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**RISK SHARING WITH THE MONARCH:  
EXCUSABLE DEFAULTS AND CONTINGENT DEBT IN THE AGE  
OF PHILIP II, 1556–1598**

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## I. Introduction

The history of sovereign lending is littered with cases of debts not honored and agreements broken. In the days of absolute monarchs, lending to the Crown could also be hazardous to the wealth and life of lenders – French kings were known to behead their creditors (Reinhart, Rogoff, and Savastano 2003). Models in the tradition of Bulow and Rogoff (1989) and Cole and Kehoe (1995) emphasize sanctions outside the lending relationship as key for sustained sovereign borrowing. The alternative view regards defaults as largely anticipated. In making their lending decisions, creditors factor in a non-zero chance of default. Risky borrowers pay a premium that is similar to an insurance premium. Markets are incomplete, and defaults offer an effective way to share risks. In times of stringency, some of the burden is shouldered by the lenders (Eaton and Gersovitz 1981; Kovrijnykh and Szentes 2007; Arellano 2008; Yue 2010). Defaults in this setting are excusable if they occur in verifiably bad states of the world (Grossman and Van Huyck 1988).

There is no consensus about the empirical relevance of different theories, and testing them is inherently difficult.<sup>1</sup> Empirical work examining if defaults are excusable is rare. Indicators that defaults are excusable include positive long-run returns to lenders and observing defaults only in verifiable bad states of the world. Eichengreen and Portes (1989a) show that foreign loans during the 1920s and 1930s were, on average, profitable. They also find a large difference between ex ante and ex post rates of return. This is true

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<sup>1</sup> For example, in sanctions models, defaults should never be observed. They reflect out-of-equilibrium behavior – accidents that arise because of irrationality, or because of information frictions (Atkeson 1991). Important papers examining the usefulness of the sanctions literature include Mitchener and Weidenmier (2010), Conklin (1998), Tomz (2007) and Sachs (1989).

of both American and British-issued bonds. Morton and Lindert (1989) examine a larger sample of bonds, spanning the period from 1850-1970. While defaults and reschedulings reduced rates of return markedly, a diversified portfolio of sovereign bonds earned a positive real return of 44 basis points p.a. over the ‘risk-free’ rate of bonds issued by the UK and the US. Profitable loans are not the only indicator that defaults are excusable; payment stops should also occur only in verifiably bad states of the world, driven by exogenous events. Tomz and Wright (2007) find that countries mainly defaulted in bad times during the period 1820-2004. They argue that the relationship is surprisingly weak, and that many countries continued to pay their creditors despite major adverse shocks. This suggests that sovereign borrowers successfully insured part of their income risk, but that risk-sharing with bondholders has been highly imperfect.

In this paper, we argue that one famous case in the history of sovereign debt offers powerful support for theories of excusable defaults. Using detailed, hand-collected evidence from the archives, we examine the nature of lending and the terms and conditions of contracts agreed between Philip II of Spain (1556-98) and his bankers. Spain became the world record holder for serial default, failing to honor its promises no less than 13 times between 1550 and 1913. Our database consists of 435 loan contracts between the king and his bankers. First, we build upon our previous results to establish that lending to the Castilian Crown was consistently profitable, both *ex ante* and *ex post*.<sup>2</sup> Second, we document that loan contracts were often contingent on the fiscal position of the Crown. Lenders offered explicit insurance for a wide range of states of world. Third, we show that reschedulings of obligations *vis-à-vis* individual bankers was common, and occurred in addition to the general payment stops. Finally, we find that the default

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<sup>2</sup> See Drelichman and Voth (2011).

episodes occurred in identifiably bad states of the world. They involved shocks that were so large that the king needed to reschedule his obligations with all of these borrowers simultaneously, and only these states of the world were not previously contracted upon. Thus, in one of the most famous lending episodes in history, we find strong support for the hypothesis that debt was state-contingent, and defaults ‘excusable’.

In the second half of the 18<sup>th</sup> century, Imperial Spain was at the height of its powers. Philip II ruled territories from Flanders to the Philippines and from Tierra del Fuego in South America to the Caribbean. His debts have attained fame because he accumulated so many. Borrowing approximately 60% of GDP from Spanish and foreign lenders, his bankruptcies have long been interpreted as signs of a hopeless fiscal situation (Thompson 1994). Lending to the Spanish crown has been described as irrational (Braudel 1966). An alternative interpretation has stressed the need for sanctions to keep the incentives of an ‘absolutist’ monarch aligned (Conklin 1998). In this view, the Genoese bankers punished Philip II by cutting off transfers to Flanders, where Spanish troops were fighting the Dutch insurrection. When the king defaulted in 1575, the Genoese refused to send further funds. A mutiny by the Army of Flanders weakened Spain’s position in the Low Countries substantially. Elsewhere, we discuss that no effective transfer stop ever materialized (Drelichman and Voth 2010a), and that a shortage of funds was not key for the setback in the Low Countries. Here, we show that the ‘defaults’ in all likelihood did not violate the implicit contract between the lenders and the king.<sup>3</sup>

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<sup>3</sup> Cox (2009) argues that, in the absence of third-party commitment, it was not possible to separate insurance from debt contracts. The introduction of ministerial responsibility after the Glorious Revolution would have broken this link in England.

Relative to the existing literature on the returns to sovereign lending, this paper makes a number of contributions. First, we are able to examine the impact of default in a particularly simple setting. Instead of having to rely on cross-country evidence over a long time period, we can analyse lending to the same sovereign, before and after a number of default episodes, and under similar macroeconomic conditions. This allows for much cleaner identification of the extent to which defaults were excusable. Second, by examining one of the very first cases of massive sovereign borrowing and large-scale default, we show that excusable defaults were a feature of international lending from the very beginning. Third, we document that risk-sharing was an integral feature of many 16<sup>th</sup> century sovereign loan contracts – in contrast to the most advanced practices today. Weighted by principal, fully 70% of the loans made to Philip II contained contingency clauses. This offered substantial insurance against adverse shocks. The king generally benefited from two types of conditions – reductions in interest cost, and maturity extensions. The vast majority of these loan modifications could be invoked at the king's discretion.

Our findings also relate to the recent literature on hedging macro risks via financial instruments in general (Shiller 1993), and contingent bonds and their usefulness for emerging markets in particular. Non-contingent debt may often aggravate the need for pro-cyclical policies during downturns, making crises worse (Eichengreen 2002). Many economists therefore advocate GDP-indexed bonds and the like for developing countries (Borensztein and Mauro 2004). We argue that, in effect, Philip II and his bankers produced contingent bond contracts of a type that provided effective insurance across a wide range of negative shocks explicitly, and against an even wider range implicitly.

This paper is part of a larger research project on the debts of Philip II. Elsewhere, we show that Castile's borrowings were sustainable (Drelichman and Voth 2010b), and that lending was heavily concentrated in the hands of a largely stable group of Genoese bankers (Drelichman and Voth 2010a). We also examine in detail the cash-flows resulting from the lending contracts, and the profitability implied by them (Drelichman and Voth 2011). Finally, we explore the fiscal logic of imperial ambition, comparing Britain and Spain at the height of their power (Drelichman and Voth 2008).

We proceed as follows. The following section sets out the historical context and background. Section III describes our data, and part IV presents the main results. We discuss how the defaults affected Spanish fiscal institutions in the conclusion.

## **II. Historical background**

Lending to the Crown of Castile by foreign bankers started as early as 1519, when Jakob Fugger the Rich financed Charles V's bid for the Holy Roman Crown. Charles continued to rely on the Augsburg house, as well as on the Welser family, to finance his military ventures throughout his reign. The banking families were happy to lend; they knew that behind the Emperor's word stood the healthy and fast-growing Castilian economy (Alvarez Nogal and Prados de la Escosura 2007). By the 1550s, however, Charles had overextended himself. Military defeat, physical ailments, and a loss of support in several parts of his empire forced him to abdicate.<sup>4</sup> The Crown of Castile went to his son Philip II, who had to contend with a dire fiscal situation. His first disposition with respect to the Crown's debt was to default on the Fugger and Welser loans in 1557, thus starting the

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<sup>4</sup> The standard source on Charles V's loans is Carande (1987).

long series of sovereign defaults in Spain. A brief lending resumption ensued, followed by another payment stop in 1560. The Crown would eventually settle with the Fuggers, giving them the administration of several royal assets, including the profitable masterships of the military orders and the mercury mines at Almadén. The Welsers would not do business again with the Crown.

This less-than-promising exordium in sovereign debt markets did not seem to damage Philip II's access to credit for long. He would continue to borrow at a healthy pace, tapping both the long and short-term debt markets. Whenever possible, he sought to issue *juros*, which were perpetual or lifetime bonds backed by a specific tax stream. Yearly *juro* payments were collected directly from the administrator of the relevant tax – usually a tax farmer – and, as long as the revenue source was reasonably healthy, they provided a steady source of income for the owner. *Juros* were transferable through the payment of a fee. Castilian *juros* were perceived as a safe investment. Genoese correspondence and account books show that they were widely held by ordinary merchants and investors as part of their portfolio.<sup>5</sup> The king made sure to protect that image, never defaulting on *juro* payments in the sixteenth century. Their liquidity and low risk profile made them the investment of choice of domestic and foreign elites alike. Their yields were correspondingly low, with the vast majority of issues oscillating between 5 and 7 percent in the second half of the sixteenth century.

As cheap and convenient as *juros* were, the king faced two important constraints in using them. First, finding buyers for large issues could pose a logistical challenge. This

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<sup>5</sup> The account book of Ambrogio Di Negro, a Genoese merchant in the 1560s, shows investments in six different types of *juros* as part of his overall portfolio (Archivio Doria, Fondo Doria, 143). The letters of another merchant, Giorgio Doria, contain specific instructions to his agent in Spain on how to collect the yearly payments of his *juros* (Archivio Doria, Fondo Doria, 490).

problem became more acute as the domestic market became saturated, making it necessary to tap international sources of capital. The crown simply did not have the financial architecture needed to reach those sources, a service it would contract out to international bankers. More importantly, *juros* could only be issued against an appropriate revenue stream. Castilian taxes were divided into ordinary and extraordinary revenues. In their medieval origins, extraordinary revenues had to be confirmed by the Cortes at each sitting, while ordinary ones did not. Because the renewal of extraordinary revenues was not guaranteed, *juros* could not be issued against them. By Philip's time the existing level of extraordinary revenues was always renewed as a matter of course. The Cortes, however, held on to their control over what taxes were labeled ordinary or extraordinary, and used it as a way of limiting the amount of long-term debt the king could take on. Increasing this debt ceiling required either an increase in ordinary taxation or the relabeling of extraordinary taxes. Whenever the king tried to extract either from the Cortes, lengthy negotiations and potentially costly concessions were sure to follow.

Whenever the king's *juro* issuance reached the limits imposed by the Cortes, or when he needed to borrow on very short notice, he resorted to short-term loans known as *asientos*. This was not necessarily a reckless move. The king had access to a large pool of extraordinary revenue, as well as revenue streams that fell outside the purview of the Cortes. The most important among the latter sources were the taxes on silver imported from the American colonies, which on some years exceeded 20% of total revenue.

*Asientos* were supplied by an array of domestic and international financiers, who also arranged for the delivery of the funds in whichever corner of Europe they were needed and provided the necessary conversion services. While *asientos* stipulated the



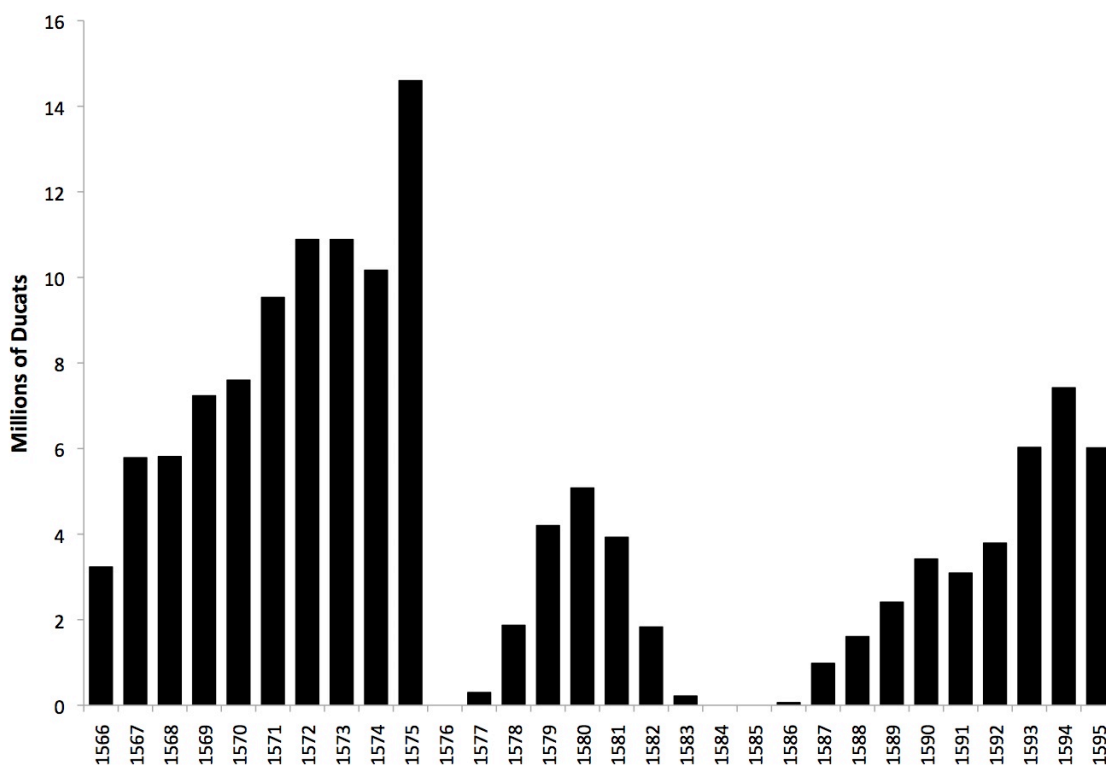
revenue source intended for their repayment, the banker still needed a payment order (*libranza*) issued by the royal accountants in order to collect. The service and repayment of *asientos*, therefore, was not as automatic as that of *juros*. Delays and changes of repayment sources were extremely common, as were renegotiations and consolidation of outstanding debts into new loan contracts.

As New World silver imports increased, Genoese banking families entered the business. After the 1560 suspension, the Genoese approached Philip with a proposal to restart lending. New borrowing would be collateralized with *juros* guaranteed by the revenues of the *Casa de la Contratación*, which oversaw the assessment and taxation of silver. While the management of the *Casa* was dismal, and the bonds it issued quickly lost up to 50% of their value, the concept lived on.<sup>6</sup> New Genoese loans were collateralized with bonds on almost every Castilian tax stream that could legally support the issue of *juros*. The volume of lending quickly dwarfed even the highest levels reached during Charles' reign (Ulloa 1977; Drelichman and Voth 2010a). Collateralizing short-term sovereign loans with long-term ones may seem perplexing, since the same monarch had the power to default on either. While *asientos* were only underwritten by a narrow group of mostly foreign bankers, *juros* were widely held among the Castilian elites. The Genoese knew that defaulting on them would have been very costly for the king. Demanding *juros* as collateral and marketing them to the Spanish moneyed classes offered the bankers an additional layer of insurance as well as a profitable business opportunity (Conklin 1998).

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<sup>6</sup> An excellent treatment of the system set up by the Genoese with respect to the Casa de la Contratación can be found in Ruiz Martín (1965).

Figure 1 shows the evolution of outstanding short-term debt. After the Genoese entered the short-term debt market in the early 1560s, the king defaulted two more times. On September 1 1575 the king suspended principal and interest payments on 14.6 million ducats. A lending moratorium ensued, and a comprehensive settlement (*medio general*) was reached in October 1577. All outstanding *asientos* were canceled. The king repaid his bankers with a combination of *juros* and tax streams, which were worth on average 62% of outstanding debts. Bankers that held collateral *juros* recovered almost 80% of their capital, while uncollateralized loans received just over 50% of their original value. As part of the settlement, a consortium of ten bankers extended a new loan for 5 million ducats, to be disbursed and repaid at various intervals until December 1583.<sup>7</sup>



<sup>7</sup> We discuss the details of the settlement in depth in the appendix to Drelichman and Voth (2010b). The negotiations during the suspension of payments and the mechanism used by the Genoese to enforce the lending moratorium are described in Drelichman and Voth (2010a).

**Figure 1: Outstanding asientos<sup>8</sup>**

Lending resumed immediately after the settlement, but the king did not carry much short-term debt for a while. Silver income grew sharply; the lull in the Dutch Revolt cut military expenditure; and the Cortes of 1575 and 1576 had granted a large tax increase. In fact, between 1577 and 1586, only the loan arising from the restructuring of 1578 registers significantly in the *asiento* series. Military events eventually changed the situation. Short-term debt increased once again as Philip prepared for the ‘Invincible Armada’ -- the attempt to invade England. The ensuing disaster caused major expenditures for the rebuilding of the fleet and fortifications, and to deal with renewed fighting in the Netherlands. Many of these expenses were met by heavy short-term borrowing. Despite the introduction of the *millones* excises in 1591, the king once again defaulted on short-term loans in 1596. This bankruptcy was much smaller than the previous one, involving only 7 million ducats. Its resolution was also faster and involved smaller capital losses for creditors. After just one year, bankers agreed to a 20% across-the-board capital reduction and lending resumed at a brisk pace.

While Philip’s bankruptcies affected *asientos* underwritten by wealthy financiers, it is worth keeping in mind that the majority of outstanding debt was actually composed by *juros*. Between 1566 and 1596, *asientos* averaged 12% of outstanding debt. The peak was reached in 1575, when short-term loans accounted for one third of total debt. This was an anomalous situation, reflecting the large debt run-up of the preceding two years. On the eve of the 1596 bankruptcy only ten percent of debt was short-term. *Juros* were

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<sup>8</sup> Outstanding asientos are calculated on the basis of the cash flows described in the data section, as well as on fiscal data from Drelichman and Voth (2010b). Data availability forces us to focus on the period 1566-1595.

never defaulted upon during Philip's reign. His famous bankruptcies, therefore, affected only part – albeit a significant one – of his obligations.<sup>9</sup>

### III. Data

We examine the complete series of 435 *asientos* between the king and his bankers preserved in the Archive of Simancas. Each contains a brief summary of no more than 20-30 words on its first page, reporting the names of the lenders, the date, and the total amount involved. Previous work on this series was based almost exclusively on these summaries (Ulloa 1977). This made it impossible to learn much about the terms and conditions of the loans, while introducing problems of double counting.<sup>10</sup> Our work is instead based on the full text of the contracts. In addition, we make use of our comprehensive database on the Castile's finances for the period 1566-1598, whose reconstruction was made possible as a result of the new loan data (Drelichman and Voth 2010b).

The full archival series totals 4,997 handwritten pages, with an average of 12 pages per contract.<sup>11</sup> For each one of them we summarized and transcribed every single clause. Carefully accounting for the appropriate currency conversions, we then translated

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<sup>9</sup> Data for total outstanding debt is from Drelichman and Voth (2010b). The volume of outstanding *asientos* was calculated on the basis of the cash flows obtained from the archival data described in this paper. The volume of outstanding *juros* was calculated as the difference between the two.

<sup>10</sup> Many *asientos* were contracted by commanders in the field and then sent to Madrid, where they would be reissued. Both the original and the reissued documents are preserved in the archive; adding up the totals of all contracts therefore results in double counting. The only way of correcting this is by removing the duplicates after a close reading of each document.

<sup>11</sup> Eighteen contracts are incomplete or damaged. We have used the recoverable information when warranted, and omitted them in the parts of the analysis that required unavailable data. Since these contracts are a small fraction of the total and are spread out evenly throughout the period, it is unlikely that the missing information would bias the results in any systematic way.

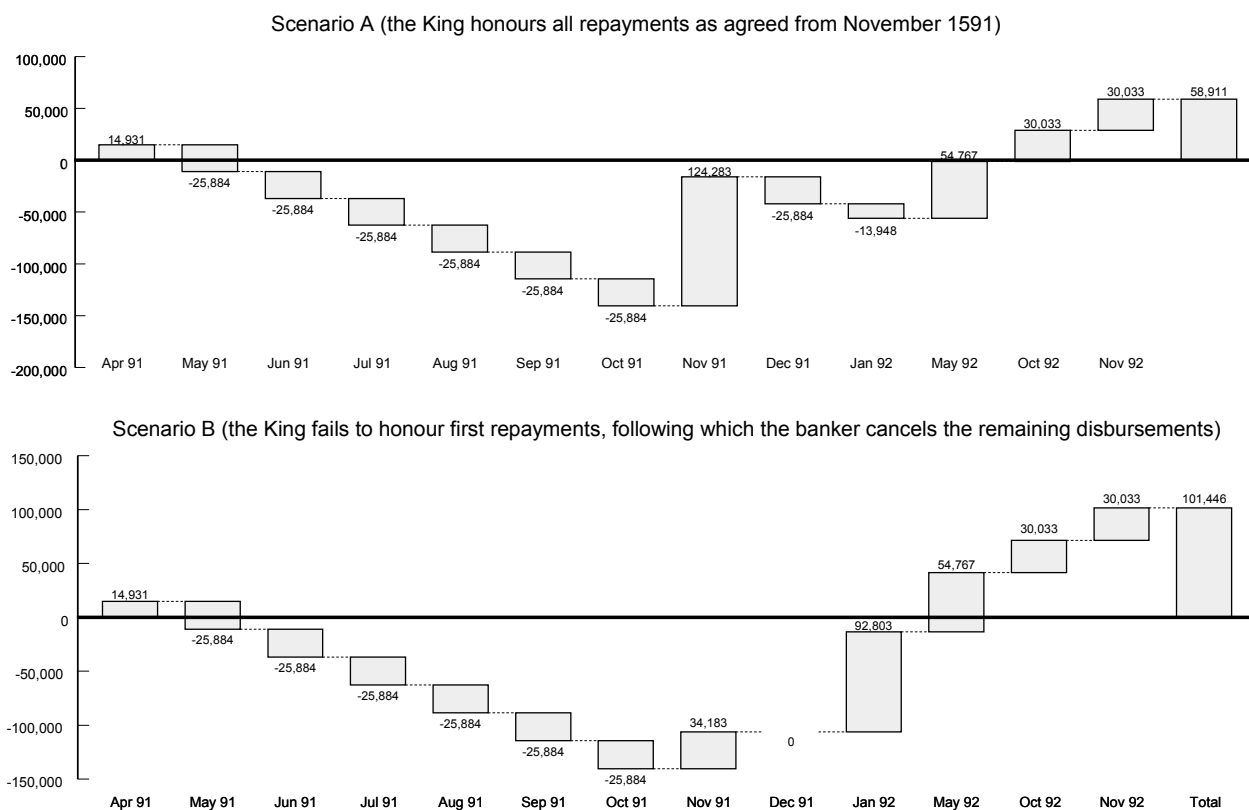
the contractual clauses into promised monthly cash flows. In addition to the cash flows, we coded up to 89 variables for each individual *asiento*. These include the date, the identity of the lenders, the principal of the loan, its maturity, the places and currencies of disbursement and repayment, the intended source of funds to be used for repayment, the value and type of any collateral, the presence of any contingent clauses and the events that would trigger them, the value of any additional privileges granted to the bankers, and whether the contract restructured earlier obligations.

In many cases, there was more than one repayment scenario. For example, in 1591, Tomás Fiesco, a Genoese banker, agreed to provide 195,000 ducats to Philip II. These were paid out to the military commander in Flanders, the Duke of Parma. In a common practice, the king gave an initial advance of 14,931 ducats to the banker to serve as working capital in assembling the loan. The first disbursement was for 25,884 ducats in May, followed by equal payments every month until reaching the full principal of the loan. The king promised to repay with the proceeds of the silver fleet of 1591. Figure 2, scenario A shows the payments for the case of the fleet arriving as expected, so that the banker received 124,000 ducats. Its arrival date and cargo value depended on the vagaries of Caribbean weather and silver production in overseas mines. If the fleet did not arrive by October, a penalty of 1% per month would apply. In addition, if the banker was not paid within 30 days of arrival, he had the right to stop all future disbursements. In that case, the king promised to pay him from alternative tax streams.<sup>12</sup> Finally, the banker had the right to request repayment of any portion of the principal and interest in perpetual *juros*. The cash flows for that case are summarized as scenario B. Essentially, the

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<sup>12</sup> From the subsidio, excusado, and all other available (i.e. unencumbered) sources. Cf. Archivo General de Simancas (AGS), Contadurias Generales, Legajo 90.

contract gave the king the option of lengthening the maturity of the contract by delaying the November 1592 repayment. This would come at the cost of forfeiting the December 1591 and January 1592 disbursements by the banker. The modified cash flow would yield a higher present value to the banker, but a longer maturity to the king.



**Figure 2: Cash flows under two repayment scenarios**

The example of the Fiesco contract demonstrates a number of important aspects. First, bankers provided more than intertemporal smoothing. They transferred funds to many parts of Europe, where they were typically needed for the Crown's extensive military campaigns. Second, loan contracts could be highly complex, encompassing a wide range of repayment (and pay-out) scenarios. Third, the loan contracts provide for a certain degree of risk-sharing between Crown and lenders. While the banker's total return

was higher under scenario B, the king gained as a result of being able to postpone repayments, and having the right to pay off the banker from alternative revenue sources as they became available.<sup>13</sup> The king's revealed preference is to insure against liquidity shocks; the cost of the contract was apparently more of a secondary concern.

Calculating the rate of return on *asientos* is beset by a number of problems. Because of laws and conventions against usury, the rate stated in the contract itself was almost always much lower than the actual compensation received by the banker. The remainder was hidden in the form of inflated exchange fees, shipping costs, and various other concessions. Among them were the granting of licenses to export bullion in excess of the amounts required by the contract, life pensions bestowed on the bankers' or their relatives, and the conversion of low-yield *juros* into high-yield ones at no cost. We overcome these problems by reconstructing the agreed upon cash flows directly from the *asiento* clauses. We then calculate the modified internal rate of return (MIRR), defined as

$$MIRR = \sqrt[n]{\frac{-FV(\text{positive cash flows}, r_r)}{PV(\text{negative cash flows}, r_f)}} - 1 \quad (1)$$

where  $n$  is the number of periods in the contract,  $r_r$  is the reinvestment rate, and  $r_f$  is the finance rate. It requires us to choose  $r_r$  and  $r_f$ , the reinvestment and the financing rate. We use 7.14% (the long-term bond rate) as our reinvestment rate, and 5% as our finance rate. In Drelichman and Voth (2011) we explore in detail the benefits of our rate of return measure and our parameter choices. We also perform extensive sensitivity analysis.

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<sup>13</sup> The internal rate of return (assuming a reinvestment rate of 7.14%) was 23.2% under scenario A, and 42.6% under scenario B (using the optimistic assumption of immediate transfer of most outstanding payments in January 1592).

#### **IV. Testing for Excusable Default**

Modern-day sovereign bonds issued in New York or London are said to be in default when the borrower has missed a single promised payment. No such definition was agreed ex ante in sixteenth century dealings between Crown and bankers. Lending took place in conditions that are best described as ‘anarchic’ – neither side could firmly commit to servicing debts or to taking deposits (Kletzer and Brian D. Wright 2000; Drelichman and Voth 2010a; Bulow and Rogoff 1989). Actual outcomes could fall somewhere on a spectrum between full compliance and wholesale repudiation. We distinguish five possible outcomes: 1) full compliance with the baseline scenario, as detailed in the original contract, 2) use of one or more of the contingency clauses, 3) violation of one or more of the clauses, followed by a rescheduling, 4) full suspension of payments to all creditors, followed by a general settlement, 5) outright repudiation. If defaults are excusable, outcomes should reflect the borrower’s fiscal position. Importantly, differences in outcomes should be driven by exogenous shocks, i.e. events that are beyond the control of the borrower. In normal times, the king should live up to the letter of his obligations. When some minor shocks occur, he will invoke some of the emergency clauses in the contracts, which we document extensively. Larger shocks will see him violate some of these clauses, only to compensate lenders later. Full-blown moratoria reflect even larger negative shocks, and in this sense are simply driven by events that cannot be contracted over ex ante. Finally, for defaults to be excusable, (5) should never be observed, unless it was preceded by a negative shock so large that no further payments can occur. Our fiscal data shows that the payment stops occurred in

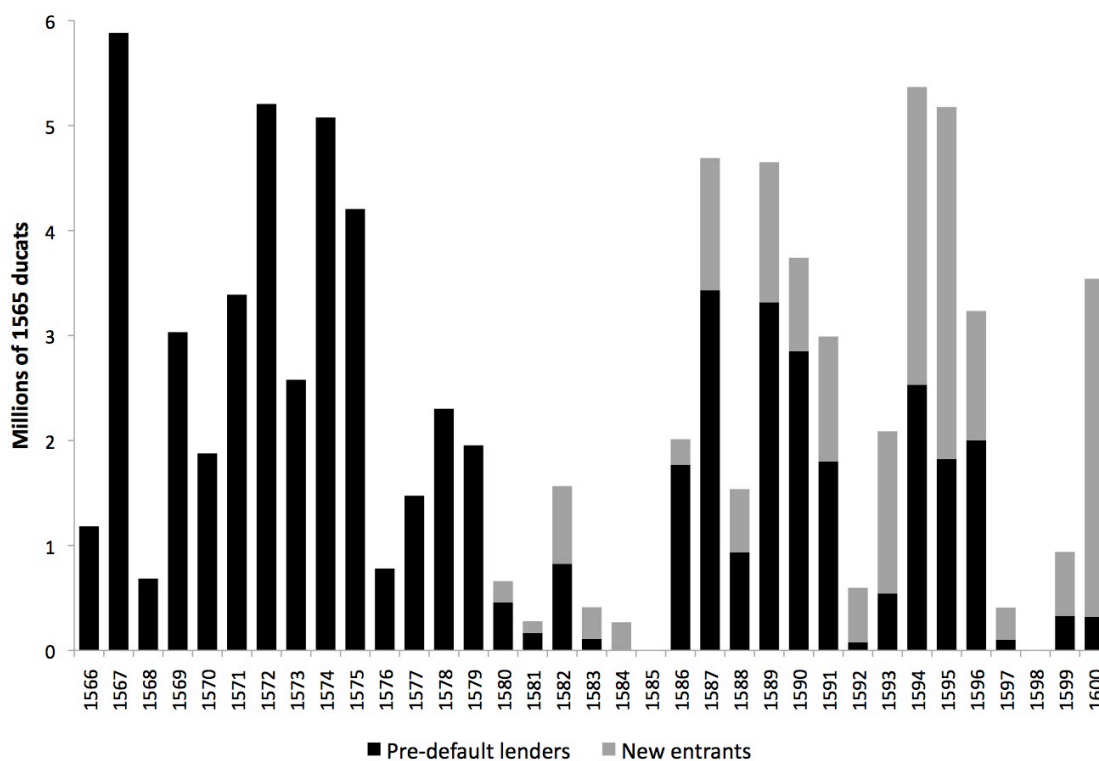


verifiably bad states of the world for Philip II. For defaults to be excusable, the (unobserved) expectations of lenders should not be disappointed. Since we do not observe expectations of lenders directly, we use two indirect indicators – turnover amongst lenders (which should not spike after bankruptcies), and the profitability of lending (which should be higher, on average, than the opportunity cost of funds). Crucially, the pricing of loans did not change after the 1575 ‘default’.

### *Low turnover*

Bankers whose expectations were disappointed always had one resort – they could stop lending. Indeed, Braudel (1966) famously argued that one generation of bankers after another was disappointed by the treatment they received at the hands of Philip II. Since we have collected the complete series of short-term loans, we can examine how high banker turnover actually was – and if it increased after the default of 1575.

The composition of lenders in terms of nationality remained broadly stable overall. The Genoese contributed 60-70 percent of the total principal of asientos throughout, with smaller proportions coming from German and Spanish banking houses. Lending to the king was dynastic – banking families were the principal counterparties of the Crown, and the same families lend from one generation to the next. The rate at which new lenders enter the game did not change after 1575. Crucially, pre-default lenders were willing to lend after the default (and did so on unchanged terms, as we will see below).



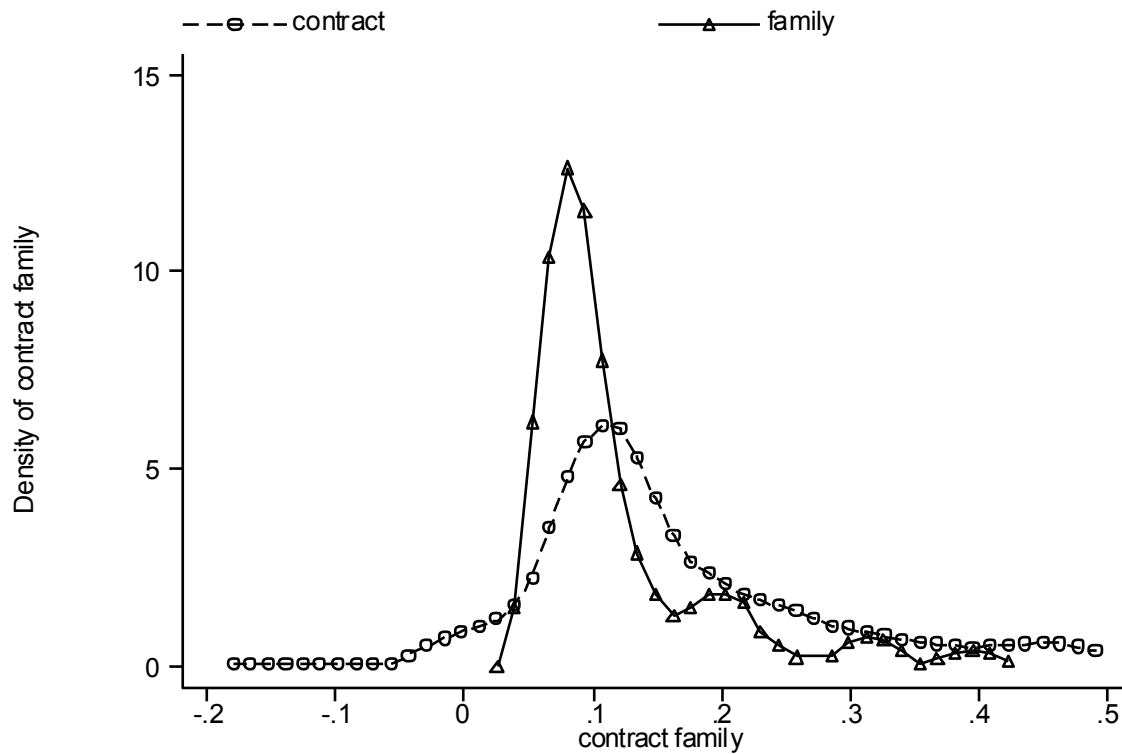
**Figure 3: Lender turnover**

Figure 3 shows the composition of lending, according to whether a lender had offered fund before 1575. Until the early 1580s, all new lending is by bankers who had already extended credit before the third bankruptcy. As time goes by, the proportion of 'new money' increased. Yet as late as the early 1590s, half of the money lent to Philip II came from lenders who had extended credit before 1575.

### *Profitable lending*

Ex ante returns, as agreed between banker and Crown, were substantial. Using each contract as the unit of analysis, we find a median (mean) rate of return of 13% (20.3%) based on MIRR. This compares to an interest rate of 7.14% on long-dated debt.

Abstracting from reschedulings and defaults, the average contract offered a high rate of return.



**Figure 4: Ex Ante Profitability of Loans, Modified Internal Rate of Return (IRR), by family and contract**

If we measure profitability per contract - as agreed between king and banker - we find some negative values. In almost all cases, this occurs when the agreed rate of interest is zero. In an age when the taking of interest was still considered a morally doubtful practice for Christians, loans used to finance ecclesiastical buildings often carried a nominal rate of interest of zero. Subsequent contracts would often be rich to compensate.

To understand the structure of incentives, it is useful to analyze returns not only at the level of each loan, but for each banker (or, more accurately, his family). Figure 4 also gives profitability for each banker family. Now, there are no cases of negative returns.<sup>14</sup>

For each individual contract, different repayment scenarios can have a marked effect on profitability. In the example of Tomás Fiesco discussed above, the NPV of his contract varies from 48,000 to 88,000 ducats. The latter case would materialize if the fleet had arrived late and, after the arrival, the king had decided to stop cash payments. The banker could then stop deliveries, according to the contract. Because of the substantial repayments that he would have already received before the scheduled disbursement of the fleet money, and because the king was still bound to make all remaining payments a few months later, the contract would have yielded a particularly rich return.

Did Tomás Fiesco make money? We do not observe directly which of the king's promises were actually kept. Nonetheless, it is more than likely that Fiesco earned a positive return. With a discount rate of 7.14%, the annualized rate of return varied from 17 to 30%. Assigning equal probability to each of the four repayment scenarios listed in the contract yields an average of 21%. Alternative forms of investment yielded no more than 7-10%, and often had similar risk characteristics. Even compared to the yield on long-dated bonds, Fiesco could have coped with losses equal to 11-14% without losing money.

Ex-ante rates of return are only a first step in assessing the profitability of bank lending, as the case of Fiesco illustrates. We can learn about actual cash flows from three

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<sup>14</sup> Diego de la Serna and Rodrigo de Vicuña lent 48,000 ducats to the king in April 1569. Over the following 23 months, they receive 79,000 ducats in repayments, while lending another 26,000 ducats. Overall, they receive 4,459 ducats more than they pay out, equivalent to 6% of total lending over 23 months. Since we discount future cash flows at the interest rate of long-term debt (7.14%), the contract has negative NPV.

types of evidence. First, we have detailed information on the settlements after the defaults – we know who the king defaulted on, and how the impasse was resolved. Second, the contracts themselves are meticulous in recording the king’s payment behavior on earlier contracts. When an old loan was not paid in accordance with the letter of the original contract, the next one would often provide compensation. Third, when the same bankers offered loan after loan, it is unlikely that they received returns far below their opportunity cost of capital.

The king could deviate from loan agreements in two different ways. First, he might fall behind on payments on a particular loan. In this case, the payment of the arrears would be rescheduled in a new contract with the banker. Although the return might not be as high as originally agreed, bankers seldom lost part of the principal, and often received some compensatory interest. Second, the king could declare a bankruptcy and suspend payments on all outstanding loans at the same time. Philip did so four times during his reign, and our data covers the last two. Defaults like these would be renegotiated with all bankers in a general settlement, which specified principal and interest write-offs. Total-ex post returns can therefore be written as

$$R = R_e - p_r L_r - p_d L_d$$

where  $R$  is the total ex post return,  $R_e$  is the contracted rate,  $p_r$  is proportion of debt rescheduled in individual contracts,  $L_r$  is the loss rate for rescheduled debt,  $p_d$  is the proportion of debt defaulted upon in general bankruptcies, and  $L_d$  is the loss rate in the defaults.

$R_e$  is 23%, based on the mean internal rate of return. Obligations from earlier loan contracts were rescheduled in 96 cases. The king typically acknowledged the earlier debt and then offered various improvements as part of a new loan contract. This procedure affected 8.5 million ducats of earlier lending – equivalent to  $p_r=0.1$ . Rescheduling earlier obligations typically increased returns for the new contract by approximately 2-3 percent.<sup>15</sup>

How high was the recovery rate on rescheduled loans? The most optimistic interpretation would hold that the additional returns to subsequent lending fully compensated lenders for what they had lost. A more cautious approach would assume that lenders received no interest on their earlier loans. This would reduce average profitability linearly, in line with the proportion of loans that were rescheduled.  $L_r$  would be 0.203, the same as the average return on loans. Returns would hence have been  $0.1*0.203= 0.0203$  lower than the ex ante contracted rate because of subsequent recontracting.

Next, we need to derive values for the proportion of loans defaulted upon, and the recovery rates. Philip's four defaults were not of equal magnitude. The two earlier ones, in 1557 and 1560, mainly involved German bankers. They largely concerned debts contracted by Philip's father, Charles V, and are settled by transferring revenue-yielding assets. For example, the famous silver mines of Almaden were given to the Fuggers in exchange for debt cancellation. Since the original loans are not part of our dataset, we do not examine the revenue-impact of these two payment stops.

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<sup>15</sup> Both quantile regressions and robust regressions show a difference of 2.5 to 3.2% (t-statistics 1.5 and 1.6, marginally below the level required for significance at the 10% level).

In 1575, the king suspended payment on 14.6 million ducats of outstanding loans. The majority of bankers negotiated a comprehensive settlement with the Crown. It produced write-offs of 30 to 58 percent. On average, the king agreed to honor 62 percent of the outstanding principal of short-dated loans and associated interest payments. Long-term bonds escaped unscathed. In 1596, the king defaulted on 7 million ducats of debt, and the haircut imposed was 20%. We know that total *asiento* lending was 99.7 million ducats over the period of these last two defaults, and that no more than 21.6 million of loans were affected by them – 21% of all contracts. The weighted recovery rate for the third and fourth defaults is 68%. The cost of the defaults to lenders is thus  $r_d L_d = 0.21 * 0.32 = 0.067$ . Average write-offs from the defaults on loans amounted to less than 7% of lending over the period. Defaults hence reduced profitability twice as strongly as our pessimistic calculations for ordinary reschedulings suggest.

Based on the figures just derived, we calculate

$$R = R_e - p_r L_r - p_d L_d = 0.203 - 0.1 * 0.203 - 0.21 * 0.32 = 0.203 - 0.0203 - 0.067 = 0.116$$

How profitable was lending? The fiscal turmoil that characterized Philip II's reign cost lenders less than half of their potential profits, according to our calculations. Their average rate of return would have been 4.43% above the *juro* rate, suggesting that they earned profits over and above their opportunity costs.

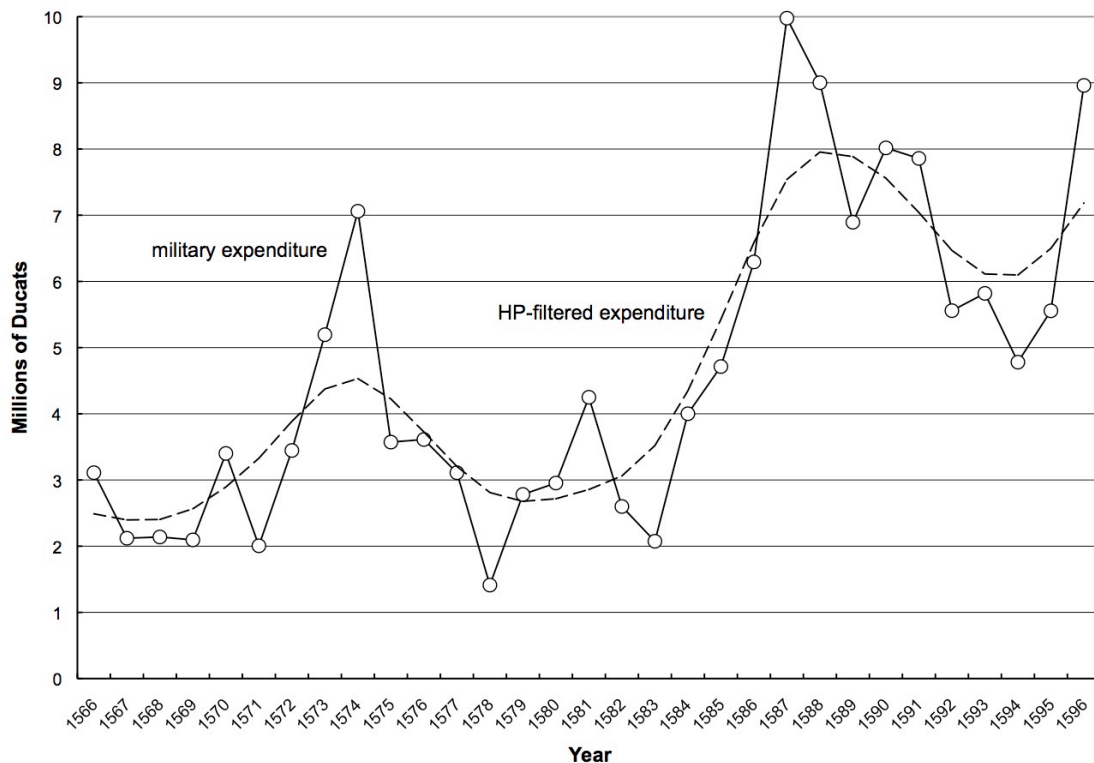
How robust is our finding? Since the amounts of rescheduled debt are relatively well-established, we examine what happens when we vary the write-off rates. To reduce average profitability to zero, given the losses on ordinary reschedulings, the write-off during the defaults would have had to be 87% instead of the 32% actually suffered.

Alternatively, write-off on the reschedulings would have to be greater than 100% (135%)

instead of the 20.3% we calculated (taking the estimated losses during defaults as given). Only extremely large deviations from the estimated loss rates and rescheduled amounts could reduce ex post rates of return to zero.

### *Default in Verifiably Bad States of the World*

For the Grossman-van Huyck interpretation to be correct, defaults have to occur in verifiably bad states of the world. This was the case for the defaults of Philip II. Two shocks hit the finances of the Spanish monarch in 1575 and 1596 -- military expenditures surged, and revenue from the New World was below trend.

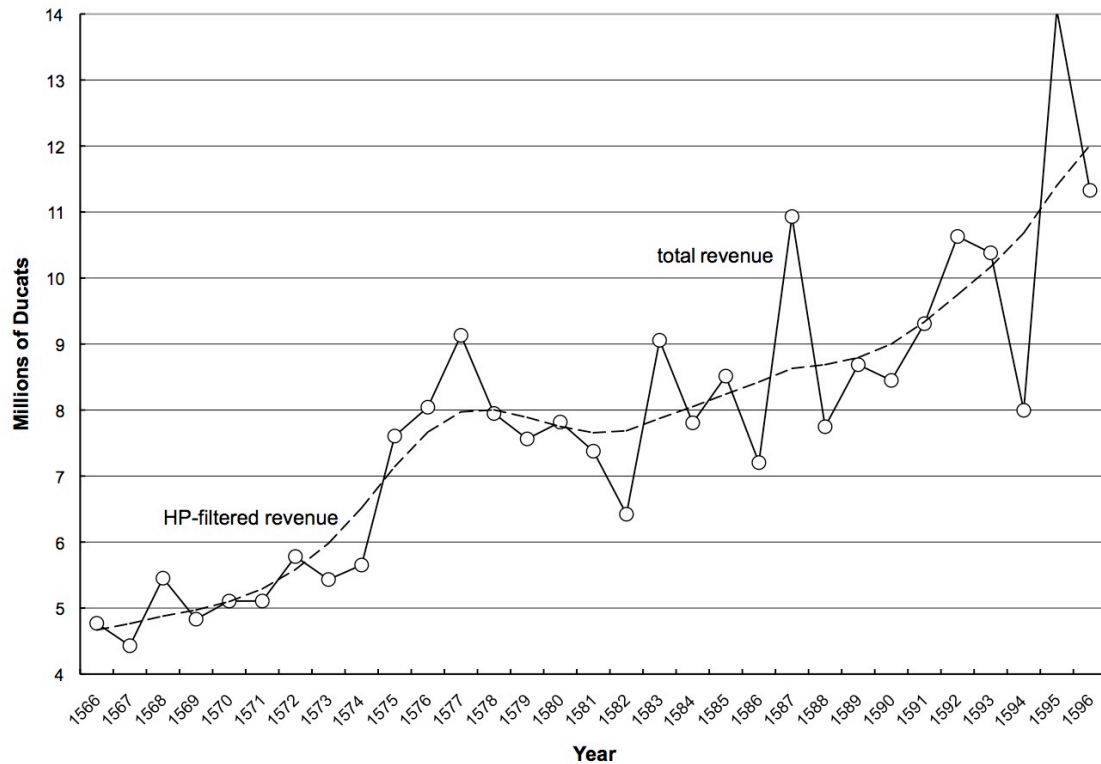


**Figure 5: Military expenditure, actual and HP-filtered, 1566-1596**



As Figure 5 shows, military expenditure was highly variable. Three spikes are clearly visible -- 1572-75, 1587-88, and 1596. These reflect the big push in the Netherlands, the Armada, and the outbreak of war with Britain, respectively. In two of these cases, the king defaulted. The expenditure shocks were not entirely exogenous. They followed from deliberate policy choices. Yet in both cases, there was no alternative for the king but to pursue military options. In the Netherlands, control over important revenue-generating territories were at stake. The outbreak of war with Britain was ultimately driven by the same consideration. The sheer size of the expenditure shocks was also large. In 1574, military spending accounted for 93 percent of all expenditure (without debt servicing costs), and it alone exceeded Crown revenue by 25 percent. Military spending accounted for a similar proportion of total outlays. In 1588, it also exceeded revenue, by 16 percent (while staying below total revenue in 1596).

The same story holds true in the case of revenues. The Crown's revenues were largely fixed as a result of tax farming. The main source of variability was silver revenues. A fixed rate of 20 percent was levied on all silver imports. Figure 6 shows revenues compared to an HP-filtered trend during the last 30 years of Philip II's reign.



**Figure 6: Crown revenue, actual and HP-filtered, 1566-1596**

Revenue did not fluctuate as violently as did military expenditure. The king only defaulted in those years when revenue was markedly below trend and expenditures were simultaneously above trend. This happened in the mid-1570s, for several years in a row. As Figure 6 shows, there were also many years when revenue was significantly below trend, and the king did *not* default. This does not contradict our hypothesis that the king's defaults were excusable because they occurred in bad states of the world. For it to be correct, the king does not have to default in all bad states; it is enough that he does never default in good times. The observation is also easy to rationalize – silver revenues, which contributed importantly to volatility in the 1580s, were often self-equilibrating. Years of low revenue were followed by years of high revenue because silver shipments were

sometimes delayed by weather conditions in the Caribbean. Ships that did not sail in one year would sail the next, compensating for any earlier shortfall in revenue. Normal fluctuations were smoothed by extra *asiento* borrowing. Combined with risk-sharing elements in the loan contracts (such as the one with Tomas Fiesco), the Crown coped with most fluctuations. In years of extraordinary pressure, a payment stop was declared and a general renegotiation became necessary.

The events that caused fiscal difficulties were easy enough to confirm and identify. Only one or two large convoys of Spanish galleons laden with silver reached Spain every year. The cargo of the arriving ships was a key determinant of Crown revenue and –thanks to information gleaned from easily bribed captains– it was public knowledge almost instantly.<sup>16</sup> Military events were also relatively simple to verify. Large escalations of conflicts such as the major expedition led by the Duke of Alba to subdue the rebellious provinces in Flanders were witnessed by tens of thousands of citizens. While not all years of high military expenditure or of revenue shortfalls led to defaults, the defaults were all associated with verifiably bad states of the king’s finances. To an important extent, strained finances reflected exogenous events, and not poor fiscal policy – they were caused by the Dutch rebellion flaring up, and by Caribbean storms.

### *Explicit Contingency Clauses*

Of the 435 contracts in our database, 285 contain contingency clauses. The wording of contracts is not always unambiguous, but four different types of contingent clauses can be distinguished – King’s discretion, banker discretion, fleet arrival, and tax stream insufficiency. In a typical case in 1566, the King enters into a contract with Lucian

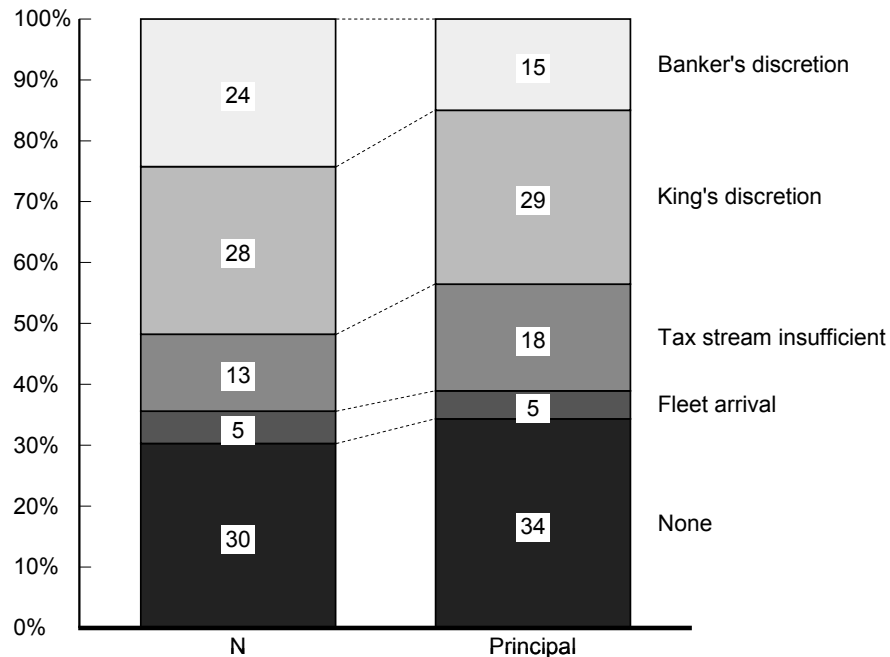
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<sup>16</sup> See Morineau (1985).

Centurion and Agustin Spinola. They disburse 38,000 and 57,000 ducats in Flanders in May and September of the year, and are meant to receive one payment in August. Thus, the initial disbursement is a loan for 3 months, while the second counts as a simple transfer. The contract then specifies that if the first silver fleet of 1566 does not arrive by the end of July, the King promises to pay a penalty rate of 1% per month until full repayment is made. Interest accrues from August 1. The bankers also receive a *juro* that covers the value of the transfer plus the loan, which they are allowed to sell in case the King fails to meet his obligations. The original contract without contingency clauses provided an annualized MIRR of 24.1%. If the contingency clauses are invoked, this falls to 15.6%. Thus, the King can insure part of the income risk that comes from the highly volatile silver revenue stream. At the same time, the bankers' financial position is largely safeguarded against the risk that the King could not or would not pay through the use of collateral *juros*.<sup>17</sup>

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<sup>17</sup> The deeper reason for collateralizing with *juros* is that fiscal centralization in Castile was limited – the King could sometimes not pay the bankers directly, but the City of Seville, say, would still pay holders of *juros*. Thus, the fragmentation of fiscal authority facilitated the continuation of lending.



**Figure 7: Contingency clauses in asiento contracts, by number and principal**

Variable tax revenue could also trigger contingency clauses in the asientos of Philip II. In October 1581, Juan Ortega de la Torre lent 60,000 ducats to the king. He was to be repaid from the second payment of the *excusado* (a tax levied on Church revenue, one of the so-called Three Graces, introduced in 1567). De la Torre was not to be first in line – the contract specifies that Baltasar Cattaneo should collect his money first. Importantly, the banker will have to do the collecting himself, to which end the king issued him with the necessary documentation. Should the revenue from the *excusado* be insufficient, the banker has the right to be repaid from the *prelados y cabildos* (a minor revenue stream levied on municipalities). Other contracts in this category specify that, if the tax revenue in one year is insufficient, the king will pay a penalty interest rate until he can repay with the following year's taxes.

Some contracts specify changes in repayments that are triggered at the King's discretion. For example, Francisco and Pedro Maluenda advance 20,954 ducats to the king in May 1589. Repayment is from the Cruzada, a tax originally imposed to pay for the wars against the 'infidels'. The bankers receive a right to export currency from Spain. Should the king cancel this agreement for any reason, he agrees to pay 6% of the amount suspended. In other cases, the contracts give the king the explicit right to repay early. In a 1572 contract with Lorenzo Spinola, the king agrees to pay the banker almost all of the interest regardless of whether he chooses early repayment or not. In the case without early repayment, the banker would have earned an annual MIRR of 26.4%, from 1572 until 1576. If the king chose to repay at the end of 1574, he would have had to pay an annualized interest rate of 44%, making almost the same total payments to the bankers as if he had carried the debt to the original maturity date.

Banker's discretion almost always takes the form of collateral sales. Many short-term loan contracts involve the ceding of collateral, often in the form of long-dated bonds. While the original loan is in good standing, the interest paid on the bond counts against the payments the king was meant to make. Should the king default, the bankers normally have the right to sell the bonds. However, in a substantial number of cases, the bankers are given the right to sell the bonds even without any breach of contract on the part of the king. Effectively, bankers have the right but not the obligation to place *juros* for the king, having pre-financed the amounts raised. The number of such contracts is not small, but they are typically for smaller amounts. In many cases, the *juros* in question are from minor tax streams, such as in the case of the income from the 'dry ports' of Castile.

Where the banker has the right to sell collateral, there is often very little difference in the returns between the contingent and the non-contingent payment stream.

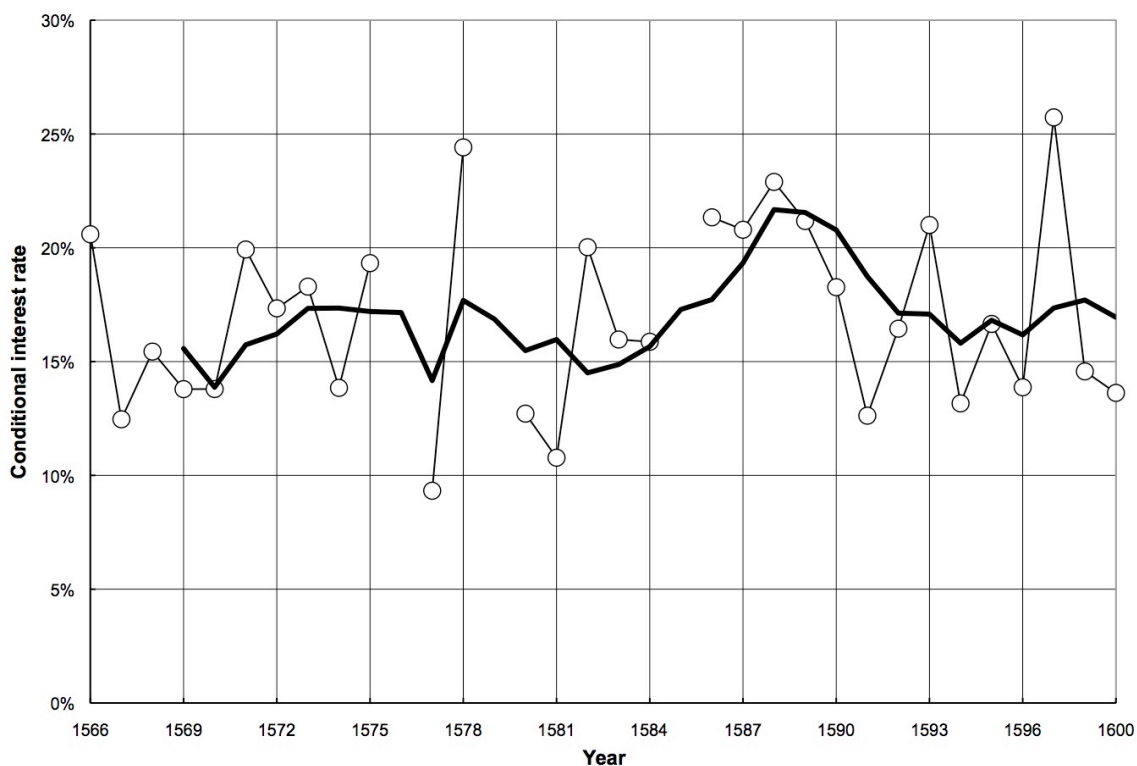
Who gains and who loses from the contingencies in the contracts? If we use the internal rate of return, we find that the average gain to bankers is almost exactly zero – 0.15% p.a. To examine this further, we calculate the NPV of contracts that have a contingency clause, for the baseline and for the contingent case. In 260 cases where the calculations can be performed, 145 favor the bankers, while in 66 cases, the king gains. In 49 cases, there is no difference to the unconditional outcome. On average, when the bankers gain, the profitability ratio (NPV/principal) increases by 26%, while the king gains 15.4% when the conditionality clause favors him. In 74 cases, the conditionality clause effectively allows the king to lengthen the maturity of the loan, by an average of 7.3 months. In 15 cases, the contract allows for early repayment. In this case, the average early repayment date precedes the scheduled one by 18 months. In addition, in those cases where the loan is collateralized by a long-dated bond, the maturity also increases – most bonds were perpetuities. These results suggest that the king's principal concern was a potential liquidity shortfall, and not the cost of borrowing. Most contracts offer a chance to postpone payment, and the cost of doing so is in line with the overall cost of borrowing.

### *Implicit Insurance*

The previous sections established that defaults occurred in 'bad times', and that bankers to Philip II shouldered some of fiscal risks that the monarch was exposed to, thus

effectively providing insurance. In interpreting the defaults, the key question is the extent to which these were de facto anticipated. If so, they were simply another instance of claims falling due on an insurance policy – with the Crown’s finances stretched due to a lack of liquidity, bankers’ contracts could not be honored to the letter. This section assembles the evidence that this is what happened.

If lenders did not understand that they were, de facto, holding contingent debt, and if the defaults were not excusable, then loan conditions *after* the 1575 default should have changed markedly. This is the null hypothesis that we examine. We find no evidence that the king’s access to credit became any more expensive, nor did the king’s borrowing capacity decline relative to his financial position.



**Figure 8: Conditional interest rates on short-term loans (annual and 4-year moving average)**



Figure 8 plots the median interest rate on *asientos* over time. We regress the interest rate on loans on a number of variables that we know influenced loan pricing – the presence of contingency clauses, the value of the loan, the foreign exchange component, and the duration of the contract, as well as the identity of the banking family.<sup>18</sup> We present the fitted values. Interest rates varied substantially from one year to the next, as the availability of funds and the Crown's borrowing needs ebbed and flowed. In the run-up to the bankruptcy of 1575, rates stayed flat. After 1577, interest rates stayed constant until the mid-1580s. The turning point came with the Armada. In the run-up to the attempted invasion of England, interest rates increased, and then returned to their long-term average values in the years before the last bankruptcy of Philip's reign.

Changes over time do not suggest that banker's updated their beliefs about the nature of the contracts they were holding in a discontinuous way after 1575. The payment stop, if anything, made them no less likely to lend to Philip II on favourable conditions. The run-ups to the bankruptcies appear to show interest rates that may reflect a growing wariness, but lenders did not treat the Crown of Castile and Aragon as a pariah borrower.

Next, we examine the evolution of interest rates statistically. In the first column, we use the principal lent, foreign exchange clauses, and duration as well as a full set of fixed effects for banking families as controls. We find that longer-duration lending, on average, was less expensive, a result that is consistent with the relatively cheaper alternatives available to the king for long-term borrowing. Larger loans mostly attracted a higher cost, and that foreign exchange transactions raised the cost of borrowing. There is no significant effect of lending before or after the 1575 default. If we estimate without

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<sup>18</sup> The regression results are reported in Appendix A.

banker fixed effects (eq. 2), we find that the dummy variable for post-1575 is positive and insignificant. In conjunction, these findings imply that the cost of loans remained stable or declined after the default. The results in Table 1 do not suggest that bankers suddenly updated their beliefs about the riskiness of lending to Philip II.

	(1) Banker Fixed Effects	(2) No Fixed Effects	(3) Pre-1576	(4) Post-1576
Duration (months)	-0.0028*** (-6.60)	-0.0025*** (-6.87)	-0.0014*** (-3.15)	-0.0034*** (-5.90)
FX dummy	0.0420* (1.79)	0.0588*** (2.68)	0.0543** (2.21)	0.0796** (2.23)
Principal (100,000 ds)	0.0051** (2.37)	0.0029* (1.69)	0.0038 (-1.02)	0.0041* (1.88)
Post-1576 dummy	-0.0036 (-0.11)	0.0005 (0.02)		
Constant	0.175 (0.09)	0.240*** (11.16)	0.229*** (9.61)	0.238*** (8.14)
N	402	402	185	217
Adjusted R <sup>2</sup>	0.232	0.133	0.107	0.142

t-statistics in parenthesis

\* p<0.10, \*\* p<0.05, \*\*\* p<0.01

**Table 1: Determinants of borrowing costs (dependent variable: MIRR, Asiento borrowing)**

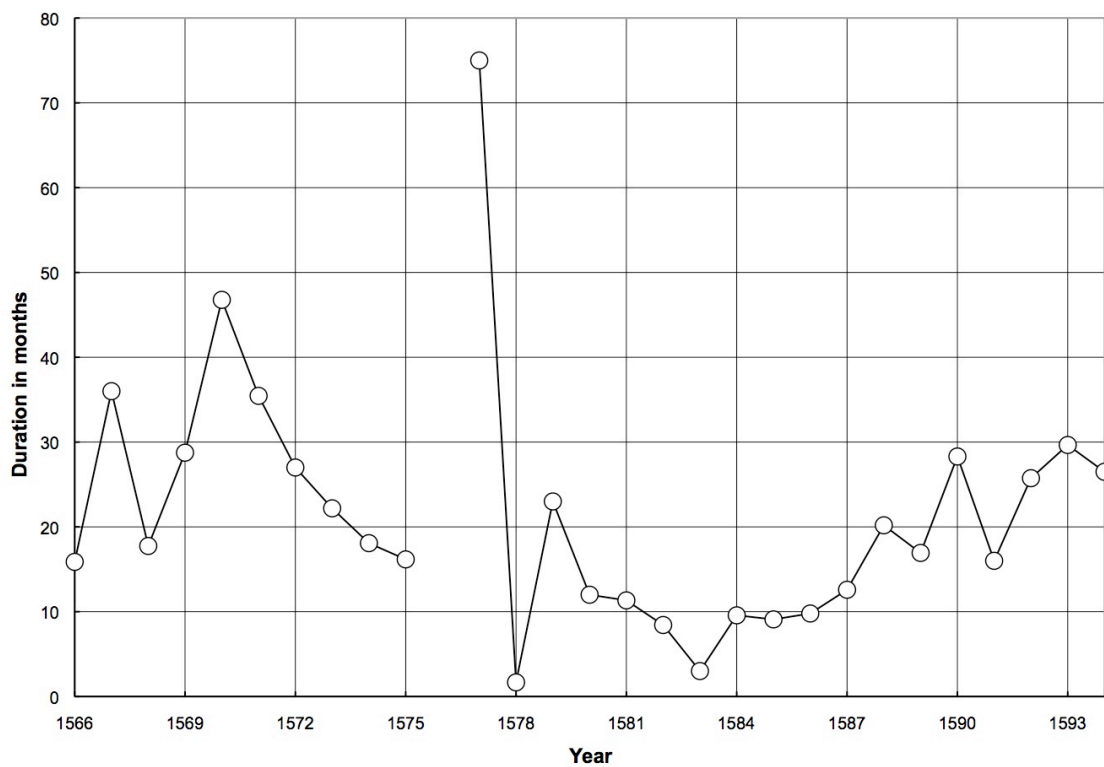
A second indicator suggests that risk perceptions may even have declined after 1575. In specifications (3) and (4), we estimate the basic regression for the period before and after 1575. Most results are broadly similar, except one – the effect of the duration of contracts. After 1575, lending for a longer period significantly reduced the cost of financing. Extending the duration of the contract for one year (roughly one standard deviation) led to a 4% fall in the cost of borrowing. Lending for 3 or 4 years, therefore, brought the cost of short-term lending in line with the *juro* borrowing cost. Before 1575,

this effect was much more muted. If we test for the significance of the difference in the two coefficients by estimating jointly, and interacting the duration variable with the post-1575 dummy, we find a strong and significant result (-0.004, t-statistic 3.6).

How are we to interpret the change in the coefficient on the duration variable? If a lender is concerned about the potential risk of a rollover crisis, then the likelihood of being affected by a sudden change in the financial conditions of the borrower increases with the time-horizon of the loan. He and Xiong (2010) build a model with debt contracts that mature in a staggered fashion. Creditors need to coordinate their lending decisions to allow the borrower to operate and repay maturing debt. Because there is rollover risk, which lenders have an incentive to run on a borrower, by refusing to roll over debt. This will occur with some probability long before the borrower is insolvent. They show that for plausible parameter values, higher rollover frequency – shorter duration of loan contracts – is associated with a greater risk to run on a borrower. The effect is stronger the more lenders there are.

In the run-up to the 1575 payment stop, the average maturity of loans declined quickly. Thereafter, it stayed relatively low, before trending up in the 1590s. Our statistical results suggest that lenders needed to be compensated for the risk of longer-duration loans before 1575, and not thereafter. One plausible interpretation of this is that the bad state of the world after a run occurs – and the borrower faces a lenders' strike – turned out to be particularly benign. The settlement between Crown and bankers in 1577 was mild by most standards. The crisis was resolved in a short period of time – in less than two years. This compares favorably with the average of 8 years for modern-day sovereign debt reschedulings (Benjamin and Mark Wright 2009). On average, the king

repaid his bankers to the tune of 62 cents on the dollar. While a sizeable haircut, the returns on lending to the king were high. As a matter of fact, very few lenders lost money lending to Philip II, despite the defaults (Drelichman and Voth 2011).



**Figure 9: Duration of loans**

The fact that longer-maturity loans did not continue to attract higher rates of interest suggests that lenders no longer feared rollover crises. The risk of them occurring initially declined, as the Crown's fiscal position strengthened. New taxes and a conversion of short-term debt to long-dated bonds dramatically reduced rollover risk. As short-term debt accumulated throughout the 1580s and 1590s, there is also no evidence that lenders demanded a higher premium for 'joining the queue at the end' – if we re-estimate eq. (2)

for the period after 1590, we obtain a coefficient of 0.00026 (t-statistic 0.16). The coefficient is 1/10 of its pre-1575 value.

Evidently, something changed in the pricing of *asientos*. Bankers had charged a hefty premium before 1575 for ‘insuring’ the Crown against bad fiscal outcomes, by demanding higher loan rates for long-maturity loans. They also offered funding to the Crown at ever shorter maturities. After 1575, the settlement of the *Medio General* removed uncertainty. As historians of the episode have stressed, lenders escaped lightly (Lovett 1982). As a matter of fact, loan pricing suggests that defaults were not just excusable – they were seen as relatively good news, compared to the fears lenders harbored before 1575.

## V. Conclusions

Sovereign lending over the last 200 years has been profitable on average, but punctuated by periods with severe losses (Eichengreen and Portes 1989b). In this paper, we show that this was already true at the dawn of sovereign lending, in one of the earliest and most famous episodes of serial default – the payment suspensions of Philip II. Government debt had reached a level similar to those seen in the modern period for the first time.<sup>19</sup>

Lending occurred despite numerous defaults by the same borrower.

Lenders suffered losses for two main reasons. First, contracts would not always be fulfilled in the ordinary course of business. While the contracts as we recover them from the Royal Archive contain numerous clauses that try to pre-empt the consequences, we know that many cases remained unresolved. As the same lender entered into a new

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<sup>19</sup> In Drelichman and Voth (2010b) we use a variety of scenarios for GDP to calculate debt/GDP ratios. The benchmark result suggests a figure of 60%.

contract with the King, the old obligations would be settled. This type of rescheduling was quantitatively almost as important as loans hit by the defaults themselves – the second main source of losses.

For every 3 ducats affected by the payment suspensions, 2 were rescheduled in the course of normal business. This suggests that most lenders must have been aware that the letter of each contract was not particularly likely to be fulfilled. The fact that they nonetheless carried on lending, and that terms did not change after 1575, strongly suggests that the defaults of Philip II were largely anticipated. Each lender was aware that some clauses might not be fulfilled by the King, and that defaults were likely. Far from being cataclysmic, unanticipated meltdowns of the financial system, the defaults merely produced a synchronized rescheduling affecting all lenders. In this sense, our findings lend support to theories in the spirit of Grossman and van Huyck (1988), in which defaults are fully anticipated by lenders.

Lending was profitable despite the reschedulings and defaults because short-term borrowing was expensive. The King could easily feign outrage over the rates he was charged whenever it came to another payment stop. According to our estimates, the typical contract during the second half of Philip's reign cost 23% p.a. – 16% over and above the return on long-term debt. About ten percentage points of the return was absorbed by write-offs, by interest not received, and by the delay in settling old debts. This left an excess return of close to 10% for the bankers of Philip II. The loss-rate (a 62% reduction relative to the ex-ante excess return) is higher than that for the dollar

(sterling) bonds examined by Eichengreen and Portes (1989b), who found a reduction of 34% (6%).<sup>20</sup>

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<sup>20</sup> A full comparison would have to take into account that Castile's *juros* were not defaulted upon at all in the sixteenth century.

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## Appendix A

	(1) MIRR
Contingency Dummy	0.0285* (1.73)
Principal (100,000 ds)	0.007*** (4.75)
FX (dummy)	0.0314** (2.07)
Duration (months)	-0.0013*** (-4.34)
Constant	0.0792 (0.14)
Banker FE	Y
Year FE	Y
N	367
Adjusted R <sup>2</sup>	0.360

t-statistics in parenthesis

\* p<0.10, \*\* p<0.05, \*\*\* p<0.01