from the early nineteenth century coheres with this paper's theory of reputation. Just as in Amsterdam, new borrowers on the London market paid higher interest

³⁷ Fortune (1833), p. 132; *Times* (London), October 1, 1841, p. 5.

³⁸ Fortune (1850), p. 170; Fortune (1856), p. 237; Fenn (1855), p. 141; Fenn (1860), p. 210.

rates than more established debtors. Moreover, all new entrants – whether real or fictitious – paid the same lemon premium, at least during the first few years of lending. The within-group variation eventually increased, as additional news arrived from South America, but the higher within-group variance could not obscure a stark difference in means across the two types of borrowers. In time, the newcomers that honored their obligations experienced a significant reduction in rates, which occurred because they distinguished themselves from lemons. By contrast, the countries that suspended payments could not reborrow until they settled their defaults. Thus, we have seen that reputations formed in a remarkably consistent way, both in Amsterdam and in London, and they exerted powerful effects on the ability of states to borrow.

5. The London Market in the Late 19th Century

The next opportunity for an empirical test comes in the 1870s, when longtime defaulters resumed payments and returned to the market, and when several new states raised capital for the first time. To check for lemon premiums and seasoning effects, I calculated the yields of all sovereign bond issues that were quoted in London in January 1872. As in Section 4, the date was chosen to maximize the number of borrowers in the sample. Countries entered the market through the beginning of 1872, so shifting the sample even one year earlier would have excluded newcomers like Bolivia, Liberia and Paraguay. Moving the date any later would have contaminated the sample with defaults, which began in January 1873 when Honduras and San Domingo suspended payments. The choice of January 1872 seemed to strike an appropriate balance, since it incorporated all new borrowers and minimized the incidence of actual defaults.

For this analysis, I sorted the debtors into 4 groups. The first group included the seasoned payers, who had been borrowing and repaying faithfully in London for at least ten years and in most cases for a half century. Some of these countries had also proven themselves on the Amsterdam market. The second group contained countries that had settled their defaults from the 1820s and then issued new debt, a pattern that was depicted in Figure 4. The third category was reserved for new borrowers, those that tapped global capital markets for the first time in the decade prior to 1872. Finally, I identified the proven lemons: those countries that defaulted in the 1860s or even earlier, when external conditions did not warrant a lapse of payment, and who continually refused to make amends with creditors. In total the sample contained thirty countries, most classified as seasoned, settled, or new. The results appear in Table 4.

Table 4: Bond Yields of Four Types of Borrowers
London Market, 1872

(dates in parentheses indicate when new
borrowers issued their first bonds)

	<u>Yield in 1872</u>	<u>Default in 1870s?</u>
Seasoned Payers		
Belgium	4.4	
Brazil	5.2	
Denmark	4.7	
France	6.1	
Italy	5.3	
Netherlands	4.4	
Russia	5.4	
Sweden	4.9	
Turkey	8.8	1876
Average	5.5	
Settled & Reborrowed		
Argentina	6.3	
Chile	5.9	
Colombia	8.3	1873
Costa Rica	7.9	1874
Guatemala	8.7	1875
Honduras	12.7	1873
Peru	5.2	1876
Portugal	7.8	
Spain	9.4	1872
Average	8.0	
New Borrowers		
Bolivia (1872)	9.0	1875
Egypt (1862)	7.4	1876
Japan (1870)	8.0	
Liberia (1871)	8.2	1874
Paraguay (1871)	9.6	1874
Roumania (1864)	7.8	1876
San Domingo (1869)	10.7	1873
Uruguay (1864)	8.0	1876
Average	8.6	
Proven Lemons		
Ecuador	12.5	since 1868
Greece	40.0	since 1827
Mexico	20.0	since 1866
Venezuela	35.3	since 1864
Average	26.9	

Source: Author's calculations from the *Economist*, January 1872

The first numeric column gives the yield for each country, based on data that were published in the *Economist*.³⁹ As expected, there was a progressive increase in yields from seasoned borrowers (5.5 percent on average) to settlers (8.0 percent) and new borrowers (8.6 percent). Investors apparently had written-off the lemons, which occupied the bottom of the list. The average yield of nearly 27 percent implied that, in the minds of British bondholders, the probability of repayment was extremely small.

³⁹ Values in the table represent yields for the most representative bond of each country. Bonds with foreign guarantees and exceptional collateral were eliminated from consideration, since the yields did not reflect the true creditworthiness of the borrower. A list of these bonds will be posted on my website.

Would the differences in Table 4 pass a statistical test of significance? The difference in means between seasoned and new borrowers was 3.1 percentage points. The 95-percent confidence interval around this estimate stretches from 1.8 to 4.4 points, well to the right of zero, so we can be quite sure that the difference was not an artifact of this random sample. Likewise, rates were substantially lower for seasoned payers than for states that had settled past defaults. The gap in yields was 2.5 percentage points, on average, with a 95-percent credible range from 0.7 to 4.4 percentage points. Based on the information in Table 4, it is somewhat more difficult to distinguish the settlers from new borrowers: although newcomers got charged higher rates, the half-point gap could have arisen by chance alone. Lemons, not surprisingly, stood in a class by themselves, both substantively and statistically.

Readers might object that the foregoing analysis does not control for standard economic variables that might affect the yield and co-vary with the four categories. In Sections 3 and 4 it would not have been possible or even appropriate to include economic controls, because such data did not exist for investors in the 1700s or the 1820s. The situation began to change in the mid-nineteenth century, when bond manuals started publishing tables that summarized the economic conditions of all major borrowers. An early attempt by Fenn (1860) provides the population, revenue, debt, and trade statistics for the principal states and colonies, all converted into British pounds. “No such return, that can at all be relied upon” existed prior to 1860, Fenn wrote, and he hoped that his novel compilation would serve investors well.⁴⁰ It is conceivable that investors incorporated such information into their portfolio decisions during the 1860s and 70s.

Which variables, if omitted, could bias the analysis? One obvious candidate is the stock of external debt, either by itself or – more likely – relative to the exports that were necessary to raise foreign exchange for repayment. Other factors equal, a larger debt/export ratio (hereafter called the debt ratio) should increase the probability of default and result in higher yields. Furthermore, the debt ratio should be correlated with seasoning: established borrowers presumably had larger debts than new entrants, and therefore a larger debt ratio for any given level of trade. If nineteenth-century investors factored this variable into their decisions, as modern securities traders do, then its omission from the statistical analysis would bias the results. Fortunately, the bias would be conservative, since the rising stock of debt would counterbalance the seasoning effects. Thus, omitting the debt ratio might cause us to *understate* the effect of seasoning on the yield. Controlling for the debt ratio should widen, not narrow, the gap between seasoned and new borrowers.

The second potential spoiler is wealth. A cursory look at Table 4 suggests that seasoned borrowers were probably wealthier, on average, than other countries in the sample, and therefore more capable of servicing their foreign debts. Some underdeveloped economies, including Brazil, Russia, and Turkey, appear on the list of proven borrowers, but they sit alongside the world’s wealthiest states, such as Belgium, Denmark, France, and Holland. The average wealth of new borrowers was undoubtedly lower. To some extent, this discrepancy in wealth may have arisen through seasoning. Due to their prompt repayment, countries at the top of the list enjoyed privileged access to international capital flows that were necessary for economic growth. If wealth was endogenous in this way, then controlling for it could lead us to underestimate the true

⁴⁰ Fenn (1860), pp. vii-viii.

impact of seasoning on yields.⁴¹ Nevertheless, a certain component of wealth was exogenous and correlated with our four categories. In the regression analysis that follows, I treat all wealth as exogenous, even though this approach stacks the deck against the seasoning hypothesis.

Unfortunately for investors, direct measurements of wealth simply did not exist during the 1870s. Even now, after more than a century of archival research, scholars have managed to develop retrospective estimates of wealth and income for only a handful of European and Latin American countries. For the regressions, I adopt the same proxy that investors probably used in the late nineteenth century: the value of exports per capita. According to the leading investment manual of the time, “there is, perhaps, no better available test of a nation’s wealth than its foreign trade, for, as a rule, countries which are rich have those things which other nations covet, and countries which are poor have not.”⁴² The manual proceeded to compare countries according to the value of their exports, standardized by population. Modern scholarship confirms the utility of this yardstick. For instance, Victor Bulmer-Thomas has shown that a single variable, exports per head, explained more than 80 percent of the variation in real GDP per capita among Latin American states on the eve of World War I.⁴³ Thus, the quantitative intuitions of investors in the 1800s were demonstrably accurate.

Data for the two economic variables were culled from statistical compilations by Fenn (1873) and Baxter (1771), supplemented where necessary from the *Statesman’s Yearbook* and various publications of the UK Board of Trade. In a few cases it was impossible to find economic variables, so the missing data were multiply imputed.⁴⁴ As suspected, exports per capita covaried strongly across the groups. The average for seasoned borrowers was 4.2 pounds, much higher than for settlers (2.5 pounds), new borrowers (1.7 pounds), or proven lemons (1 pound). The debt ratio also varied across groups, though not exactly as anticipated. The highest debt ratio belonged to the settlers (7.6 pounds), compared with 4.8 pounds for seasoned borrowers and 4.7 pounds for lemons. New borrowers, who had not yet accumulated large debts, brought up the rear with a ratio of 2.5 pounds.

I regressed the natural logarithm of the yields in Table 4 on the level of exports per person, the ratio of debt to exports, and dummy variables for each of the four categories of borrowers. The equation appears below, where the subscript i indexes the country.

$$\ln(\text{yield}_i) = \mathbf{b}_1\text{SEASONED}_i + \mathbf{b}_2\text{SETTLED}_i + \mathbf{b}_3\text{NEW}_i + \mathbf{b}_4\text{LEMON}_i + \mathbf{b}_5 \frac{\text{exports}_i}{\text{population}_i} + \mathbf{b}_6 \frac{\text{debt}_i}{\text{exports}_i} + \mathbf{e}_i$$

Regression results appear in Table 5. The first column pertains to the full sample of 30 countries, and the second is a restricted sample that excludes the four lemons. In both samples, economic variables exerted the expected effect on the dependent variable. Other things equal,

⁴¹ As a general rule, one should not control for the *consequence* of the key explanatory variable of interest.

⁴² Fenn (1883), p. xviii.

⁴³ Bulmer-Thomas (1994), p. 153.

⁴⁴ Trade data were missing for three of the thirty countries, making it impossible to construct ratios of exports/population and debt/exports. I imputed the ratios via the EMis algorithm (expectation-maximization with importance sampling) that was developed by King, et. al (2001) and implemented in software called Amelia for Gauss (Honaker, et al 2001). I imputed 5 imputed datasets, which were identical for all observed data and differed only in the imputations of economic variables for the three countries that did not report trade statistics.

yields declined with wealth – as proxied by exports per person – and increased with the debt ratio.⁴⁵ The coefficients on both variables were estimated with a high degree of precision, with t-statistics ranging from 1.7 to 2.6, so it is safe to conclude that investors incorporated these variables into their portfolio decisions. The potency of the economic variables increased when we dropped lemons from the sample, perhaps because standard ratios are less relevant for countries that repeatedly refuse to pay.

Table 5: Regression Analysis of Yields, Controlling for Economic Conditions
London Market, 1872

The dependent variable in these regressions is the natural log of the yield

	Sample with Lemons (N=30)			Sample without Lemons (N=26)		
	<u>estimated</u> <u>coefficient</u>	<u>standard</u> <u>error</u>	<u>t-</u> <u>statistic</u>	<u>estimated</u> <u>coefficient</u>	<u>standard</u> <u>error</u>	<u>t-</u> <u>statistic</u>
Exports per Person	-1.27	0.76	1.7	-1.56	0.71	2.2
Debt/Export Ratio	2.06	0.87	2.4	2.16	0.84	2.6
Seasoned	1.63	0.07	23.0	1.64	0.07	23.3
Settled	1.92	0.12	16.3	1.92	0.12	16.7
New Debtor	2.11	0.05	42.6	2.11	0.05	43.1
Lemon	3.11	0.28	11.2			

The most important conclusion from Table 5, however, is that seasoning effects persisted despite the introduction of control variables. The coefficients on the dummy variables climb in stepwise fashion from seasoned debtors to settlers, new entrants, and lemons. Moreover, the standard errors are remarkably small for a sample of this size, allowing great confidence in the conclusions that we drew less formally from Table 4.

The dependent variable was measured in the natural log metric, which can be difficult to interpret. For additional insight I use stochastic simulation to convert the estimates from Table 5 into a scale that is more comprehensible.⁴⁶ Specifically, I set the two economic control variables equal to their sample means, and then used monte-carlo techniques to approximate the sampling distribution of the expected yield for each type of debtor. All interpretations were based on the regression that excludes lemons, thereby giving the maximum possible weight to the control variables.

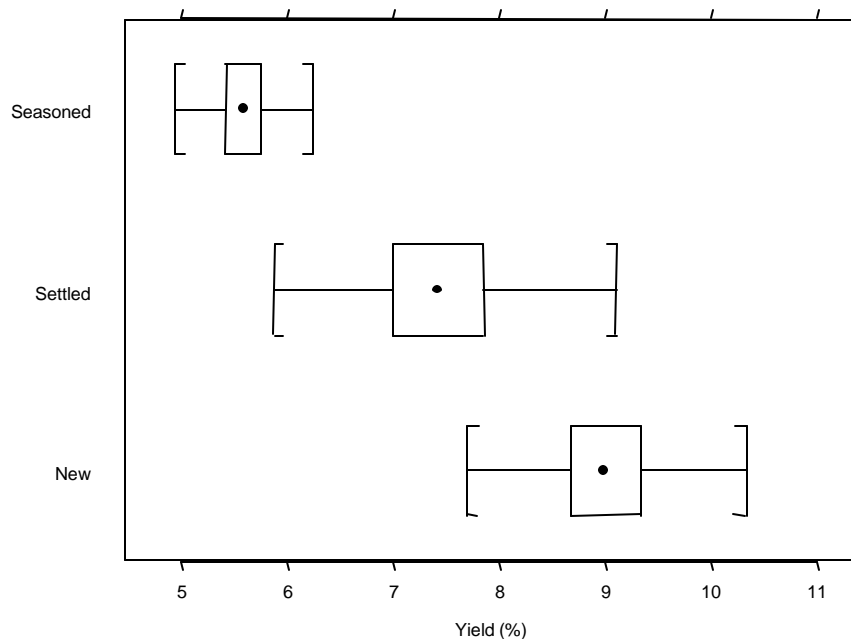
Figure 6 summarizes the results. The central dot in each boxplot gives our best estimate of the yield for seasoned, settled and new borrowers, after stripping-out the effect of economic variables. The central squares define the interquartile ranges (25th through 75th Percentiles), and the wingspans mark the 95 percent confidence intervals. The figure shows that, with tremendous confidence, we can affirm a difference between seasoned and new borrowers. The point estimates for these two categories are 5.6 versus 9.0 percent, and the sampling distributions do not overlap. It is a bit harder to distinguish the states that settled from either the seasoned

⁴⁵ For ease of presentation, both economic variables were recalibrated in *hundreds* of pounds per person, such that averages for the full sample were 0.026 and 0.050, respectively.

⁴⁶ Procedure is described in King, Tomz and Wittenberg (2000) and was implemented with Clarify software developed by Tomz, Wittenberg and King (2001).

borrowers or the newcomers. Although the point estimate for the yield falls smartly in the middle, at 7.4 percent, the confidence intervals stretch far in both directions, reflecting considerable diversity in this class of borrowers. Some, who had settled and repayed for a long time, began to look more like seasoned borrowers, while others, who had only recently settled and launched new bonds, more closely resembled the newcomers. Overall, the results are quite consistent with the theory in Section 2.

Figure 6: Expected Yields, Controlling for Economic Variables
London Market, 1872



We can gain further insight by probing more deeply into the various subcategories of Table 4. Consider the seasoned borrowers. We have already seen how Brazil managed to lower its yield through a consistent record of repayment. Table 4 places the yield on Brazilian bonds in the middle of the pack, higher than longstanding borrowers like Denmark and Sweden but lower than Italy or Russia. The position of Brazil is striking, given that its income per capita at that moment was almost surely lower than settlers like Argentina, Portugal and Spain, and on par with countries like Japan (a new borrower) and Mexico (a lemon).⁴⁷ As we have seen, Brazil earned its position as a first-rate borrower through a consistent pattern of repayment, from which it never deviated until the mid 1890s.

Two countries in the seasoned category, Turkey and France, had above-average yields. Both deserve some comment. Though seasoned by my coding criteria, Turkey had been borrowing only since 1854 and was thus the newest of the proven borrowers. Moreover, as many bond manuals and newspaper reports acknowledged, the country was experiencing severe

⁴⁷ These conclusions are based on retrospective calculations of GDP per capita at purchasing power parity in 1870, as reported in Maddison (1995).

financial trouble due to a bloated foreign debt and a debt-export ratio of more than 13 pounds, one of the highest in the sample and 2.8 times the seasoned-country average. In an age where economic information was increasingly available to investors, we would expect news of financial trouble to elevate the yields on Turkish bonds, thereby introducing “noise” into the otherwise low-variance category of seasoned borrowers.

The French yields in Table 4 are also high, but one should put them in proper context. During the early 1870s France suffered a humiliating defeat in the Franco-Prussian war, and it was beset by domestic turmoil that eventually led to the imposition of martial law. Given such an inauspicious backdrop, it is quite remarkable that French bonds yielded only 6 percent, and that the government was able to raise several new loans on the London market. One such issue was the “National Defense” loan, a 10 million pound credit underwritten by J. S. Morgan & Co in late October 1870. In an interview with George Smalley, London correspondent of the *New York Tribune*, Junius Morgan explained why he took the loan. The rationale is worth quoting at length, because it shows why bankers and investors placed their faith in seasoned borrowers.

“When it first occurred to me that something might be done, I looked up the financial history of France. I found that since 1789 there had been a dozen separate governments – Monarchy, First Republic, Directory, Consulate, Empire, the Bourbons again, then the Orleanists, then the Second Republic, followed by the Second (or third Empire), and so on. Between these successive governments there were enmities of many kinds: dynastic, personal, political. Each successor, with one exception, hated its predecessor. It was one long civil war. But I found this also. Not one of these governments had ever repudiated or questioned the validity of any financial obligation contracted by any other. The continuing financial solidarity of France was unbroken. It was plainly a policy rooted in the minds of the people and of the governing forces of France. I saw no reason why it should be broken in this case more than in any other; less, perhaps, than in many others since this money was wanted for the defense of the country. That was good enough for me. There was no gamble. I thought it was a safe operation, as it turned out to be.”⁴⁸

Next consider the subcategory of settlers. Members of that group not only made amends with creditors, but also issued new debt and serviced it regularly over a number of years, thereby separating themselves from lemons. Within this class of borrowers, countries that settled relatively quickly should have commanded lower rates than those that remained in default from the 1820s through the late 1860s. Moreover, countries with the longest record of uninterrupted payment on post-settlement bonds should have gotten preferential treatment, as they approached the ideal of a seasoned borrower. To test these hypotheses, I regressed the simple yield on two explanatory variables: the number of years since settlement, and the number of years without default on post-settlement bond.

The results appear in Table 6. For ease of interpretation, I expressed the dependent variable in percentage points, even though estimates on the log metric would have had slightly higher *t*-statistics. The table shows that, other factors equal, the cost of delaying a settlement by ten years was about 1.1 percentage points, while an additional decade of full payment on post-settlement bonds reduced the yield by about 1.9 points, a remarkably rapid rate of convergence.

⁴⁸ Morgan, quoted in Smalley (1912), p. 216-17.

As before, standard errors around these estimates are miniscule, and should therefore give us confidence in the predictions of our theory. Moreover, the two key variables account in Table 6 explain almost 78 percent of the variation in yield, once more showing that investors attached an overriding importance to the credit history of the borrower.

Table 6: Regression Analysis of Yields for Settlers (N=9)

	<u>estimated coefficient</u>	<u>standard error</u>	<u>t- statistic</u>
Years since settlement	-0.11	0.04	2.6
Years without default on new bonds	-0.19	0.04	5.4
Constant	11.35	1.32	8.6

Finally, consider the category of new borrowers. Throughout this paper I have coded new borrowers as countries with a credit history of less than ten years. If the seasoning hypothesis is correct, however, we should expect the most experienced borrowers *within* this group to boast lower yields than the true novices. To investigate this possibility, I regressed the yields of new borrowers on their years of experience. Given a sample of only eight borrowers, the results in Table 7 are quite consistent with theory. Each additional year of experience cut the yield by 16 basis points, on average. The point estimate is more than three times its standard error, allowing us to conclude that investors discriminated even within the category of new borrowers, based on the length of uninterrupted debt service.

Table 7: Regression Analysis of Yields for New Borrowers (N=8)

	<u>estimated coefficient</u>	<u>standard error</u>	<u>t- statistic</u>
Years of experience	-0.16	0.05	3.2
Constant	9.24	0.53	17.4

Among the new borrowers, only Japan maintained full payment throughout the 1870s. Santo Domingo was the first to fall, in January 1873. Liberia and Paraguay suspended payments a year later, Bolivia stopped servicing its debts in 1875, and Egypt, Roumania, and Uruguay defaulted in 1876. How did markets treat the only newcomer that kept faith with its creditors? I conclude this section by investigating the experience of Japan, which – like Brazil a half-century earlier – amassed a perfect credit record and eventually joined the ranks of seasoned borrowers.

In the early seventeenth century the central administration of Japan introduced a policy of seclusion (*sakoku*). The Shogun made it illegal on pain of death for any Japanese ship or person to leave the country, and he also prohibited foreigners from visiting Japanese ports. Exceptions to this rule were limited to a few Chinese junks coming to Nagasaki and to a Dutch trading post that was confined to the island of Dejima. Dutch merchants traveled within Japan under escort, and only for approved purposes. Not surprisingly, Japan did not borrow on international markets during this period. The policy of extreme isolation lasted until the mid-19th century, when Commodore Perry began to pry open the Japanese market.

The major turning point came in 1868, with the fall of the House of Tokugawa and the restoration of the emperor. The new leaders chose the name Meiji, meaning enlightened rule, and began to pursue contact with the west. Two years later, Japan floated its first loan on the London market: a 1 million pound credit, to be redeemed gradually over thirteen years. With a nominal interest rate of 9 percent and an issue price of 98 percent, the yield at launch was nearly 9.2 percent, remarkably high in comparison to the seasoned borrowers of the time.

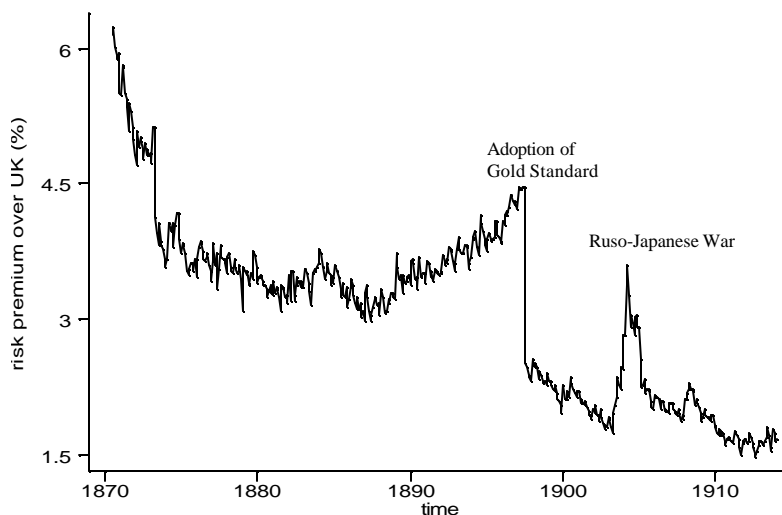
Investors demanded this enormous yield because Japan had not yet proven its creditworthiness through years of faithful repayment. The *Economist* magazine provided the rationale: “Do we know what all the various bodies and persons having power in that polity may think of paying money to foreigners? ... Are we sure that this new nation can be trusted with the greatest of pecuniary temptations – that of borrowing from persons they have never seen?” The magazine professed “ignorance of the people and Government, and of their political character” and noted that “we could only learn by the experience of years whether ... their civilization is advanced enough and their political character trustworthy enough to permit of our lending to them safely.”⁴⁹

Over time Japan did satisfy its critics, and the risk premium fell in response. Figure 7 plots the yield on Japanese bonds, minus the risk-free UK consol rate, from 1870 until the beginning of World War I. The parabolic downward trend is unmistakable. From a high of more than 9 percent at the onset of the regime, the spread fell to around 3 percent in 1890. After a temporary rise in the 1890s (spurred in part by military insecurity and the Sino-Japanese War), it plunged dramatically with the adoption of the gold standard, which some authors have called a “good housekeeping seal of approval.”⁵⁰ This kind of reputational spillover, in which behavior on one issue affects reputation in another, deserves further investigation. Overall, though, a scrupulous policy of repayment allowed Japan to lower its yields when other countries in its borrowing cohort, having defaulted on their debts, were shut out of capital markets. As in the eighteenth and early nineteenth centuries, the evidence from this period accords quite closely with our theory of reputation.

⁴⁹ *Economist* (London), April 30, 1870 p. 530 and January 18, 1873 p. 61.

⁵⁰ Sussman and Yafeh (2000).

Figure 7: Risk Premium on Japanese Debt
London Market, 1870-1914



Source: Data kindly provided by Nathan Sussman

6. Conclusion

In this paper, I have shown how reputations formed across two centuries of international financial history. Consistent with the Bayesian logic in Section 2, new borrowers were charged a lemon premium, which declined asymptotically toward a baseline rate in response to a policy of faithful repayment. Governments that fell into default, on the other hand, could not raise additional capital on international markets until they offered an acceptable settlement to creditors. Support for these propositions comes not only from quantitative data, but also from commentary in the popular press and leading investment manuals of the time.

The findings of this paper should come as a relief to some readers, who were wondering how the contradiction between theory and evidence could have persisted in the international relations literature. According to the conventional empirical wisdom, reputations do not play an important role in global affairs. On its face this conclusion is difficult to accept, since it clashes so strongly with our interpersonal experiences (reputations matter in personal relationships) and with our intuitions about world politics. This paper brings theory and data back into alignment. Once we embrace a more sophisticated theory of reputation, one founded on rational theories of learning, and test it against fine-grained data from capital markets, it becomes possible to resolve the paradox. At least in the realm of international finance, reputations have formed in a Bayesian way for centuries, and they have profoundly influenced the flow of capital around the globe.

The results suggest, among other things, a need to revise existing theories of international debt. Many authors in this field tend to dismiss the role of reputation and imperfect information. Some write that the assumption of complete information “accurately reflects reality,” in the sense

that debtors and creditors know, with a high degree of precision, the preferences and abilities of the actors they are facing.⁵¹ According to one prominent scholar, the notion of incomplete information about the debtor is “totally implausible.”⁵² Other authors maintain that uncertainty about the borrower is “not necessary” to account for relations between debtors and creditors.⁵³ In the interests of parsimony these authors delete what seems superfluous. Still others suggest that the assumption of incomplete information is “unlikely to yield empirically testable models,” whereas full-information approaches can be evaluated against evidence.⁵⁴

These concerns are understandable but misplaced. As we have seen, the assumption of incomplete information about the debtor is not only plausible but also necessary to explain the lemon premiums, seasoning effects, and other patterns of behavior that have existed for centuries. Moreover, contrary to the belief that theories of imperfect information are empirically intractable, researchers actually can use evidence to evaluate the predictions of a Bayesian approach to reputation, as the battery of empirical tests in this paper amply demonstrates. One simply cannot understand international capital flows and debtor-creditor relations without putting imperfect information and reputation at the center of the analysis.

The theory in this paper could be extended beyond debt to a variety of settings in international politics. In trade agreements, foreign direct investment, military alliances, and other forms of international commitment, interlocutors should treat newcomers quite differently from seasoned partners who have shown their reliability (or unreliability!) over a number of years. When dealing with an unfamiliar partner, policymakers may demand more safeguards, enter into shallower agreements initially, and generally to float “trial balloons” that, if successful, could lead to more comprehensive cooperation later on. The way a country behaves in future interactions will depend on how reputations evolve in response to surprising or unsurprising behavior in a Bayesian sense. This nuanced way of thinking about reputation could help bridge the gap between intuition and evidence, not only in debt but across a range of topics in international affairs.

⁵¹ Aggarwal (1996), pp. 55-57, 544.

⁵² Buiter (1988), p. 613.

⁵³ Kletzer and Wright (2000).

⁵⁴ Kletzer (1988), p. 602. This insistence on complete information appears most prominently in the work of political scientist Vinod Aggarwal, who has published the leading study of strategic interaction in international debt rescheduling. To predict the outcome of debt rescheduling, Aggarwal develops a “situational theory of bargaining” that focuses on the domestic and international constraints that borrowers and lenders face in the wake of a default. The model rests on the assumption that “each player knows both players’ payoffs and the rules of the game.” According to Aggarwal, this “assumption of complete information not only provides a more tractable model, but also more accurately reflects reality.” Models of imperfect information, in contrast, would be “unwieldy” for empirical work (Aggarwal 1996, p. 544, 70).

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A Model of Reputation in Sovereign Lending

Draft: Comments Welcome!

February 24, 2002

1 Setup

A country interacts with many investors in successive periods $t = 0; 1; 2; \dots$. At any point in time the country is one of two possible types: a lemon or a stalwart. Lemons have a discount factor $\delta = 0$, making them myopic beyond the present period, whereas stalwarts have $\delta \in (0; 1)$ and thus care about the future. To capture the notion that countries sometimes undergo major political transformations, the model does not treat type as static, but instead allows type to fluctuate from one period to the next. The country knows its type but investors do not.

Investors are risk neutral and survive for only one period, thereby approximating an anonymous capital market. Moreover, investors cannot commit to take actions at the end of the period that are not in their ex-post interest, even if this would be beneficial ex ante.

In the first period ($t = 0$) Nature chooses the country's initial type with probability $\theta \in (0; 1)$ that the country is a stalwart. In all subsequent periods the sequence of moves and payoffs is as follows. (1) Nature chooses whether to change the country's type. If the country begins as a stalwart, it changes to a lemon with probability $l \in (0; 1)$; if it begins as a lemon, it changes to stalwart with probability $s \in (0; 1)$. To keep the amount of political change within reasonable bounds, $s + l < 1$. (2) Each investor receives a nonstorable endowment of 1. Investors simultaneously choose whether to consume their endowment or lend it to the country at gross interest rate p_i , where i indexes the investor. Consuming the endowment gives the investor a payoff of 1. (3) If the country has been offered any loans, it chooses one and invests the principal in a project that gives a gross return of r , which is not storable. (4) The country chooses whether to repay investor i at price p_i or to pay nothing to investor i . Repayment gives the investor a payoff of p_i and leaves the country with $r - p_i$. Default, on the other hand, gives the country the full value of r , while investor i receives 0.

2 Analysis

The game has multiple equilibria, but this paper focuses on one in which investors condition their loans entirely on their present belief about the type of country they are confronting, and not on prior behavior independent of this belief. The equilibrium has the following properties: (1) Stalwarts always repay the loans they receive, whereas lemons never repay. (2) At the outset of the game, when the country has not yet borrowed and is therefore "unseasoned," investors will offer loans at a trial interest rate p^T . This initial rate incorporates a "lemon premium," which investors demand to compensate for the risk that the unseasoned borrower could be a lemon. (3) If the country receives and repays a loan, thereby revealing itself as a stalwart, investors will offer a loan with gross interest rate $\underline{p} < p^T$ in the next period. Thus, the seasoned repayer faces lower interest rates than an unproven borrower. (4) If the country receives a loan and defaults, thereby revealing itself as a lemon, investors will not offer loans for a fixed number of periods, k . During that time, the probability that the country is a stalwart will rise over time in the Markov process. In the k th period investors will regard the country as a stalwart with probability θ^k , a value just high enough

to justify new loans a price $\bar{p} > p$. Both types of countries will accept the loan, but only a stalwart will repay it, thereby signaling its creditworthiness and obtaining a new loan at p in the next period. A lemon will default, thereby losing access to capital markets for another k periods.

To see how this equilibrium arises, first consider how investors form perceptions about the type of country they are confronting. In each period investors share a belief about whether the country is a stalwart or a lemon. The belief depends on two factors: whether the country repaid or defaulted on its most recent loan, and the amount of time that has passed since the loan was made. Investors understand that lemons, who completely discount future payoffs, would never find it optimal to repay. They also believe, in equilibrium, that stalwarts repay any loans they receive. By observing whether the country pays or defaults in period t , then, investors can infer whether the country was a stalwart or a lemon in that period. Investors understand that types can change from one period to the next, though, and adjust their beliefs accordingly.

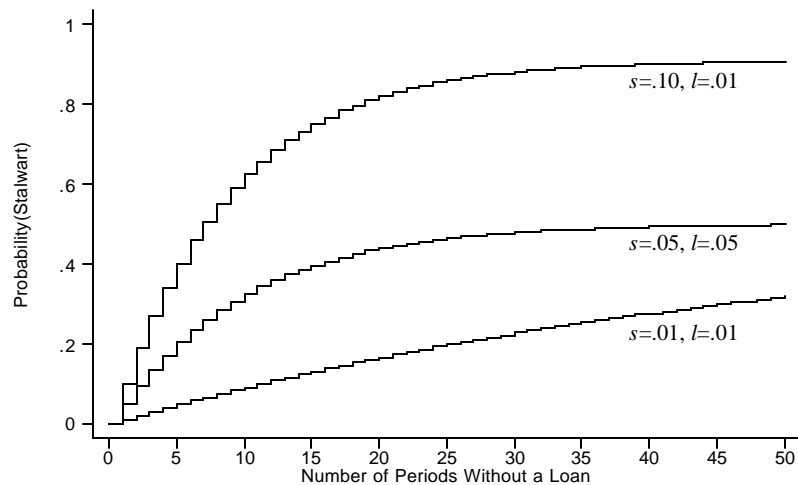
Suppose a country attracts and repays a loan, thereby revealing itself as a stalwart. In the next period investors will regard it as a stalwart with probability $1 - l$. If instead the country default, investors will conclude that the country is a lemon and, in the conjectured equilibrium, refrain from lending for a certain number of periods. During the period without credit, investors will update their beliefs about the country as probabilities of a transition from one type to another accumulate in the Markov process.

Consider a country that is known to exit period t as a lemon. The probability that it is a stalwart in period $t + 1$ is s , and the probability of its being a stalwart in $t + 1$ is $s(1 - l) + (1 - s)s$. More generally, if investors know the country was a lemon in period t and no information is revealed due to loan interactions, after n periods investors will believe the country is a stalwart with probability $[s + s(1 - s - l)^n] / (s + l)$, a value that approaches $s / (s + l)$ as $k \rightarrow \infty$. Given that $s + l < 1$, the limiting value $s / (s + l)$ will be larger than s , implying that over time investors will become increasingly confident that the country is a stalwart.

Figure 1 shows, for various configurations of s and l , how beliefs would evolve until the country attracts new loans in capital markets. As the figure shows, s and l affect both the rate at which beliefs rise and the level at which they plateau. When $s = .10$ and $l = .01$, for example, investors will think the country is a stalwart with probability 0.4 after five periods and 0.82 after twenty. By the fortieth period, the probability will have risen to 0.90, quite close to the asymptotic level of 0.91. In equilibrium, investors may decide to offer new loans well before this many periods have passed.

How would investors price their loans, conditional on beliefs about the country's type? If investors believe the country is a stalwart with probability θ_t just prior to the lending decision in period t , the expected payoff from extending credit at gross interest rate p is $p\theta_t$. In the absence of collusion, the Bertrand pricing game among investors will drive the equilibrium offer price to the level that makes the expected payoff from a loan equal to the reservation value of 1, implying that $p = 1/\theta_t$. Thus, the more investors suspect the country to be a lemon, the higher the price they will demand to compensate for the risk of default.

Figure 1: Evolution of Beliefs During Periods Without Loans



A country that repays a loan, thereby revealing itself as a stalwart, will attract credit at price $\underline{p} = 1/(1+i)$ in the next period. Investors will charge higher rates to countries that are more likely to be lemons.

Investors cannot increase interest rates without limit to indemnify themselves against risk, however. They face two important constraints. First, no investor would offer a loan at an interest rate higher than r , since a country that accepted such a loan would not have the resources to repay. Combining this fact with the previous analysis, investors would prefer not to lend at time t if $\theta_t < 1+r$. This suggests that, unless investors are sufficiently confident that they face a stalwart rather than a lemon, they will withhold credit in equilibrium. In fact, investors refrain from lending after a default precisely because the defaulter must have been a lemon, and they hazard new loans only after enough time has passed to raise θ_t to an acceptable level. Second, investors must be sure that a stalwart would repay a loan at $p < r$, rather than accept the loan and default. There exists a threshold p^* such that, for interest rates above that level, even stalwarts would find it optimal to default regardless of their ability to pay. Knowing that stalwarts would not repay when the interest rate exceeds p^* , investors would not make offers in that range, since default would then be certain. Thus, for any candidate equilibrium, offered rates must be sufficiently low that stalwarts would be willing, and not simply able, to service the debt.

These two constraints influence when, and on what terms, a country would reenter capital markets after a default. One intuitive way to characterize the equilibrium is to identify the smallest k such that, k periods after a default, investors would invite the country to borrow at an interest rate \bar{p} and a stalwart would repay at that price. In other words, the reentry rate \bar{p} must be high enough to give investors an expected payoff of 1, given their beliefs about the country at that moment. At the same time, it must be low enough that a stalwart would

be willing and able to honor the contract, i.e. $\bar{p} \cdot \min(p^a; r)$.

From the perspective of investors, the required interest rate decreases with k . The reason is simple: as time passes, the belief that the country is a stalwart rises, and investors need progressively lower interest rates to cover the risk of default. In contrast, the interest rate that a stalwart would willingly repay for access to capital increases with k . If a country were to accept a loan at price \bar{p} and then default opportunistically, it would lose access to credit for another k periods. The higher the value of k , the higher the interest rate a stalwart would pay to avoid being excluded for k periods. In the k th period these preferences will coincide and lending will resume.

As derived in the Appendix, the equilibrium k is the smallest integer such that

$$\min \left\{ \frac{r(1 - \beta^k)}{c(1 - \beta^k)}; r \right\} \geq \frac{1}{\beta^k}, \quad (1)$$

where $c = 1 - \beta(1 - I)$ and $\beta^k = s + I - s(1 - \beta)^k = (s + I)$. The left side of the inequality measures the largest interest rate (given k) a stalwart would pay, whereas the right side expresses the \bar{p} investors would charge k periods after a default to insure against another lapse of payments. When a stalwart would pay at least as much as competitive investors would charge in the k th period, lending will resume at price $\bar{p} = 1/\beta^k$. The denominator, β^k , in this equation is simply the probability that the country, having been a lemon k periods ago, is now a stalwart. If the country has indeed become a stalwart, it will repay the loan and attract new credit at \bar{p} in the next round. If instead it is a lemon, it will default and lose access for another k periods.

Under what conditions would there exist a k sufficiently large to satisfy Inequality 1? To answer this question, consider the limit of both sides as $k \rightarrow \infty$. The result is $\min\{r; (s + I)\} \geq s$, which establishes two key requirements for the equilibrium. First, the stalwart must care enough about the future that it would prefer to repay the loans it receives, rather than imitate a lemon. Specifically, β be strictly larger than $(s + I) = [s(r - I) + I(1 - I)]$, otherwise no finite k would satisfy the inequality. Second, r must be sufficiently large that, when investors calculate the interest rate that would cover the risk of default, the stalwart would have the resources to repay at that rate. In the Markov process, the probability that the country is a stalwart can never climb higher than its limiting value of $s = (s + I)$. Thus, for $k < \infty$, investors must be able to charge strictly more than $(s + I) = s$. The country is not capable of paying more than r , though, so the equilibrium requires that r be greater than $(s + I) = s$.

Changes in the exogenous parameters can make these conditions easier to satisfy and can hasten the moment at which a defaulter regains access to capital markets. Increases in the discount rate (β), the productivity parameter (r), and the rate of transformation from lemon to stalwart (s) would reduce the the equilibrium value of k . In contrast a higher I , which measures the probability of conversion from stalwart to lemon, would tend to lengthen the period of exclusion. When I is especially large relative to the other parameters, there may be no finite k that satisfies Inequality 1. Finally, note the important relationship between the transition rates and the productivity of the debtor. Investors will not lend to a country with

a history of defaults unless the net return on the debtor's project ($r > 1$ before repayment) exceeds $1+s$, the ratio of the two transformation rates. If the probability of becoming a stalwart significantly exceeds that of becoming a lemon, r can be fairly small, but if the two transformations are equally likely, investors will not relend after a default unless the country can more than double its money ($r > 2$) with every investment!

Where no finite k satisfies Inequality 1, interactions between the country and prospective investors will look somewhat different. For some configurations of parameters, investors will refrain from ever lending to the country. For other configurations, investors will offer loans until a default occurs and then withhold credit forevermore. How might the latter pattern emerge? Suppose θ_0 , the probability that nature selects a stalwart at the outset of the game, is very high. In that case, investors will charge only a small interest rate in period 1 to cover the risk of default. Stalwarts will repay the introductory rate and obtain new loans at an even lower rate of p in the next period. Once the country becomes a lemon and defaults, though, it will fail to attract new credit. The reason is that, in the Markov process, the probability that an erstwhile lemon becomes a stalwart can climb no higher than $s/(s+1)$. If r is too small for Inequality 1 to hold, i.e. if $r < (s+1)/s$, a stalwart would not have the means to repay at rates investors would require to cover the risk of default. Suppose r is sufficiently large, though. Even in that case, the stalwart may not care enough about the future (β too small) to repay what investors would charge a country perceived as a stalwart with probability no higher than $s/(s+1)$.

The two patterns of interaction in the previous paragraph are quite bleak. In the first, no lending ever occurs. In the second, lending eventually stops: given mixing between types, all countries will eventually become lemons, default on their debts, and lose access to markets forever. The Appendix derives the conditions under which these patterns would emerge. Here, we collect all the results in a formal proposition.

Proposition X: The following strategies and beliefs form a perfect Bayesian equilibrium of the game.

CASE 1: $r > (s+1)/s$ and $\beta > (s+1)/[s(r-1) + 1(1-1)]$. In this case, (1) [NEED TO ADJUST THIS, DEPENDING ON WHAT NATURE DOES AT THE OUTSET OF THE GAME.] [Approach 1: Assume nature chooses the stalwart with the steady state probability $s/(s+1)$. Then $\theta_1 = s/(s+1)$, as well. All investors offer loans at a trial interest rate $p^T = (s+1)/s$, and the country randomly chooses a creditor. The country repays only if it is a stalwart.] [Approach 2: Nature chooses stalwart with any probability $\theta_0 \in (0, 1)$. Note that $\theta_1 = \theta_0(1 - s/(s+1)) + s$. If $\theta_1 < \theta^*$, the country must wait some number of periods, while the probability of being a stalwart rises in the Markov process, until an initial loan is granted. At that point, the loan will be made at \bar{p} . If $\theta_1 \geq \theta^*$, a loan will be granted immediately at an interest rate $1 = \theta_1 \cdot \bar{p}$ and stalwart, who was willing to pay at \bar{p} , will certainly pay at $1 = \theta_1$] (2) When a country receives and repays a loan, investors in the next period believe the country is a stalwart with probability $1/(1+s)$ and offer loans at $p = 1/(1+s)$. As before, the country repays only if it is a stalwart. (3) If the country receives a loan and defaults, thereby revealing itself as a lemon, investors will not offer loans for k periods, where k is the smallest integer such that $\min \frac{r(\beta - \beta^k)}{c(1 - \beta^k)} > \frac{\beta}{c}; r > \frac{1}{\theta^*}$. In the k th period investors

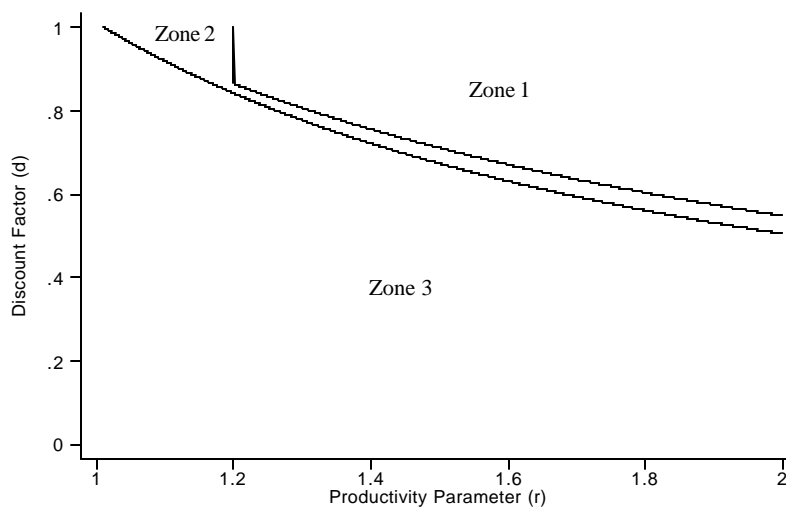
will regard the country as a stalwart with probability θ^a and offer loans at an interest rate $\bar{p} = 1 - \theta^a$. The country will repay only if it is a stalwart.

CASE 2: The conditions for Case 1 are not satisfied but $r > \frac{1}{\theta_1}$ and $\pm > \frac{1}{1 - I_i \theta_1 (1_i r)}$. In this case, (1) In period 1, all investors offer loans at a trial interest rate $p^T = \frac{1}{\theta_1}$, where $\theta_1 = \theta_0(1 - s - I) + s$. The country randomly chooses a creditor and repays only if it is a stalwart. (2) When a country receives and repays a loan, investors in the next period believe the country is a stalwart with probability $1 - I$ and offer loans at $\bar{p} = 1 - (1 - I)$. As before, the country repays only if it is a stalwart. (3) If a country ever defaults, investors never lend to it again.

CASE 3: Values for r and \pm do not satisfy the conditions in either Case 1 or Case 2. Given this configuration of parameters, investors never offer a loan to the country, so it never gets the opportunity to default or repay.

Figure 2 displays the combinations of r and \pm that support each of these cases, given some sample values for s and I . In upper right quadrant (Zone 1), the values of r and \pm are sufficiently high that investors would re-lend to countries with a history of default. The narrow strip for Zone 2 pertains to the case in which investors make offers in the first period but cease to lend after the country has defaulted. The area in the figure reflects the "best" possible case, in which nature chooses a stalwart with probability of nearly 1 at the outset of the game. If the probability were lower, the area covered by Zone 2 would shrink, and if $\theta_1 < s/(s + I)$ (which implies $\theta_0 < s/(s + I)$) the area in Zone 2 would disappear completely. This is just another way of saying that Case 2 exists only if nature chooses a stalwart at the outset of the game with some probability higher than the steady state in the Markov process. Finally, Zone 3 represents the combinations of r and \pm for which lenders would not offer loans in any period.

Figure 2: Equilibrium Zones when $s = .05, I = .01$



3 Testable Implications

The model generates many testable implications. Assuming that the players are in Zone 1, the model predicts that

- 2 New borrowers get charged a lemon's premium
- 2 Interest rates decline, conditional on a history of faithful repayment
- 2 Countries that default eventually regain access to capital markets, but they pay another lemon's premium upon reentry

I focus on these predictions, which do not require precise measures of exogenous parameters s , l , r , and \pm . If one could measure those parameters, one could test some comparative statics concerning the zone the players inhabit, the size of the lemon's premium, the length of the period of exclusion, etc.

4 Extensions?

I'd like to extend this model to allow for

- 2 Smoother updating (and thus more gradual changes in interest rates)
- 2 Good times and bad
- 2 Settlement payments (which signal that the country is no longer a lemon, and thus allow re-entry into capital markets)

Any suggestions would be extremely welcome!

5 Appendix 1: Derivation of Inequality 1

To confirm that Inequality 1 defines the equilibrium, we need to find p^* , the highest rate a stalwart would voluntarily repay given sufficient resources. According to a standard result in discounted dynamic programming, a strategy is optimal if the player cannot improve its utility by abandoning the strategy for one period. Thus, p^* is the threshold at which a stalwart would be exactly indifferent between following the candidate equilibrium (always repaying loans it receives) and deviating once by accepting a loan at p^* and defaulting on it.

Assume that investors offer loans at p^* and the stalwart randomly chooses one. Let V_{p^*} be the stalwart's expected utility from repaying the loan and V_d be the expected utility from defaulting, thereby conveying the mistaken impression that it is a lemon. In equilibrium, $V_{p^*} = V_d$. The utilities are given by

$$V_{p^a} = r + i p^a + \pm (1 - i) V_p + i V_l \quad (2)$$

$$V_d = r + \pm^k [\circ V_{p^a} + (1 - i^\circ) V_l] \quad (3)$$

where

$$V_l = r + \pm^k [\circ^a V_{p^a} + (1 - i^{\circ^a}) V_l] \quad (4)$$

$$V_p = r + i p + \pm (1 - i) V_p + i V_l \quad (5)$$

and $\circ = \frac{1}{s + 1} (1 - i - s i)^k = (s + 1)$.

The utilities appear somewhat complicated because the stalwart, when evaluating different courses of action, must imagine what would happen if it changed type in subsequent periods. Equation 2 says that, by repaying, the stalwart receives $r + i p^a$ in the current period. In the next round it remains a stalwart with probability $1 - i$ and receives the discounted value of V_p , the continuation payoff for a stalwart that, having proven its creditworthiness, attracts new loans at p . If instead the country changes type, it receives the continuation value of a lemon, V_l , evaluated with the stalwart's discount rate. Recall that \circ^a , a factor in V_l , gives the probability that the country is a stalwart when it regains access to capital markets in period $t + k$, conditional on it having been a lemon when it defaulted in period t .

In equilibrium Equation 2 equals Equation 3, the utility a stalwart receives in expectation by deviating once from the candidate equilibrium. By defaulting on the loan with interest rate p^a , the stalwart gets r in the present period but then, having led markets to misclassify it as a lemon, must wait k periods before receiving another loan at p^a . At that point the country will be stalwart with probability \circ and receive the discounted value of V_{p^a} , or it will be a lemon and receive V_l , again expressed in present values using the stalwart's discount rate.

The following lemma greatly simplifies the system of equations: $V_l = r / (1 - i^\pm)$. Proof: In equilibrium, $V_{p^a} = V_d$, so re-write Equation 3 as $V_{p^a} = r + \pm^k [\circ V_{p^a} + (1 - i^\circ) V_l]$. Subtracting this from Equation 4 gives $V_{p^a} [1 - i^\pm (\circ - i^{\circ^a})] = V_l [1 - i^\pm (\circ - i^{\circ^a})]$. Note that $i^\pm, \circ^a, \circ < 1$, which implies that $1 - i^\pm (\circ - i^{\circ^a}) > 0$. Thus, the equality holds only if $V_l = V_{p^a}$. Substituting V_l for V_{p^a} in Equation 4 and solving for V_l gives $V_l = r / (1 - i^\pm)$. Q.E.D.

Based on this result and some additional algebra, the largest interest rate a stalwart would willingly pay on its first loan after a period of exclusion, given the exogenous parameters and k , is

$$p^a = \frac{r(1 - i^\pm)}{c(1 - i^\pm)} i \frac{\pm}{c} \quad (6)$$

This number could be fairly large, but the most a stalwart could actually repay is r . Thus, lending will resume the earliest moment when $\min(p^a; r) \geq 1 - \circ^a$, the condition expressed in Equation 1. Note that, if a stalwart that would repay at p^a would also repay at the

lower interest rate of p . Thus, as long as the parameters are such to satisfy Inequality 1, a stalwart will always repay the loans it receives, which is the equilibrium we posited. ¥

6 Appendix 2: Derivation of Conditions for Case 2

Suppose the parameters are such that no finite k would satisfy Inequality 1. Then a country that receives a loan and defaults will lose access forever. In this case, what is the highest introductory interest rate that would make a stalwart indifferent between following the candidate equilibrium (paying in every period) and deviating from it once? The threshold rate, p^{T^*} , is defined by

$$V_{p^{T^*}}^T = r_i p^{T^*} + \pm (1_i l) V_p^T + IV_i^T \quad (7)$$

$$V_d^T = r \quad (8)$$

where

$$V_i^T = r \quad (9)$$

$$V_p^T = r_i p + \pm (1_i l) V_p^T + IV_i^T \quad (10)$$

$V_{p^{T^*}}^T$ and V_d^T should be equal in equilibrium. After some algebra, we find that the highest trial rate is $p^{T^*} = \frac{\pm(r_i - 1)}{c}$, where $c = 1_i \pm (1_i l)$, as before. Consequently, investors will grant an initial loan to the country only if $\min \left\{ \frac{\pm(r_i - 1)}{c}; r \right\} \geq \frac{1}{\theta_1}$, which implies that $\pm \geq \frac{1}{1_i l_i \theta_1 (1_i r)}$ and $r \geq \frac{1}{\theta_1}$. ¥

8

Enforcement through Linkage

In many theories of sanctioning, the strength of creditors arises from their ability to link debt with trade. If a government defaults on its foreign debts, creditors might retaliate by interfering with international trade. The literature does not always say what commercial sanctions creditors could apply in response to default, but scholars have mentioned three possibilities. Creditors might attempt to seize the assets of the foreign sovereign, prohibit its citizens from obtaining short-term credit for imports and exports, or impose a trade embargo against the defaulting state. If credible, these tactical linkages could motivate governments to pay and afford investors the confidence to lend.

The first form of linkage is easy to dismiss, not only for the theoretical reasons in Chapter 3 but also on empirical grounds. For centuries, courts in the major financial centers adhered to an absolute doctrine of sovereign immunity, which made it nearly impossible to attach the assets of a foreign government. After the Peruvian default of 1875, for example, bondholders sought in the Court of Chancery to seize the proceeds from guano shipments. Peru had pledged the proceeds as collateral, and the commercial representatives in London were holding the money. If bondholders could have succeeded anywhere, they should have prevailed in this case. Instead, the court followed its predecessors in rejecting the petition on grounds of sovereign immunity. According to the Master of the Rolls:

these so-called bonds amount to nothing more than engagements of honour, binding, so far as engagements of honour can bind, the government which issues

them, but are not contracts enforceable before the ordinary tribunals of any foreign government, or even by the ordinary tribunals of the country which issued them, without the consent of the government of that country.¹

The situation prevailed well into the twentieth century. As Edwin Borchard, Professor of Law at Yale, wrote in 1951, “The various attempts that have been made to sue defaulting states in the creditor’s country, even where on occasion security has been attachable,” had failed because of “the elementary principle that a foreign state cannot in principle, under established rules of international law, be sued in municipal courts.”² Such threats may have become more plausible in recent years, when both the United States and Britain relaxed the doctrine of sovereign immunity, but they cannot explain why countries have attracted loans and repaid their debts for centuries.

The second form of linkage has also been of dubious significance. For most of modern history it simply was not possible for bondholders or underwriters to withhold trade credits, which were supplied by separate actors with distinct and often opposing interests. Governments nonetheless repaid their foreign debts, implying that this form of linkage was not necessary to induce compliance. The situation changed during the 1970s and 80s, a period that inspired much of the sanctioning literature. During that unique moment, banks provided not only long-term sovereign loans but also short-term commercial credits, making a punishment strategy more feasible. The previous chapter showed, however, that during periods of default countries discriminated against banks and in favor of bondholders. Their decision to favor the very creditors who could not withhold commercial sanctions counts as strong evidence against the trade credit story.

¹ Judgment of C.A. Jessel, Master of the Rolls, in *Twycross v. Dreyfus* [1876 T 177].

² Borchard (1951: 166).

The third form of linkage is harder to dismiss, since it conceivably could have operated in the distant past. Although private lenders traditionally lacked the ability to impose trade sanctions by their own devices, they might have solicited support from their home government. On behalf of disgruntled rentiers, a sympathetic administration could have prohibited imports from the defaulter, raised tariffs, applied quotas, or barred the export of essential commodities. Perhaps governments have repaid their debts over the centuries to avoid retaliation not by lenders themselves, but by the politicians who serve them through control over trade policy.

The hypothesis builds upon the notion, common in Marxist thought and in modern studies of political economy, that government caters to the wealthy and directs its foreign policy accordingly. Scholars continue to advance the hypothesis today. During the debt crisis of the 1980s, for example, economist Jeffrey Sachs wrote that “most debtor governments pay their debts not out of fear of the banks, but out of fear of a foreign policy rupture with the United States.” In particular, the debtor government “might fear retaliation in the form of hostile trade policies.”³ Political scientist Lawrence Whitehead echoed this view: “in the long term the most powerful ... influence available to creditors is the ability to offer or to withhold market openness.” Defaulters, Whitehead claimed, “could easily slip into a trade war” due to their “uncooperative behavior on debt servicing.”⁴

To examine this possibility I consider patterns of default and repayment during the 1930s. The period is particularly appropriate for two reasons. First, it offers an easy

³ Sachs (1988: 710).

⁴ Whitehead (1989: 238). Many other scholars have advanced this view. See, for example, Alexander (1987: 44), Kletzer (1988: 588), Lindert (1989: 256), Ozler (1991: 16), Nunnenkamp and Picht (1989: 683), and Picht (1988: 350).

proving ground for the trade embargo hypothesis. Linkage-minded investors had few alternatives to a trade embargo during the 1930s. They could not block the supply of commercial credit in response to default, nor could they attach the assets of a sovereign. Thus, the only trade-related weapon in their arsenal would have been the threat of embargo, which investors should have used to maximum capacity. In fact, political scientist Kenneth Oye has claimed that nations of the 1930s “commonly constructed tactical linkages between market access and debt servicing.” They were allegedly willing to adopt discriminatory trade policies in pursuit of financial objectives. In contrast, Oye noted, such discriminatory linkages are quite rare in financial bargaining today.⁵

Second, the interwar period offers a unique opportunity for empirical analysis because there were two leading international creditors. During the nineteenth century British bondholders provided most capital to foreign governments, but the situation changed in the aftermath of World War I. By the 1920s, the United States had emerged as the leading international creditor and funneled enormous sums to sovereigns in Latin America, Europe, and the Far East. At the same time, British investors offered new loans, albeit at a slower pace, and many sterling bonds with long maturities remained on the books. The coexistence of lenders from two distinct nations, the United States and the United Kingdom, each with its own patterns of international trade, allowed me to test for discrimination across creditors. When deciding who should bear the burden of default, did sovereigns of the 1930s pay more money to their principal trading partner, or did they treat American and British lenders equally?

My analysis of the interwar period proceeds in two steps. I begin with a detailed examination of the Argentine case, which many scholars have used to illustrate the

⁵ Oye (1992: 11, 80).

importance of trade sanctions. According to the conventional wisdom, Argentina repaid its debts during the 1930s to avert a British trade embargo. Using both archival and quantitative evidence, I show that Argentina paid not to avoid trade sanctions but to bolster its reputation in capital markets. Next, I look for more systematic evidence across a wider range of cases. My quantitative analysis of compliance with dollar and sterling bonds during the 1930s lends very little support to the sanctioning hypothesis. Apparently, neither borrowers nor lenders used the prospect of a trade embargo as a basis for debt policy.

1. Did Argentina Pay to Avert a Trade War?

Historians widely believe that Argentina was an “informal dependency” of the United Kingdom during the early twentieth century, when the British market served as the primary outlet for Argentine exports of beef and grain.⁶ By the 1930s, reliance on Britain had reached such acute proportions that, in the words of one scholar, Argentine foreign policy became a mere “corollary” of UK policy, and the British exercised “full bargaining power” without restraint.⁷ In fact, the perception of Argentina as an appendage of Britain so captivated intellectuals that it contributed to the rise of Peronism and inspired much of the “dependency” literature that emerged from Latin America after the great depression.⁸

⁶ In his study of imperialism, Lenin (1917) identified Argentina as a British dependency. Modern historians have developed and documented this perspective. See, e.g., Gallagher and Robinson (1953) and the vast literature they inspired, some of which covered in Miller (1999).

⁷ Abreu (1984: 151, 153).

⁸ Valenzuela and Valenzuela (1978) and Packenham (1992) review this dependency literature.

Cognizant of this dependence, countless scholars have argued that Britain coerced Argentina into repaying its debts during the Great Depression by threatening to impose a trade embargo in the event of default.⁹ Did it? By focusing on this “easy case,” in which scholars universally believe that the threat of trade sanctions governed the decision to repay, I stacked the deck in favor of punitive theories and against my own reputational arguments. Drawing on archival and quantitative evidence collected here for the first time, I show that commercial threats did not play a significant role in promoting repayment.

1.1. The Traditional Interpretation of Argentine Behavior

What logic and evidence support the conventional view? Without a doubt, Argentina depended upon Britain as a destination for exports during the 1920s and 30s. On the eve of the Depression, Britain absorbed more than one-third of Argentine exports, a level three times higher than taken by Belgium and Germany, the next-largest consumers of Argentine products.¹⁰ Furthermore, the dependence was asymmetric, giving Britain considerable leverage in the relationship. As the *Financial Times* observed, “the United Kingdom market is much more essential to Argentina than the Argentine market is to the United Kingdom, for whereas she takes about 14 percent of her imports from [us], she sells 36 percent of her total exports to this country.”¹¹

⁹ See, for example, Abreu (1984), Díaz Alejandro (1983: 28-29; 1985: 389; 1986: 162), Eichengreen (1992: 260), Eichengreen and Portes (1989: 80), Fishlow (1985: 428), Jorgensen and Sachs (1989: 66), Oye (1992: 87), and Skiles (1988: 24). della Paolera and Taylor (1999) offer a contrary view that is closer to my own.

¹⁰ *Economist* (February 8, 1936: 6).

¹¹ *Financial Times* (April 3, 1933).

Above all, Argentina needed Britain as an outlet for chilled beef. In the early twentieth century the development of refrigeration technology became sufficiently advanced to allow transatlantic shipments of chilled beef that would not spoiled in transit. Thus, Argentine exports of chilled meats, which carried higher profit margins than canned or frozen varieties, rose to represent nearly seventy percent of total beef exports by 1930.¹² Argentina sold 99 percent of this chilled beef (and more than half of its frozen meats) exclusively to Great Britain.¹³ Moreover, there was no real alternative to the British market. Only countries with a relatively high standard of living could afford to consume chilled meat on a large scale, but as we will see in a few moments, the United States had banned the importation of Argentine beef, and other countries had “placed almost prohibitive restrictions on meat imports.”¹⁴ This left Britain as the only possible outlet for Argentine beef. Quite rightly, then, Argentines often referred to Britain as the “mercado único” (the only market), thereby recognizing that “the dependence was *absolute*”.¹⁵

The distribution of political power in Argentina simply reinforced this dependence, since cattle rangers dominated Argentine politics and society. Of the eight presidents that led Argentina between 1910 and the outbreak of World War II, five were members of the Rural Society, an elite group of ranchers involved in livestock trade. In addition, more than forty percent of Cabinet positions went to members of the Rural Society.¹⁶ Ranchers gained unusual prominence after 1930, when a military coup toppled

¹² Smith (1969: 84).

¹³ Great Britain, Department of Overseas Trade (1930: 21).

¹⁴ Major W. A. McCallum, Chairman of British Chamber of Commerce in Argentina, *Review of the River Plate* (May 22, 1936).

¹⁵ O’Connell (1986b: 23), Fodor and O’Connell (1973: 11).

¹⁶ Smith (1969: 48-49).

the Radicales. The new government and its successors relied for support upon the *concordancia*, a coalition of political parties in which cattle ranchers played the central role.¹⁷ Given the political preeminence of ranchers, one student of Argentine history has dubbed this period “gobierno de las vacas,” which means “the government of the cows.”¹⁸ Thus, Argentine dependence on the United Kingdom was overwhelming, especially in the economic sector that mattered most to policy makers.

During the Depression, however, this precious access to the British market was thrown into question. As agricultural producers around the world struggled to cope with sharp declines in the prices their exports, negotiators for the United Kingdom and its dependencies met in Ottawa to discuss trade. There, Australia and New Zealand lobbied the British to establish imperial preferences for beef. Britain ultimately agreed not to import more extra-imperial chilled beef than it had purchased during the year ending June 1932, when Argentine shipments to Britain had touched their lowest levels in nearly a decade. Although Argentina retained access to the British market, the new quantitative restriction raised a red flag. To Argentine ranchers, the prospect of losing their most valuable client no longer seemed implausible.¹⁹

In this context, politicians in Buenos Aires debated whether to continue paying the foreign debt, a large portion of which had been contracted in London. According to the conventional wisdom, the central government honored its debts to avert a trade embargo, which Britain would have imposed in the event of default. Leading scholars in the field endorse this view. According to Carlos Diaz Alejandro, the dean of Argentine economic history, “tampering with the normal servicing of the Argentine debt would

¹⁷ Rock (1987: chap. 6).

¹⁸ Drosdoff (1972).

¹⁹ Smith (1969: 140-41), Gravil (1985: 183).

have involved not only a bruising commercial clash with the United Kingdom, but also probably a major restructuring of the Argentine domestic political scene, at the expense of groups linked with Anglo-Argentine trade.”²⁰ Economist Barry Eichengreen concurs: “Britain was Argentina’s most important export market, and the British Government was more inclined than its American counterpart to impose trade sanctions in retaliation against default. This combination of forces induced Argentina to maintain debt service throughout the 1930s, in contrast to the other major Latin American debtors.”²¹

1.2. A Test of the Traditional View

At first glance the traditional view seems compelling, but the apparent correlation between commercial dependence and debt repayment is spurious. Although Argentina depended heavily on the British market, a close examination of the evidence reveals that such dependence did not motivate the policy of repayment. Argentina honored its debt obligations, not to protect itself from commercial sanctions, but instead to build its reputation in global capital markets. Put another way, Argentina paid to facilitate its future access to *finance*, not trade.

To test the validity of my counter-hypothesis, we must look beyond the superficial correlation between trade dependence and debt repayment to consider a number of other variables, including the statements and actions of key policymakers and interest groups. The sanctioning and reputational perspectives both predict that

²⁰ Díaz Alejandro (1983: 29).

²¹ Eichengreen (1992: 260). According to Jorgensen and Sachs (1989: 66), “the government must have believed that any tampering with debt service was sure to be commercially and politically costly”. Skiles (1988: 24) adds that “any deviation by Argentina ... such as a suspension of debt servicing, could have led to retaliatory trade action by the U.K.,” and Abreu (1984) alleges that Britain used its tremendous commercial “bargaining power” to extract payment from Argentina.

Argentina should have repaid its debts, but they do not imply identical behavior at all levels. I will show that in four key areas – treatment of dollar debt, policy of exchange control, behavior of provincial borrowers, and the statements of key decision makers – the evidence points to reputation rather than sanctioning as the impetus for repayment.

Treatment of Dollar Debt

If the threat of trade sanctions were important, Argentina should have defaulted on its dollar-denominated debts in the United States. Instead it paid American bondholders in full.

Before the depression, Argentina had borrowed in two foreign markets: London and New York. The British had long served as bankers to Argentina, beginning with the first sterling bond to the newly independent state in 1824. In the aftermath of WWI, however, new British lending slowed to a crawl and the United States rose to become the leading supplier of fresh capital of the River Plate. Throughout the 1920s, Argentina floated millions of dollars in foreign bonds through investment banks in New York, principally to finance public works, improve sanitation, develop state railways, and cover treasury deficits, at a time when the government was amortizing its pre-war sterling bonds. Thus, by the end of 1931 more than 60 percent of the central government's foreign debt was denominated in dollars, whereas only 37 percent had to be paid in sterling. The remaining three percent, owed to scattered creditors in France and Spain, is too trivial to merit attention.²²

Moreover, the dollar bonds carried higher interest rates than their sterling counterparts. Every Argentine dollar bond required an annual interest payment of at least 5.5 percent, with a mean rate of 6 percent across all New York issues. In contrast the

²² Calculated from Alhadeff (1983: 153).

sterling debt, issued in a pre-war era when the cost of global capital was considerably lower, was much cheaper to service: the average coupon rate was 4.6 percent, and no issue had an interest obligation that exceeded 5 percent. Thus, not only was the stock dollar debt larger as a share of the central government's external obligations, but the nominal burden of interest payments was considerably heavier for dollar bonds than for sterling ones.

Continued US adherence to the gold standard only exacerbated the burden of repayment. During the 1920s many countries had pegged their currencies to gold in an effort to stabilize exchange rates, only to abandon this policy when the Great Depression struck. Britain suspended convertibility in September 1931, thereby devaluing the pound relative to gold. This departure from gold made it less costly for debtors like Argentina to acquire British currency necessary to service their sterling-denominated debts.²³ The United States, however, remained committed to gold for an additional 19 months, which deprived Argentina of relief during some of the worst years of the depression. Thus, the confluence of three factors -- larger stocks of debts, higher interest rates, and a more expensive currency -- made repayment to the Americans considerably more expensive than repayment to the British.

If the threat of trade sanctions had motivated Argentina to repay, the government should have defaulted on its extremely costly dollar debt while maintaining punctual service to creditors in the United Kingdom. The reason is that US-Argentine relations, particularly over trade in beef, could only be described as wretched. Commercial intercourse between the two countries had never been particularly friendly, given a lack of economic complementarity: the United States exported the same agricultural

²³ Vázquez-Preledo (1978: 149) shows the improved exchange rate.

commodities as Argentina, leaving little scope for gains from trade. But relations turned unpalatably sour during the 1920s, when leaders in Washington raised tariffs on agricultural goods and banned the importation of Argentine beef. US policy makers therefore entered the depression with an empty quiver: having already embargoed Argentine products for reasons unrelated to the foreign debt, they had no sanctions to apply in the event of default.

A brief analysis of US tariff policy reveals why relations had become so acrimonious. Duties on Argentine goods climbed steadily between the two world wars. The Fordney-McCumber act, approved by the US Congress in September 1922, increased tariffs on agricultural products such as beef and linseed (two crucial Argentine exports), and the Smoot-Hawley Act of 1930 exacerbated tensions by raising taxes on an even wider range of Argentine commodities. Outraged Argentines warned that reprisals might follow, but their threats failed to stop the march of protection. The Agricultural Adjustment Act of 1933 raised prices of American farm products above international levels, and subsequent legislation banned foreign farm goods that undersold domestic ones, thereby robbing Argentina of any comparative advantage that might have remained.²⁴

The greatest blow, however, came in the form of a “sanitary embargo” on Argentine beef. Beginning in January 1927, the US Department of Agriculture prohibited imports of fresh or refrigerated meats from the Argentine Republic and from the 14 other countries in which foot-and-mouth disease was endemic.²⁵ Argentines

²⁴ O’Connell (1986a), Peterson (1964: 351-60), Rock (1987: 242-43).

²⁵ Although initially an administrative measure, the embargo became US law in 1930, when it was incorporated into the Tariff Act, “stalling all possibilities of convincing inspectors to make a change.” Garcia-Mata (1941: 6).

viewed the embargo as a protectionist device, and the cattle barons strongly resented it.²⁶

In response, the president of the Rural Society launched a vigorous campaign against imports from the United States under the slogan “buy from those who buy from us.” From February 1927 onward, this slogan appeared on the cover of every issue of the Rural Society’s monthly newsletter.

The combination of high tariffs and the sanitary embargo effectively closed the US market to Argentine products, including beef, which meant Argentina could default on dollar bonds without fear of commercial reprisal. Although it is true that Argentina imported some manufactured goods – mainly cars, trucks and machines – from the United States, there was no risk of retaliation in that area, either. By the depths of the depression purchases of US goods accounted for only twelve percent of Argentine imports, less than half the British level. If for some reason the United States undermined its own industry in time of need by prohibiting exports to Argentina, industrial nations such as Britain and Italy could easily fill the gap.²⁷

Clearly, if the threat of trade sanctions had been the main motivation for honoring foreign debts, the Argentine government would have repaid the British while defaulting against Americans. On the contrary, the central government repaid every last dime to American bondholders, even though dollar-debt was considerably larger, carried a higher interest rate, and could only be serviced by purchasing a currency that was more expensive in real terms than the British sterling. The behavior of the central government

²⁶ John Whitaker, quoted in Weil (1944: 196), explained the Argentine view: “American sanitary regulations are designed, the Argentine believes, not because the United States needs protection from hoof-and-mouth disease but because American cattle growers are needlessly protecting their home markets against better and cheaper meats. This is what the Argentine believes, every Argentine, all Argentines.” Subsequent analysis by O’Connell (1986b) suggests that the embargo probably had scientific merit, however.

²⁷ *Barron’s* (June 12, 1933: 9).

demonstrates that the threat of trade sanctions – particularly the threat of an embargo on beef – did not motivate the decision to repay.

At this point, readers might speculate that British and American creditors were united. Perhaps the British did the Americans a favor by threatening to retaliate in the commercial arena if any dollar bonds fell into default. Evidence suggests precisely the opposite, however. The British, galled that Argentina was repaying US bondholders at the expense of English merchants, actually wanted Argentina to default on dollar debts and redirect the savings to the United Kingdom!

Such competition between Britain and the United States arose from the problem of blocked exchange. During the 1930s, Argentina owed money to several types of British creditors: investors who owned Argentine bonds, firms that exported to the River Plate, and English who held property in Argentina and remitted profits to the motherland. To ensure enough foreign exchange for bondholders, the government prohibited British merchants and property owners from converting their pesos into sterling and taking the money out of the country. The freeze on exchange adversely affected more than twenty thousand English creditors, whose blocked accounts in 1932 exceeded the annual service of the foreign debt.²⁸

The situation proved particularly upsetting, because Argentina earned the foreign exchange to repay Americans by running a trade surplus with Britain. For most of the interwar period, Argentina sold more than it bought in relations with Britain, while accumulating a trade deficit with the United States. When the supply of international loans dried-up in 1929, trade became the only source of exchange for external debt payments. Argentina therefore used its profits in the British market to finance dollar

²⁸ Alhadeff (1985: 371).

obligations – which were more extensive and costly than sterling bonds – at the expense of English trading interests, a situation that many British found “galling.”²⁹ Not surprisingly, when the British Board of Trade met with bankers and merchants to discuss the situation, it concluded that British exporters should get priority over American bondholders, even if this meant defaulting on the dollar debt.³⁰ Far from extending a favor to the United States, the British actually preferred a dollar bond default “to provide larger scope for Anglo-Argentine trade.”³¹

Policy of Exchange Control

If the policy of repayment truly catered to the interests of beef exporters, the government would not have forced ranchers to surrender their foreign exchange at below-market rates, particularly when an available alternative would have imposed less pain on cattle ranchers.

We can learn more about Argentina’s motive for repayment by examining how the government wrested foreign exchange from exporting groups. Governments typically do not earn foreign currency; instead they acquire it by borrowing abroad or by transacting with domestic citizens. As the evidence in this section will show, the Argentine government forced exporters to surrender their exchange at below-market rates, with the explicit purpose of repaying the foreign debt. This policy weighed most heavily upon beef exporters, who bore a higher price than necessary, since a well-known alternative would have provided the government with exchange at a lower cost to cattle

²⁹ The overseas files in the Bank of England Archives are replete with such complaints. See, e.g., Craigie to Brittain, 31 October 1932, OV102/2; Siepmann to Brittain, 9 November 1932, OV 102/2; Simon to Macleay, 27 January 1933, OV 102/208; “Memorandum on Argentina,” 29 November 1933, OV 102/4; Lingerman, “United Kingdom Exchange Quota May/December 1933,” 7 May 1934, OV 102/4.

³⁰ Lieth-Ross to Hambro, 20 December 1932 in Argentina Files, OV102/2, Bank of England Archives.

³¹ Fishlow (1989: 328).

ranchers. Taken together, these points suggest that the policy of debt repayment did not stem from a sectarian concern for the welfare of beef exporters.

The Argentine government introduced exchange controls in October 1931, three weeks after the United Kingdom abandoned the gold standard. Under the new regulations, exporters were required to surrender foreign exchange at officially authorized banks, which acted as intermediaries for the central government. Although exporters received payment in pesos, all transactions occurred at an “official” rate that understated the true value of the exchange. Any exporter who refused to comply with the regulation lost authorization to ship additional merchandise out of the country. After taking enough exchange to pay foreign bondholders, the government sold the balance to importers.³²

These controls helped the government honor its commitments to bondholders in two ways. First, they gave the government privileged access to increasingly scarce foreign exchange. In the early years of the depression exporters tended to withhold their exchange, hoping to gain a profit by deferring sales at a time when the value of the Argentine peso was falling. Some exporters even found it lucrative to sell their bills of exchange abroad.³³ Such behavior, in the context of a global contraction that had depressed the volume and value of foreign trade, led to an acute shortage of foreign currency. The government responded by commandeering exchange and allocating it according to a rigid hierarchy, with foreign debts heading the list of priorities.

Second, the government realized a profit from its controls and spent the extra revenue on debt payments. The possibility of profits arose because the government

³² Beveraggi Allende (1954), *Institute of International Finance* (1936).

³³ Alhadeff (1983: 125).

collected more foreign currency than it actually needed to service the debt. Prior to 1933, it resold the balance at the official purchase price, but in 1933 the government began auctioning the surplus to the highest bidder. Taking advantage of a considerable margin between buying and selling rates, the government realized a profit of 1 billion pesos (a sum larger than the annual Argentine budget) between 1934 and 1940. It used a large percentage of the profit to meet debt payments, which had increased due to a depreciation of the peso.³⁴

Surprisingly, beef producers bore the brunt of this “tax” on trade. The exchange control system originally included exemptions for exporters of minor products (hides, guano, yerba mate, tobacco, fruit, honey, wine, butter, and eggs). Eventually the set of exemptions expanded to include wool, but the government refused to release beef and grain exporters from the obligation to sell exchange at the official rate. To some extent, the government compensated grain exporters by establishing a system of price supports for wheat, corn and linseed. Profits from exchange control actually financed the operation, after deducting a portion for service on the foreign debt. Thus, the policy of exchange control amounted to a tax on exporters, but the government returned some profits to grain exporters in the form of price subsidies. It offered no similar program for beef producers, who therefore suffered the most from exchange control.³⁵

Was exchange control a “necessary evil,” a price that cattle ranchers paid to avert a default that would have imperiled access to the British market? Evidence suggests that the answer is no, for two reasons. First, British authorities almost certainly would not

³⁴ “Memorandum on Exchange Control in 1935,” OV102/6, Argentina Files, Bank of England Archives; Rock (1987: 223).

³⁵ “Argentine Exchange Profits,” Memorandum 10 May 1935, OV 102/5, and “Argentina: How the Exchange Control Works,” Memorandum 10 October 1935, OV102/6, Argentina Files, Bank of England Archives. See also Institute of International Finance (1936).

have retaliated in the event of default. Although the British enjoyed tremendous bargaining leverage over Argentina, they used their clout to expand the scope for trade, not to promote the interests of bondholders. Lord Pavenham aptly summarized the view in London: “the whole Argentine trading and financial structure is being inconvenienced and endangered so that the bondholder may have his annual pound of flesh.”³⁶ Sharing this perspective, the British Board of Trade argued that Argentina should default on foreign bonds, including sterling bonds if necessary, to alleviate the problem of blocked exchange.³⁷ British bankers and traders, as well as influential figures within the Bank of England, agreed.³⁸ “Even when confronted with outright suggestions of suspension by the British authorities,” however, Argentina maintained full payment, which shows that the fear of a trade embargo did not inspire Argentina to impose exchange controls and honor its foreign debts.³⁹

Second, the policy of exchange controls inflicted more costs than necessary on beef exporters. Argentina entered the depression with a large reserve of gold, which the conversion office held to support the paper currency in circulation. Beginning in 1929, the country did ship gold to cover its debt payments and other obligations, but this policy came to a halt with the imposition of exchange control. Recognizing the pain that exchange control was creating in Argentina, many observers (London and New York

³⁶ *Times* (London, June 22, 1932).

³⁷ Confidential Minutes of Meeting (January 25, 1933) of the Subcommittee on Exchange Restrictions in South and Central America, 1 February 1933, OV102/208; Board of Trade, Draft of First Report of the Subcommittee on Exchange Restrictions in South and Central America, 2 February 1933, OV102/2; Argentina Files, Bank of England Archives.

³⁸ See Lieth-Ross to Hambro, 20 December 1932, OV102/2, Siepmann to Niemeyer, 27 January 1933, OV102/208, Bank of England to Meynell, 31 January 1933, OV102/208, and Bank of England to Meynell, 8 February 1933, OV102/208. Niemeyer, however, favored debt repayment to protect the reputation of Argentina. See Niemeyer to Hambro and Peacock, 2 February 1933, OV102/208. Argentina Files, Bank of England Archives.

³⁹ O'Connell (1984: 204).

bankers, British exporting firms, and the financial press at home and abroad) all recommended that Argentina ease the strain by shipping more gold. They argued that Argentina could safely let the gold cover fall without jeopardizing the currency.⁴⁰ Paying the debt with gold reserves would have lightened the burden on beef exporters, by lessening the need to commandeer foreign exchange at below-market rates. Nevertheless, the government remained committed to its policy of exchange control. This makes it very difficult to argue that the government catered its debt-service policy to serve the interests of beef exporters.

Behavior of Argentine Provinces

If the threat of trade sanctions were important, beef-exporting provinces should have been particularly committed to repaying the foreign debt.

To this point, our analysis has focused on debts of the central government, but many Argentine provinces and municipalities issued their own bonds in New York and London. Some of these subnational borrowers participated actively in the beef trade, whereas others specialized in different aspects of economic life. If Argentines feared losing the British beef market in the event of default, then beef-exporting provinces should have been particularly scrupulous in repaying their debts and encouraging other borrowers to do the same. On the contrary, evidence in this section shows that beef-producing provinces repaid at no higher rate than other provinces, and senators from ranching strongholds were among the most vocal proponents of a nationwide default!

As a first step toward studying the behavior of subnational borrowers, I collected data on all Argentine provinces that owed debts denominated in dollars or sterling on the

⁴⁰ *Review of the River Plate* (April 8, 1932: 7-8; August 12, 1932: 7; September 9 1932), *Barron's* (September 26, 1932: 23), *Financial News* (October 26, 1932), and Schweiger to Goschen, 5 December 1932, OV102/2, Argentina Files, Bank of England Archives.

eve of the Great Depression.⁴¹ The sample included twenty provincial bonds, as well as two municipal loans that were guaranteed by provincial authorities and could therefore be regarded as provincial debts. For each bond, I calculated an “ideal” cash flow, which the investor would have received if the borrower had remained in full compliance during the period 1930-1939, and compared it with the amount of money the borrower actually paid.⁴² The new variable, “compliance,” is simply actual payments as a percentage of ideal payments in nominal terms. Table 8.1 summarizes the data by province.

Table 8.1: Compliance by Argentine Province, 1930s

<u>Province</u>	<u>Loans</u>	<u>Compliance</u>
Buenos Aires	9	85
Capital Federal	4	100
Córdoba	2	88
Corrientes	1	0
Mendoza	1	67
Santa Fe	4	50
Tucumán	1	100

Next, I constructed four measures of the role that each province played in the beef trade. The first measure simply reported each province’s share of the national stock of cattle, on the assumption that provinces with more cattle would participate more actively in the domestic and foreign beef trade. Our second measure, the number of cattle per capita in the province, correlates somewhat with the first but quantifies the importance of the cattle industry on a per-person basis.⁴³ According to the conventional wisdom,

⁴¹ In Argentina, the municipality of Buenos Aires (often called the Capital Federal) has a status similar to the District of Columbia in the United States. Consistent with investment literature from the 1920s, I treat the Capital Federal as a separate province, even though in land area it is much smaller than the others.

⁴² Data on ideal and actual cash flows, as well as other features of the indentures, came from Moody, *Moody's Manual of Investments*, and White Weld, *Foreign Dollar Bonds*, various issues

⁴³ Data obtained from Argentina, Dirección de Economía Rural y Estadística (1935: 157).

provinces with more cattle – measured either as a share of the national total or in relation to the provincial population – should comply at a higher rate, on average.

The next two measures focus on the production of *chilled* beef, in particular. Argentines typically converted their best cattle into chilled beef, while reserving the lower grades for frozen and canned meat. Before sending these “chillers” to the slaughterhouse, ranchers fattened the top-grade calves on special alfalfa pastures in east-central Argentina. The fatteners, who controlled the dry, flat terrain where alfalfa flourished, belonged to the upper class and enjoyed more economic and political influence than mere breeders.⁴⁴ Given their specialization in the chilled beef trade, these fatteners probably would have suffered the most if Britain closed its market to Argentine beef. To identify the location of fatteners, I measured the acreage of alfalfa pastureland in each province, both as a percentage of the national average and relative to the provincial population.⁴⁵ The sanctioning theory implies that provinces with considerable alfalfa pastureland should have paid at a higher rate.

With these data I ran four simple regressions. Each regression involved the same dependent variable but included a different measure of the economic importance of beef. The equations appear below:⁴⁶

⁴⁴ Smith (1969: 36-46).

⁴⁵ Data from Argentina, Dirección de Economía Rural y Estadística (1935: 111).

⁴⁶ The compliance variable is bounded between 0 and 100, whereas OLS assumes that the dependent variable has no theoretical bounds. One might obtain better estimates with a model designed for limited dependent variables, though such models impose their own assumptions and work best with a larger sample. I also estimated a two-limit Tobit regression (censoring at 0 and 100) of compliance on each measure of beef. Although qualitatively similar to the results in this paper, the Tobit estimates provided even stronger evidence against sanctioning: beef was negatively associated with compliance, sometimes at high levels of statistical significance.

$$\begin{aligned} \text{compliance} &= \mathbf{a} + \mathbf{b} \times (\text{percentage of all cattle}) + \mathbf{e} \\ \text{compliance} &= \mathbf{a} + \mathbf{b} \times (\text{cattle per person}) + \mathbf{e} \\ \text{compliance} &= \mathbf{a} + \mathbf{b} \times (\text{percentage of all alfalfa}) + \mathbf{e} \\ \text{compliance} &= \mathbf{a} + \mathbf{b} \times (\text{hectares of alfalfa per person}) + \mathbf{e} \end{aligned}$$

The unit of observation in these regressions was the bond, rather than the province, giving a sample size of 22. Since some provinces issued more than one bond, intra-provincial observations probably were not fully independent. I corrected the standard errors to account for statistical dependence among bonds of the same province.

Figure 8.1, which summarizes the results of the models, shows that major beef-producing provinces did not comply at a higher rate than provinces that raised almost no cattle. To give the sanctioning hypothesis every opportunity of succeeding, the figure reports how the rate of compliance for an otherwise typical province would change if we increased each measure of beef from its lowest to its highest observed value. Failure to confirm that compliance would improve, given a change of such magnitude in the key explanatory variable, would cast considerable doubt on the importance of sanctioning.

The horizontal bars represent 90-percent confidence intervals around the estimated increase or decrease in compliance. If the conventional wisdom were correct, the bars would appear entirely to the right of zero, indicating with considerable confidence that compliance increases with the size of the beef industry. On the contrary, three of the bars straddle the zero-line and the fourth is entirely negative, proving that more beef does not imply higher compliance.

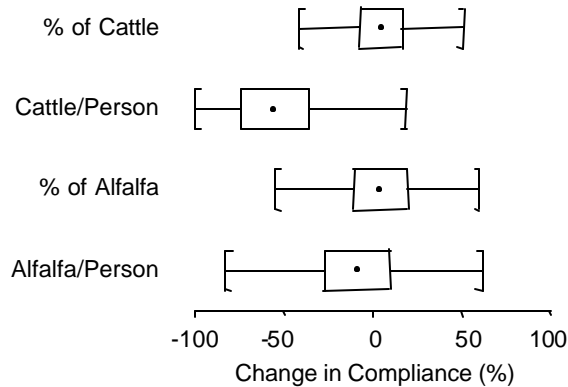


Figure 8.1: Beef-Producing Provinces Did Not Comply at a Higher Rate

This figure shows how the rate of compliance might change if each measure of beef production rose from its lowest to its highest level. Judging from the horizontal bars, which represent 90-percent confidence intervals around the estimated change, we cannot conclude with any confidence that more beef would cause compliance to improve.

These negative results hold even when we incorporate various controls into the analysis. For instance, one might guess that beef-exporting provinces were relatively poor and, therefore, more likely to default due to lack of financial resources. If this speculation has any empirical foundation, then failing to control for wealth or financial resources would introduce bias into the analysis, causing us to understate the positive effect of beef on compliance. In fact, the opposite is true: the beef industry flourished in many of the wealthiest regions of the country, such as the Province of Buenos Aires. No systematic data on provincial wealth exist for the interwar period, but several reasonable proxies are available. I choose three: illiteracy, infant mortality, and government revenue.⁴⁷ When we control for these measures of wealth/resources, thereby

⁴⁷ Literacy data are from Vázquez-Preledo (1978: 212), infant mortality rates appear in Diaz-Alejandro (1970: 50), revenue data are given in Banco de la Nación Argentina, Oficina de Investigaciones Económicas, 13 January 1933 in OV102/209, Bank of England Archives, supplemented with data from Moody's Investor's Service (1934).

distinguishing the direct effect of beef on compliance (the trade sanctions story) from an indirect effect that is mediated through wealth, the results turn even more resoundingly against sanctioning.

Figure 8.2 displays the results. Each panel refers to a set of regressions, identical to the ones discussed earlier except for the addition of a proxy for wealth or resources. As before, all confidence bands straddle zero or lie entirely within the negative zone. In some cases the confidence intervals have narrowed and shifted leftward, further undermining the claim that the threat of sanctions motivated Argentine borrowers to repay their debts.

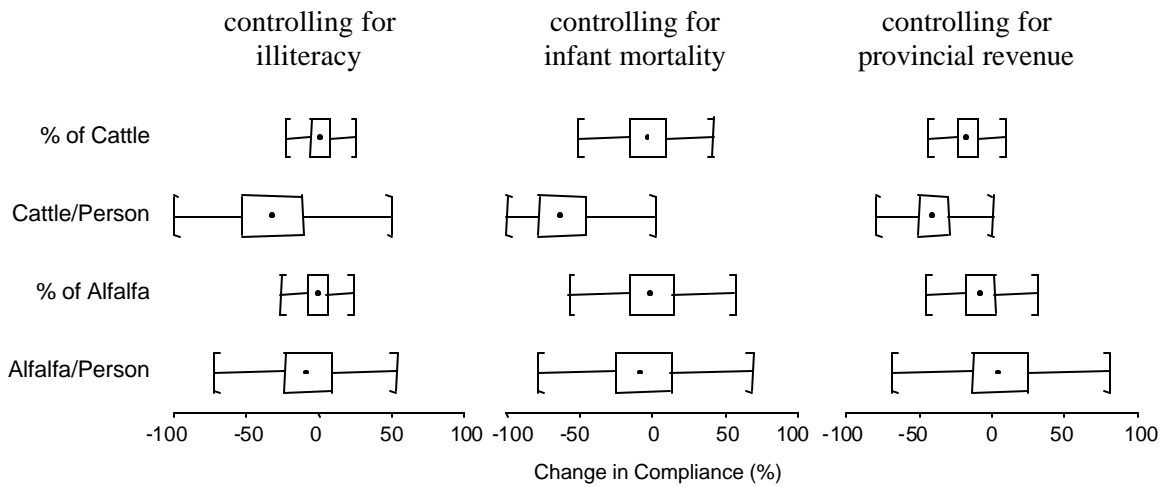


Figure 8.2: The Result Holds, Even After Controlling for Wealth/Resources

I conclude this section by considering how *legislators* from cattle-raising provinces behaved in their attempts to shape national policy. By far the most important cattle-raising province was Buenos Aires, represented in the Argentine senate by Matías Sanchez Sorondo. As a deputy in the lower chamber of the national legislature during the

1920s, Sanchez Sorondo had earned a reputation as an energetic defender of ranching interests. He continued this advocacy in the 1930s in his new role as senator from the Province of Buenos Aires. If defaulting on the external debt would have placed beef exporters in danger, surely this senator would have lobbied for strict repayment. Instead, Sanchez Sorondo authored and sponsored a bill that would have required the central government to suspend amortization and reduce interest payments on the national debt. In fact this was the only pro-default bill introduced into the national legislature during the 1930s.

A second important cattle center was the province of Santa Fe, located just north of Buenos Aires. Lisandro de la Torre, lead senator from Santa Fe, was known as a strong defender of ranching interests and had served as president of the Rural Society in the city of Rosario. Nevertheless, when the province of Santa Fe suspended payment on its foreign debt, Senator de la Torre argued that the moratorium should extend nationwide. He complained that “Argentina’s obstinate insistence on meeting her foreign debt,” particularly in a period of depression and with depreciated exchange rate, was “materially prejudicial to the immediate interests of the country” and, with respect to the future, “little if anything better than a beau geste.”⁴⁸ Such behavior, by leading senators from the most important beef-producing provinces, seriously undermines the claim that Argentina repaid its debts at the behest of ranching interests.⁴⁹

⁴⁸ *La Nación* (July 27, 1932: 1).

⁴⁹ Similar behavior, albeit at a popular rather than an elite level, occurred in the cattle provinces of Corrientes and Entre Rios, where a mass meeting of cattle breeders, farmers and industrialists was held in 1932 to call for default on the foreign debt. See *Review of the River Plate* (August 19, 1932: 21-22; September 2, 1932: 11), *New York Times* (August 22, 1932: 6).

Statements of Key Decisionmakers

If the threat of trade sanctions were important, political leaders would have argued that default would jeopardize access to the beef market.

To complete the analysis I now consider the statements of key decisionmakers in the Argentine central government. If the link between debt service and trade relations were inextricable, interlocutors would have presented the debate in these terms. Proponents of repayment would have warned that Britain would retaliate against a lapse of payments by restricting access to the English market. Meanwhile, advocates of default would have stated, both publicly and privately, that the country should lighten the burden of austerity by suspending payments, even if it meant losing an important foreign client.

The silence on these issues is deafening, however. Having thoroughly examined the debates at the time, I could not find a single reference to the threat of trade sanctions as a reason for repaying the foreign debt. Instead, all major players in the debate focused on reputation, asking how default might affect the image of Argentina in the eyes of investors and, therefore, the country's ability to borrow anew when the global economy recovered. The notion that Argentina repaid to avert a hypothetical sanction that no one bothered to mention, when so many speeches were delivered and so much ink was spilt on the theme of reputation, strains the limits of credulity.

We begin by considering the views of General Justo, President of the Argentine Republic from 1932 until 1938. Justo emphatically believed that "it would be madness" not to maintain service on the debt at a time when almost every other South American state was defaulting, since repayment would enhance the reputation of the country, while default would "throw away the future benefits of cheap borrowing."⁵⁰ In a national radio

⁵⁰ *Financial News* (September 28, 1932; October 26, 1932).

broadcast in 1933 the president justified the policy of repayment as a way to “consolidate the good name and high credit of Argentina.”⁵¹

Alberto Hueyo , who served as finance minister during the first two years of the Justo administration, viewed the issue in much the same way. Hueyo insisted that the country continue paying, even if it meant “demanding a strenuous sacrifice from the inhabitants of the country,” because he viewed compliance as “the fundamental basis of credit.” Like many of his contemporaries in government, Hueyo thought the global economy would eventually recover, and he deemed it “vital that our country should arrive at that hour with its prestige unabated,” so it could “immediately take advantage” of the increased supply of capital.⁵²

The finance minister elaborated these views during a particularly revealing debate in the Argentine senate. In May 1933 Sanchez Sorondo, who had recently formalized his proposal for default, asked Hueyo to defend the government’s policy before the senate. If the sanctioning argument had any merit, there could not have been a more opportune time to invoke it. But Hueyo never mentioned the risk of commercial sanctions as a reason for repayment, even though he was being interpellated by the senator of the largest beef-exporting province. Rather, Hueyo argued that the country would need to borrow again, especially for transportation, irrigation, and sanitation, and for this reason identified Argentina as one of the countries in the world “that most requires the safeguarding of its credit.” Default would be “short-sighted,” since it would not convey Argentina’s determination to carry out the weight of contractual obligations. Hueyo held-out the

⁵¹ The broadcast, delivered on 16 November 1933, is reprinted in *Argentina* (1934: 5-6) and available at the Tornquist Library, BCRA, Argentina.

⁵² *Review of the River Plate* (January 22, 1932: 17).

prospect of converting the outstanding debt into new issues at lower interest rates, but insisted that conversion would not occur if Argentina sullied her credit.⁵³

In fact, the theme of reputation seemed central to all discourse about debt, while the prospect of sanctions was conspicuously absent. Federico Pinedo, who succeeded Hueyo as minister of finance, viewed the debate in these terms.⁵⁴ So too did the National Association of Importers, which pointed out that the world was marching slowly toward an economic recovery, and that Argentina would benefit from its “reputation of having complied with all obligations. The destruction of this favorable situation must not be permitted.”⁵⁵ *La Prensa* and *La Nación*, the two leading newspapers in Buenos Aires, often rehearsed the reputational theme, though they sometimes questioned whether a stalwart-like image was worth the cost.⁵⁶ Even the advocates of default, Matías Sanchez Sorondo and Lisandro de la Torre, couched their arguments in reputational terms, asserting that the Great Depression gave the country an excuse to default without hurting its reputation.⁵⁷

As we saw in Chapters 5 and 6, both sides were right. Default probably would not have undermined the reputation of Argentina, which investors regarded as a fair-weather payer on the eve of the depression. Nevertheless, the decision to repay during a period of extreme difficulty allowed Argentina to climb the reputational ladder and obtain special access to new credit. Years later, Hueyo reflected that Argentina had succeeded by showing its resolve to pay, not only in times of bonanza but also during periods of

⁵³ Hueyo, Speech of 30 May 1933 before the Argentine Senate, reprinted in Hueyo (1938: 230-38). Hueyo presented similar arguments to the Argentine Chamber of Deputies.

⁵⁴ See, e.g., his radio broadcast on 16 November 1933, reprinted in *Review of the River Plate* (November 24, 1933: 15).

⁵⁵ *Review of the River Plate* (March 18, 1932: 7-8).

⁵⁶ In early August 1932 the editors of *La Nación* advocated default because they believed that creditors would excuse a moratorium, given the dire circumstances.

⁵⁷ *Review of the River Plate* (June 2, 1933; July 29, 1932: 23-34).

extreme poverty. “Cumplir los compromisos contraídos es sumamente honroso, pero hacerlo cuando todo el mundo falla y en momentos de penuria ... tiene mil veces más valor.”⁵⁸

1.3. Synopsis of the Argentine Case

We have seen that Argentina repaid its debts, not to avoid a costly trade war, but to facilitate additional borrowing. The desire to build a reputation for honesty led decisionmakers to take the remarkable step of maintaining payments during the depths of the depression. All four considerations – the treatment of dollar debt, the policy of exchange control, the behavior of Argentine provinces, and the statements of key decisionmakers – lead to the same conclusion, giving us considerable confidence in the importance of reputation.

Although the evidence in this section has pointed overwhelmingly in the direction of reputation rather than sanctioning, it is understandable why scholars might have thought otherwise. After all, the superficial correspondence between commercial dependence and debt repayment is eye-catching, especially for anyone predisposed to view the world through dependendista lenses. The story of a conspiratorial alliance between British investors and Argentine ranchers makes for interesting fiction but has very little basis in fact.

What general conclusions can we draw from this detailed analysis of the Argentine case? If the prospect of trade sanctions did not shape the debt policies of interwar Argentina, it seems unlikely to be potent elsewhere. Even in an extreme case of

⁵⁸ Hueyo, Speech in El Colegio Libre de Estudios Superiores, 1 October 1937, reprinted in Hueyo (1938: 307).

dependency, the risk of a trade embargo did not figure prominently in the decision to repay. The evidence is particularly damning, since it contradicts the main example that researchers have supplied to illustrate the payment-inducing power of trade sanctions.

Our results are not merely negative, however. In casting doubt on the importance of trade sanctions, we have also seen the overriding importance of reputation. At least in the Argentine case, debate centered on how default would affect the image of Buenos Aires in the eyes of foreign investors. The desire for a better reputation, even at great cost, probably motivated other peripheral countries to repay during the Great Depression, though we cannot verify this without in-depth studies of the national debates in other countries. For now, though, we can be highly confident that what at one time seemed the strongest example of a sanctioning paradigm is actually a testament to the importance of reputation.

2. Cross-country Analysis of Trade Sanctions

In this section, I cast the empirical net more broadly by conducting a cross-country statistical analysis of debtor behavior during the 1930s. If the prospect of a trade embargo motivates sovereigns to repay, then we should observe two patterns in the data. First, the more heavily a country depends on trade with the country where its creditors reside, the more it would suffer from sanctions, and thus the more scrupulously it should honor its debts to those creditors. Second, the debtor should discriminate in favor of its senior trading partner, particularly during moments of crisis. Throughout history, many governments have borrowed from investors in several countries, some more important commercially than others. In a moment of default, it makes sense to minimize the cost of

noncompliance by paying citizens of the senior trading partner (which could impose more costly trade sanctions) at a higher rate than lenders in countries that are less commercially significant. I investigate both of these propositions below.

2.1. The Level of Compliance

To test the first hypothesis, I measured each government's compliance with its dollar and sterling debt. As in the Argentine case study, my measure was simply the monetary value of interest payments that the government made as a proportion of its contractual obligations. Suppose, for example, that a government paid \$200 million in interest on its dollar bonds in 1934, even though by agreement it should have paid \$500 million that year. The government would earn a compliance score of $200/500 = 0.4$ for that year. Using the database described in Chapter 6, I calculated an average compliance score for each government and denomination of bond (dollar vs. sterling) during the period 1933-38. Those dates offered the greatest variation in the dependent variable while avoiding the potential problems imposed by World War II.

The key explanatory variable was trade – the sum of exports plus imports – with the creditor country as a proportion of gross domestic product in 1928. I chose 1928 to minimize the risk of a reciprocal relationship between dependent and explanatory variable. If creditors did indeed slap trade sanctions on countries that defaulted during the 1930s, then the value of trade with creditors during that decade would have been, at least in part, a *consequence* rather than a cause of the decision to repay or default. To determine whether the prospect of a trade embargo deterred default, it was essential to measure the threat of trade sanctions at a moment before the defaults actually took place.

This same concern with endogeneity led me to exclude a few proven lemons from the sample. China, Ecuador, Mexico, Russia had all initiated default before 1928 and remained in default throughout the depression. Assuming that lenders did retaliate commercially, lemons would have had atypically low levels of trade with creditors in 1928, due perhaps to default decisions that were taken many years earlier.⁵⁹ For reasons of logical consistency, then, I dropped the proven lemons from the sample, leaving only those countries that were honoring their debts before the Great Crash.

Trade was measured for all countries and reported in standard sources, such as the Statistical Abstract of the League of Nations, but the level of GDP in 1928/29 was more difficult to find. Through a comprehensive literature search, I found estimates for most sovereigns, but in a few cases the data were simply not available, despite the best efforts of economic historians to calculate them. To overcome this problem I collected auxiliary variables that correlated closely with GDP per capita. Several performed quite well, including movie theaters per capita (!), trade per capita, radio sets per person, life expectancy, illiteracy rates, and infant mortality, each of which explained at least 50% of the variation in GDP levels. Ultimately I settled on motor vehicles per capita, which was available for all sovereign countries and tightly related with GDP.⁶⁰ I used this auxiliary information to fill holes in the dataset via the technique of multiple imputation.

⁵⁹ This effect is not readily apparent in the data. Mexican trade with the United States, for example, was no lower or more restricted in the late 1920s than it was before the revolution, even though Mexico had *repudiated* its financial obligations to US investors in 1914. Trade with creditors remained equally buoyant for China, Ecuador, and Russia, despite their defaults. These observations themselves should cast doubt on the trade sanction hypothesis.

⁶⁰ A simple bivariate regression of GDP on motor vehicles, both measured in natural logs per capita at their 1928/29 levels, produced an R^2 of nearly 80% for the fully observed observations, suggesting that this was an excellent predictor of the missing data.

In the final sample, compliance scores ranged from 0 to 1 with a mean of 0.73 for sterling bonds and 0.68 for dollar bonds. I analyzed the sterling and dollar bonds separately, since it seemed implausible that, say, the United Kingdom would threaten trade sanctions against a country that defaulted on dollar bonds, especially if those countries had not also borrowed from British investors. Trade with the United Kingdom as a proportion of GDP ran from .007 to 0.31, with an average value of 0.08. Trade with the USA, in turn, was 0.10 on average, with a minimum of .004 and a maximum of 0.71. I included GDP per capita as a control variable, since it should have influenced the rate of compliance and might also have covaried with dependence on trade with the United States or the United Kingdom.

For each type of bond (dollar or sterling), I estimated a model with the following log likelihood:

$$\ln L_i = y_i \ln \mathbf{p}_i + (1 - y_i) \ln(1 - \mathbf{p}_i)$$

where y_i was the observed rate of compliance for country i during the period 1933-38, $\mathbf{p}_i = F(\mathbf{b}'x_i)$ was the expected rate of compliance conditional on the explanatory variables, and F was the cumulative standard normal distribution. The model is a modified version of the standard probit regression. In most cases, y_i took on values of 1 or 0, such that the likelihood was governed by either \mathbf{p}_i or $(1 - \mathbf{p}_i)$, just as in a probit model. In the few cases where y_i assumed an intermediate value, the likelihood amounted to a weighted average of the probability of full compliance (\mathbf{p}_i) and the probability of full default $(1 - \mathbf{p}_i)$.

The results for both sterling and dollar bonds appear in Table 8.2. Against the trade embargo hypothesis, dependence on trade with the UK did not lead countries to

honor their sterling debts at a higher rate. The estimated coefficient on “trade with lender” was actually negative, the reverse of what we would expect if countries repaid to avoid a trade embargo. Nevertheless, the standard error was more than fifty times larger than the point estimate, so for all practical purposes we should treat the estimate as zero. Results for dollar bonds were similar. The coefficient on trade with lender was slightly positive, but once again the large standard error and miniscule t-statistic inspire no confidence that the effect differed from zero. Apparently, the threat of a trade embargo did not provide any systematic protection to either British or American investors during the interwar years.

Table 8.2: Compliance Did Not Depend on Trade with the Lender

	Sterling Bonds (n=39)			Dollar Bonds (n=37)		
	<u>Estimated coefficient</u>	<u>Standard error</u>	<u>t-statistic</u>	<u>Estimated coefficient</u>	<u>Standard error</u>	<u>t-statistic</u>
Trade with lender	-0.044	2.285	0.02	0.037	1.593	0.02
GDP per capita	0.771	0.272	2.84	0.704	0.180	3.92
Constant	-0.438	0.347	1.26	-0.680	0.371	1.83

Could measurement error have caused this resoundingly null result? Our key explanatory variable, trade with lender as a share of GDP, was probably measured with error, which – if random – could have biased the estimated coefficient toward zero. By the 1920s, the United States and Britain had been collecting detailed trade statistics for a century, and for practical purposes we can treat the data as accurate. Gross domestic product, in contrast, was a fairly new concept which only reached full development by economists around the time of World War II. The estimates of GDP at 1929 levels were, for the most part, obtained through retrospective calculation by historians, rather than

systematic work by researchers at the time. Were our measures of GDP so riddled with error that they obscured the effects of trade with the lender?

The quality of the parameter estimate for GDP per capita suggests otherwise. If GDP per capita suffered from severe measurement error, it would not have proved so consequential in the statistical analysis. On the contrary, the coefficients on GDP per capita in Table 8.2 carried the anticipated sign and were estimated with a considerable degree of precision. Moreover, variable exerted a considerable substantive effect on compliance, as shown in Figure 8.3. Each panel in the figure contains three lines. The central line indicates how the expected level of compliance changes with different values of GDP per capita in 1929 US dollars, holding trade with the lender at its mean. The other two lines represent upper and lower bounds on a 95-percent confidence interval around the estimate. Both panels clearly show that compliance rises with GDP per capita but exhibits diminishing marginal returns. Moreover, the confidence bands narrow as GDP per capita climbs, implying that higher income not only increases the expected level of compliance but also heightens the certainty of repayment. If the variable were plagued with measurement error, we probably would not have observed such clean and intuitive results. Thus, measurement error does not seem serious enough to alter our conclusion that trade with the lender exerted virtually no effect on compliance.

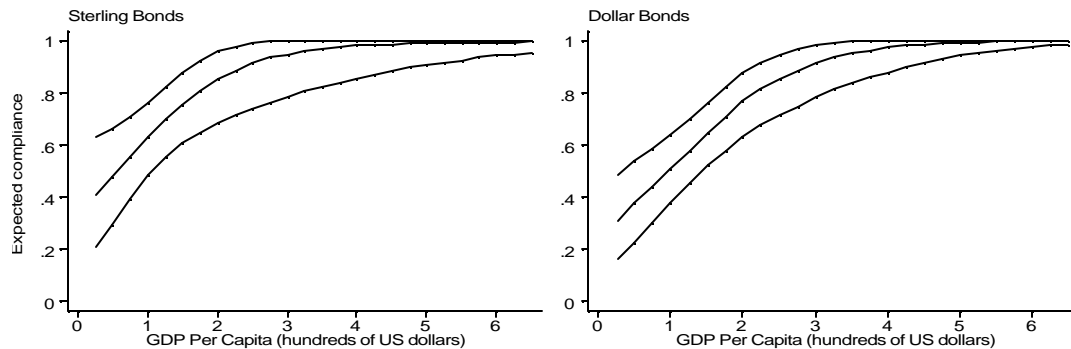


Figure 8.3: Compliance Increased with GDP Per Capita, 1930s

A related objection concerns the paucity of data during the 1930s. If interwar leaders did not have measures of national income, could they really be expected to base decisions on trade with the lender as a share of GDP? There are two answers. First, policymakers probably had a good intuition about how extensively their economies depended on trade with lenders, even if they could not quantify it to several decimal points. (If leaders could not gauge their level of dependence, then the embargo hypothesis should be rejected immediately.) Second, the conclusions in this section do not depend on the particular measure of trade reliance that was used. I considered two other measures: trade with the creditor as a percentage of all trade, and trade with the creditor in dollars per capita. For both the sterling and dollar bonds, the estimated coefficients on these alternative measures were slightly negative, the opposite of what we would expect given the embargo hypothesis, but with enormous standard errors they were statistically indistinguishable from zero.

Finally, readers might attribute the null result to selection bias. Perhaps investors refrained from lending to countries that had little commercial intercourse with the United

Kingdom or the United States, such that the ones who actually attracted capital were satisfactorily vulnerable to trade sanctions. If this objection is valid, then it might explain why we found no relationship between trade and debt in the sample of borrowers.

Three pieces of evidence argue against this possibility, however. First, as detailed in Chapter 5, investment primers of the interwar period never mentioned the direction of trade or the prospect of an embargo as a factor in lending decisions. It therefore seems unlikely that investors rationed credit on the basis of this variable. Second, the wide range on “trade with creditors” provides a considerable degree of reassurance. British and American investors lent to countries that conducted less than one percent of their foreign trade with the motherland, and would therefore have been relatively invulnerable to an embargo. Third, countries that borrowed from the British actually conducted *less* trade with the United Kingdom, on average, than countries that did not attract sterling loans. The behavior of US lenders seemed slightly more consistent with rationing: American investors did indeed show a slight preference for countries that traded extensively with the United States. The difference was not statistically significant, however, either in a *t*-test of means or in a probit regression that explored whether dependence on the United States could explain which countries got dollar loans. Thus, investors of the interwar period did not use dependence on trade as a criterion for allocating credit.

2.2. Patterns of Discrimination

For additional evidence I turned to the subset of countries that defaulted. If the threat of an embargo truly loomed, then defaulters should have pushed the cost of non-

compliance onto their junior trading partners, thereby minimizing the commercial penalty. Did governments behave in this way? To answer this question I identified all sovereigns that owed money to both British and US bondholders during the 1930s. Of these, I disqualified thirteen countries that had paid their creditors in full and three that defaulted on both dollar and sterling obligations before the Great Depression.⁶¹ That left sixteen sovereigns who, having borrowed on both sides of the Atlantic, violated their debt contracts during the 1930s.

For each of the sixteen, I checked for discrimination by comparing compliance rates on *similar* sterling and dollar bonds during period 1933-38. Two factors led me to focus on similar bonds instead of pooling all dollar and sterling obligations. First, some debt contracts are harder to honor than others. A government must exert more effort to honor a debt with an 8-percent interest rate than to service one with an annual burden of only four percent, for example. When testing for discrimination it seemed crucial to hold constant the degree of difficulty that the obligations posed. Second, certain types of bonds have traditionally enjoyed higher standing than others. During moments of crisis governments often prioritize “funding” or “adjustment” bonds that were issued to compensate lenders for past defaults. This practice not only seems fair, but it also signals that the government is serious about the settlement offered to bondholders.

Whenever possible, then, I paired sterling and dollar debts that bore approximately the same interest rate and security, and I tried not to mix funding bonds with new issues. Sometimes the pairings were obvious, as when a sovereign issued identical bonds in two tranches, one in London and the other in New York. In other cases

⁶¹ The nondefaulters were Argentina, Australia, Belgium, Canada, Czechoslovakia, Denmark, Estonia, Finland, Italy, Japan, Newfoundland, Norway, and Sweden. The three pre-depression defaulters were China, Mexico, and Russia.

it proved impossible to find an exact match, so I opted for as close an approximation as possible. Each pairing received a letter grade ranging from “A,” which signified a perfect match on all characteristics except the issue market, to “D,” which meant that the closest pair nonetheless differed in type, interest rate, and security.

I created at least one pairing for each of the sixteen defaulters, calculated separate compliance rates for sterling and dollar debts, and then computed the disparity in treatment, if any. In cases where more than one pairing was possible, I opted for the one with the highest grade. Heavy borrowers such as Austria, Brazil, Bulgaria, Germany, and Greece had several grade-A pairs. Rather than pick one arbitrarily, I used them all to compute the average gap in compliance between sterling and dollar bonds. A difference of zero meant that the government afforded equal treatment to creditors in the United States and the United Kingdom, whereas a nonzero value indicated some degree of favoritism.

The results appear in Table 8.3. The first set of columns gives each country’s trade with the United Kingdom and the United States as a percentage of total trade in 1928. The second set reports the compliance rates on sterling and dollar bonds during the 1930s, and the third set compares these quantities, thereby revealing whether an asymmetry in trade correlated with an asymmetry in compliance. Finally, the rightmost column reports the quality of the match between sterling and dollar obligations. Entries with a grade of B or better appear in bold. Readers should give little weight to any row with a grade of C or lower, since those involved incommensurable obligations.

Table 8.3: Defaulters Did Not Discriminate in Favor of their Senior Trading Partner

	% trade with		% compliance		comparison (UK-USA)		Quality of match
	UK	USA	UK	USA	trade	compliance	
Colombia	10	60	28	28	-51	0	B
Guatemala	5	55	100	54	-50	46	D
El Salvador	7	34	56	43	-28	13	C
Brazil	12	36	32	32	-24	0	A
Peru	21	33	0	0	-12	0	A
Costa Rica	35	40	14	14	-5	1	C
Chile	28	33	5	5	-5	0	A
Greece	14	18	40	40	-4	0	A
Germany	8	11	100	70	-3	30	A
Uruguay	19	21	58	63	-2	-5	B
Austria	3	5	99	99	-2	0	A
Hungary	3	2	61	61	1	0	A
Yugoslavia	4	3	38	34	1	4	B
Poland	9	8	86	85	1	1	A
Rumania	6	3	41	18	4	24	A
Bulgaria	6	2	36	37	5	-1	A

The countries in Table 8.3 appear in order of their dependence on the United States versus the United Kingdom. Colombia, which heads the list, conducted 60 percent of its foreign trade with the United States versus only 10 percent with the United Kingdom, an enormous disparity that could have aided US bondholders. Likewise, Guatemala, El Salvador, Brazil and Peru depended much more on commerce with the United States than with the United Kingdom. Conversely, a few European countries such as Rumania and Bulgaria appear at the bottom of the list, since they traded more intensively with the British than with Americans.

The largest commercial asymmetries in Table 8.3 favored the Americans, for reasons that are easy to understand. The wave of defaults that began in 1931 confined itself mainly to Latin America and Eastern Europe, where debtors were relatively poor and suffered sharp declines in their terms of trade. As a “gravity” model of commerce would predict, most Latin American countries traded heavily with their nearest developed neighbor, the United States. The nations of Eastern Europe, in contrast, could interact

with any number of large developed markets on the continent, and therefore relied less on either the United States or the United Kingdom. Thus, the 16 defaulters in the sample fell into two categories: Latin American states, which for reasons of geography depended heavily on the United States, and East European countries, whose trade was more diversified.

The “comparison” columns show that defaulters did not discriminate in favor of their senior trading partners. Instead, the modal difference in compliance (UK minus USA) across the full range of dependencies was zero, and the next most common value was one. In all but four cases, discrimination amounted to no more than five percent of contractual obligations, a gap that could have arisen from slightly different terms of contract. Overall, the average defaulter paid nearly the same amount to British and US bondholders, regardless of its dependence on trade.

Not all defaulters treated their creditors equally, however. Table 8.3 shows that Guatemala, El Salvador, Germany, and Rumania serviced their sterling debts more fully than their dollar obligations, sometimes by a wide margin. The behavior of the first two countries runs contrary to the embargo hypothesis: Guatemala and El Salvador favored their sterling bonds, even though they relied more extensively on the US market. How can we explain this perplexing result? The apparent discrimination by Guatemala and El Salvador arose from an inability to match dollar and sterling obligations, rather than any coercive actions by lenders. British investors held funding bonds with interest rates of 4 to 6 percent, whereas US citizens had invested in new securities with interest rates of 7 to 8 percent. The higher rates on dollar debt were meant to compensate for the risk of default, especially since investors understood that the funding bonds would receive

priority. Based purely on the nature of the obligations and without any reference to trade, then, we would expect Guatemala and El Salvador to treat their sterling bonds more scrupulously than their dollar debt.

This leaves only two genuine cases of discrimination: Germany and Rumania. Both countries received match grades of A, meaning the disparities in Table 8.3 were not due to incommensurate bonds. Instead, the two countries explicitly elevated British bondholders over American ones. The German government honored all debts through mid-1934, when it changed course by offering full service to British investors but only partial payment to Americans. Agents implemented this policy of discrimination by stamping each bond to indicate “UK domicile” or “USA domicile.” Likewise, the Rumanian government serviced bonds that were “British-owned,” while withholding payment from American investors.

Although unusual, these two examples demonstrate that governments could have privileged some bondholders over others. The fact that most governments did not discriminate, despite the German and Rumanian precedents, counts as powerful evidence against the embargo hypothesis. Moreover, the two cases of discrimination probably did not arise from the threat of an embargo, though they did originate from tense trade relations between Britain and the borrowers. Later in this section I explain why Germany and Rumania slighted the Americans. For now, though, it bears emphasizing that neither country depended heavily on British trade, and Germany actually conducted more commerce with the United States than with the United Kingdom.

If the threat of an embargo truly had been credible, we would have expected discrimination not from Germany and Rumania, but from nations closer to the top of the

dependency scale. Brazil, for example, should have favored American bondholders. During the interwar period, Brazil conducted more than one-third of its trade with the United States and sent half of its exports to the US market. Perhaps more importantly, it sold up to 70 percent of its most politically sensitive export, coffee, to US buyers. In contrast, the country relied on the British for only 12 percent of trade and less than 5 percent of exports. Considering these differences in the direction of trade, an embargo-minded US government could have extracted preferential treatment from Brazil.

Apparently it did not. On the matched bonds in Table 8.3, Brazil paid exactly the same amount to British and American creditors. This outcome arose from a strong commitment to treating all creditors equally. As early as 1933, Brazilian officials announced that they would “in no way discriminate between different nations” in the repayment of its foreign debt. Instead, they strove to classify bonds “solely on their respective merits,” including “relative security, previous funding, debtors solvency or capacity to pay, differing rates of contractual interest, and actual market values.”⁶²

Some scholars allege that Brazil favored of the British, but the evidence on this point is weak.⁶³ In the debt renegotiation act of 1933/34, Brazil classified its foreign debts into eight categories and indicated how much it would pay for each. A few sterling bonds stood alone in the top tier and received full service at a time when other loans were in default. This policy should not be viewed as discriminatory, however. The sterling bonds in the top tier were *funding* loans, which Brazil had offered to British bondholders in settlement of previous defaults. “They represented interest paid in scrip on three occasions when the economic conditions ... prevented the transference of Brazilian

⁶² Gibson to Secretary of State (November 10, 1933: enclosure 2, pg. 2), Brazil Files, Archives of the Foreign Bondholders Protective Council.

⁶³ See, e.g., Abreu (1985).

Currency into foreign exchange.” The holders had made great sacrifices, Brazil argued, and it seemed fair to give them special consideration. These sterling loans did not affect the calculations in Table 8.3, because they had no dollar equivalent. US observers apparently agreed. The Foreign Bondholders Protective Council had hired Allen Dulles to investigate the situation and opine on the fairness of the Brazilian plan. After a thorough investigation, he concluded that “the privileged position given these two funding loans in the Brazilian plan should be maintained,” even though the bonds belonged to British investors.⁶⁴ The FBPC signaled its approval by recommending the plan to bondholders.

Colombia, too, chose not to discriminate, despite its potential vulnerability to trade sanctions. Between the wars, Colombia conducted 60 percent of its trade with the United States, which absorbed almost 90 percent of Colombian coffee exports. By comparison, the United Kingdom played only a minor role in Colombian commerce. US bondholders understood the situation and urged officials to link debt with trade. For example, a committee of Colombian bondholders appeared before the US Tariff Commission to demand repayment as a precondition for any reciprocal trade treaty with Colombia.⁶⁵ US officials refused to hold trade hostage, however. Sumner Wells, as Assistant Secretary of State, relayed the official view:

“The position of the Department is that the primary purpose of the trade agreements negotiated under the Act of June 12, 1934, is the revival of international trade, and the agreement with Colombia does not, therefore, contain

⁶⁴ Dulles, “Memorandum on the Proposed Plan for the Adjustment of Brazilian National, State, and Municipal External Loans” (December 26, 1933: 9, 12), Brazil Files, Archives of the Foreign Bondholders Protective Council.

⁶⁵ Securities and Exchange Commission (1937: 445). The FBPC also sent a thinly veiled threat to the Colombian government: although it had “not as yet” urged the US Government to employ “coercive measures” against Colombia, it had received “many requests” to that effect and implored Colombia to settle before such steps became necessary. Minutes of Meeting of the Executive Committee, August 7, 1934, Foreign Bondholders Protective Council Archives, Box 45, Minute Book Vol I, 1933-34.

provisions specifically relating to the resumption of service of Colombian dollar obligations. However, inasmuch as the decline in international trade was one of the principal causes of financial difficulties in many countries, it is to be expected that the revival of international trade which the trade agreement program seeks to foster will aid in remedying conditions which have led to defaults.”⁶⁶

The same US policy applied to other debtors.⁶⁷ At various points bondholders asked policymakers to use trade as a weapon, but Secretary of State Cordell Hull “would not consider it for a moment; he [was] thinking only of his trade agreements and extending them and not of bringing in any economic pressure on those countries.”⁶⁸ Thus, an authoritative report by the Securities and Exchange Commission found “no case on record” in which the United States had threatened or imposed “trade sanctions for the purpose of concluding a debt settlement.”⁶⁹

This firm US policy may explain the null statistical results that appeared earlier in this chapter. Governments did not pay in proportion to their commercial dependence on the United States, nor did they discriminate in favor of US bondholders. Perhaps they ignored trade because sanctions were not credible. Whatever its capacity to slap trade sanctions on countries that violated their debt contracts, the US government clearly lacked the will, a reality that debtors and bondholders understood all too well.

Even without the threat of trade sanctions, though, the United States secured payment from most countries. Twenty nations paid their debts in full to American investors during the 1930s,⁷⁰ and others honored a high proportion of their obligations.

Only two countries, Bolivia and Peru, made no transfers to US bondholders between

⁶⁶ Securities and Exchange Commission (1937: 446).

⁶⁷ Eichengreen (1991: 159-60), Fishlow (1985: 429).

⁶⁸ Francis White, Memorandum, April 5, 1938 in FBPC Archives, Box 29, Province of Mendoza (Argentina) Folder, Document 25-1.

⁶⁹ Securities and Exchange Commission (1937: 445).

⁷⁰ The countries were Argentina, Australia, Belgium, Canada, Czechoslovakia, Denmark, Dominican Republic, Estonia, Finland, France, Haiti, Ireland, Italy, Japan, Netherlands, Newfoundland, Norway, Sweden, Switzerland, UK.

1933 and 1938. Clearly, then, the threat of a trade embargo cannot explain why countries repaid their debts to the Americans or why so many nations treated British and American investors equitably. Moreover, if the US lacked the will to apply sanctions during one of the most discriminatory moments in the history of international trade, it seems unlikely to have linked trade and debt during other periods. As a general explanation for payment patterns, the embargo hypothesis is seriously deficient.

The British were only slightly more willing to flex their commercial muscle on behalf of bondholders. In relations with Rumania and Germany, the two discriminators that we identified earlier, the UK government did indeed apply some commercial leverage, though in the form of a clearing arrangement rather than a trade embargo. During the Great Depression, many countries established clearing arrangements to grease the wheels of trade. As parties to the clearing, each nation required its importers to pay for goods in domestic currency, which accumulated in a domestic clearing office instead of being shipped abroad. Exporters, in turn, were paid in their own currency from funds in the clearing office. Thus, clearing agreements allowed countries to trade without transferring foreign funds, except to settle the account. The country with a trade deficit invariably accumulated a surplus in its clearing office, and under some agreements could redirect the surplus to bondholders

By threatening or imposing clearing arrangements, Britain secured preferential treatment from Rumania and Germany. Britain and Rumania established a clearing in the late 1930s. Under the terms of the agreement, any surplus sterling that piled-up in the British clearing office could be transferred to British holders of Rumanian bonds. The United States had no such agreement with Rumania, which explains why British

bondholders fared better than American ones. A similar situation arose with Germany. When Germany declared a moratorium on all long-term government bonds in June 1934, Britain threatened to impose a clearing. It proved unnecessary to carry out the threat, however. Under the Anglo-German transfer agreement of 1934, the British pledged not to establish a clearing, and Germany committed to pay full interest to British holders of Dawes and Young bonds.

This British behavior smacks of trade sanctions, but it is important to keep the evidence in perspective. First, Britain never threatened to sever or even reduce trade with Rumania and Germany in response to default. Instead, it simply sequestered the surplus exchange that accumulated when those two debtors ran a trade surplus with Britain. Thus, the discrimination arose from a special form of currency rationing, rather than traditional trade sanctions. Second and more importantly, the Rumanian and German cases were unique. As Barry Eichengreen emphasizes, they “were exceptions to the rule. British officials generally rejected bondholders’ calls for commercial retaliation,” and American policymakers uniformly refused.⁷¹ Nevertheless, many countries paid in full. Thus, evidence for the embargo hypothesis is surprisingly thin.

3. Conclusions

The previous sections showed that the threat of trade sanctions probably did not influence the decision to repay or default. Between the two world wars, governments did not service debts in proportion to their dependence on trade with creditors, nor did they offer preferential treatment to the specific creditors that were most capable of imposing a

⁷¹ Eichengreen (1991: 160).

trade embargo. At a time when the linkage between debt and trade supposedly reached its height, we uncovered only two examples of the connection, and many more instances in which it played no role at all. Moreover, careful investigation revealed that Argentina, long upheld as exemplar of the embargo hypothesis, paid out of concern for reputation, not trade. Thus, the chapter not only proved statistically that commercial threats were of little significance during the competitive period of the 1930s, when they stood the best chance of credibility and success, but it also exploded the Argentine case that may have inspired the hypothesis in the first place.

Three additional pieces of evidence further strengthen this conclusion. First the leading investment texts of the interwar period never counseled readers to consider the prospect of a trade embargo or other types of commercial sanctions. A systematic search of the investment literature, as detailed in Chapter 5, uncovered only one contemporary reference to trade sanctions, which the commentator offered as a curiosity rather than a general piece of investment advice. In contrast, nearly all the commentators, drawn from professions as diverse as banking, journalism, law, accounting, public administration, and academia, cited reputation as an important if not the key consideration when lending to foreign governments.

Second, investors have at times extended loans to borrowers that were invulnerable to trade embargoes. One powerful example comes from the nineteenth century, when Massachusetts, Pennsylvania, New York, and other US states borrowed from British investors.⁷² In the event of default, any individual state could have evaded British trade sanctions by transshipping goods through neighboring states. To apply effective pressure, then, Britain would have needed to embargo the entire union in

⁷² English (1996) provides a provocative analysis of this period.

response to default by one of its members. As William English points out, it is highly unlikely that Britain would have followed such a course. Despite their invulnerability to trade sanctions, though, the US states managed to borrow, and most of them repaid their debts. Even the ones that defaulted did not experience a trade embargo, but they did tarnish their reputations and lose access to capital markets, at least until they settled their defaults. Thus, the US case provides further support for a reputation-based theory, rather than one premised on sanctions.

Finally, investors from commercially insignificant states have supplied capital to foreign governments, even though their governments could not slap serious trade sanctions on defaulters. Throughout history, loans have flowed not only from Britain and the United States, but also from small states such as Switzerland, Belgium, Denmark, and the Netherlands. In fact, writers often use the terms “Swiss banker” and “Belgian dentist” to describe the stereotypical participants in international finance.⁷³ It is hard to believe that any country would repay its debts to maintain access to a Swiss-sized market, yet citizens of small states repeatedly risk their capital abroad. Moreover, there is no evidence that investors from small states have fared any worse than those from commercially powerful countries such as Britain and the United States.

Overall, there is little evidence that the prospect of trade sanctions compels governments to repay their debts and affords investors the confidence to lend. Although interesting in theory, the embargo hypotheses and other trade-related mechanisms have not proven particularly relevant in practice. Reputation-based theories have provided a

⁷³ The phrase “Belgian Dentist” is often used to describe the typical investor in eurobonds. See, for example, *Euromoney* (June 1984: 56-62).

much more reliable guide to the behavior of debtors and creditors over the past three centuries.