Why is Financial Misconduct Procyclical?

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August 2019

We gratefully acknowledge financial support from the Institute for New Economic Thinking, Stanford University, and Erasmus University Rotterdam. We thank Joost Jonker and Christiaan van Bochove for sharing their security auction database. Wouter Appels, Dave Boone, Yassine Bouzbiba, Imran Canfijn, Brecht Cornelisse, Anita Drost, Bram Hoonhout, Nina Jolink, Jirsi Reinders, Joris van den Tol, Sander Wassing, and Laurien van der Werff provided excellent research assistance. We thank Alex van Stipriaan for sharing his notes. Abe de Jong: Monash University, 900 Dandenong Road, 3145 Caulfield East, Australia, Abe.deJong@monash.edu, +61 990 34952. Tim Kooijmans: Monash University, 900 Dandenong Road, 3145 Caulfield East, Australia, Tim.Kooijmans@monash.edu, +61 990 34952. Peter Koudijs: Stanford Graduate School of Business, 655 Knight Way, Stanford, CA 94305, USA, Koudijs@stanford.edu, +1 650 725 1673.

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ABSTRACT

In the period 1765-1772, the market for plantation mortgage-backed securities in the Dutch Republic grew to unprecedented volumes, in tandem with a lending boom and surging plantation prices in the West Indian colonies. In 1773 this securities market collapsed, followed by rising plantation foreclosures and a severe recession in the colonies. In this setting, we study the sources of fraud, misreporting, and misconduct in financial markets. We show that financial misconduct in this market was procyclical, and related to intermediary lending standards. At the height of the business cycle, the proportion of highly overstated plantation appraisals increased, while intermediary lending standards declined. We find that the decline in lending standards was concentrated in low-reputation intermediaries who were willing to compromise on screening and monitoring in order to meet boom demand, which is consistent with models of asset sales by intermediaries, but contrasts with the empirical literature on modern asset-backed securities.

1 Introduction

Together with a growing awareness that fraud, misreporting, and misconduct might not just be marginal phenomena, but could instead be capable of moving financial markets (Griffin & Maturana 2016a; Griffin 2019), recently a literature has emerged investigating the causes of financial misconduct.[1] Little is known about what causes fraudulent behaviour in financial markets, and it is puzzling to observe that fraud in financial markets tends to come in waves (Povel, Singh & Winton 2007; Reurink 2016). The height of every economic cycle seems to bring its own band of scandals. Insider trading scandals in mergers-and-acquisitions and large-scale fraud in savings and loan associations characterized the boom of the 1980s. The following 1990s boom peaked with large scale IPO fraud in tech and internet firms and the Enron scandal. Residential mortgage fraud and securitization fraud marked the end of the boom of the noughties (Piskorski, Seru & Witkin 2015; Griffin & Maturana 2016b). And during the most recent economic boom, crypto currencies markets have been plagued with fraud scandals (Gandal, Hamrick, Moore & Oberman 2018; Foley, Karlsen & Putniņš 2019).

Several explanations for this procyclicality of fraud and lending standards in financial markets have been put forward. Povel et al. (2007) model misconduct as a function of investor beliefs. If during economic booms investors expect most projects to be good, the marginal value of monitoring declines, which makes fraud easier to commit at the height of the cycle. In other types of models, changing intermediary reputational considerations over the business cycle drive a procyclicality in lending standards. In Winton and Yerramilli (2015) intermediaries are willing to relax lending standards in boom times, because the revenues of meeting boom demand is higher than the reputational cost it will bring in the future. Rajan (1994) models reduced lending standards in boom times as an effect of bad performing intermediaries that need additional fee revenues to conceal their losses during the boom, since the reputational cost of disclosing bad performance are much higher with good market conditions than with bad market conditions. Other models

[1] This literature investigates issues in regulation (Dyck, Morse & Zingales 2010; Charoenwong, Kwan & Umar 2019), investor sophistication (Dimmock & Gerken 2012; Egan, Matvos & Seru 2019), intermediary liability (Koudijs, Salisbury & Sran 2018), and peer effects within financial intermediaries (Egan, Matvos & Seru 2017).

consider the relation between lending standards and changes in the intermediary population over the business cycle. In Ruckes (2004) favourable market conditions draw an increasing number of lower quality intermediaries into the market, inducing increased intermediary competition that will have a further downward pressure on lending standards.

In this paper, we investigate determinants of fraud and lending standards in the 18th century Caribbean colonies of the Dutch Republic, where slave-plantations producing sugar, coffee and cacao were largely financed via mortgage-backed securities. Bankers attracted large sums of money from investors to invest these in West Indian plantation mortgages. The first plantation security ('*negotiatie*') was set up in 1754, and between 1765 and 1772 the market for these securities in Amsterdam grew to unprecedented volumes. This process was accompanied by a large lending boom, and surging plantation prices. In 1773 the market for plantation MBS collapsed, followed by rising foreclosures and a severe recession in the colonies.

During the plantation lending boom, government leaders as well as practitioners expressed concerns about declining lending standards in the plantation mortgage market. The governor of the largest colony, Surinam, repeatedly expressed his concerns to his principals in Amsterdam, about the lack of assets of mortgage borrowers, and their deteriorating creditworthiness. Rotterdam banker F.W. Hudig blamed the bust in plantation credit on a lack of borrower screening by his colleagues during the plantation lending boom (De Jong, Kooijmans & Koudijs 2019). Anecdotal evidence shows that fraud was an issue as well during this lending boom. On May 8, 1771 notary Isaac Pool reviewed the documents for plantation *La Felicité* in Surinam. A year and a half earlier the bankers Lever & De Bruine had set up a *negotiatie* of a million guilders to be invested in plantation mortgages in Surinam. This fund was one of the many that were started in Amsterdam between 1765 and 1772. In May 1771 Lever & De Bruine had not been able to lend the full authorized amount and wanted to provide a mortgage to *La Felicité*. In early November 1770, the plantation had been bought for 149,000 guilders. Lever & De Bruin were willing to provide a mortgage of 119,500 guilders. This was far in excess of the 5/8 of the value of the plantation that was usually provided as mortgage (93,000 guilders in this case). To motivate this amount they had provided notary Pool with an official assessment of the value of the plantation of 191,000 guilders signed on October 23, 1770, just weeks before the actual purchase of the plantation at a far lower price. Pool's message was unambiguous:

> *"Upon purchase the value of the plantation must have instantly increased by 25%. It is evident that this valuation had only one purpose: to obtain a loan to almost fully fund the purchase of the plantation. This mortgage does not fit the requirements of the fund under the direction of Messrs. Lever & De Bruine".*[2]

Pool's objections were not taken seriously: the mortgage was approved and absorbed into the *negotiatie* fund.

Research has linked appraisal overstatements, other forms of mortgage fraud and declining lending standards in the pre-2007 US housing mortgage market to incentive problems in securitizations.[3] By selling assets, the intermediary reduces its exposure to originated loans, which also reduces incentives to efficiently screen and monitor. It is puzzling that implicit liability, in the form of intermediary reputational damage, did not provide a sufficient incentive to maintain lending standards either. Contrary to predictions of models of asset sales by intermediaries, (Winton & Yerramilli 2015; Hartman-Glaser 2017), high-reputation intermediaries did not produce better securities than low-reputation intermediaries (Griffin, Lowery & Saretto 2014). Possibly, market distortions due to complexity of securities, credit ratings or government policies played a role in the procyclical decline in lending standards in this episode.[4]

We study whether appraisal overstatements were persistent, whether the occurrence of appraisal overstatements was procyclical, and how appraisal overstatements were related to intermediary lending standards in the plantation mortgage market. We have developed a new dataset for this research. We collect data on the plantation securities market, on plantation mortgages, as well as information on the underlying collateral, the plantations. Our research focuses on Surinam, the largest Dutch Caribbean colony. We obtain data on mortgages, appraisal reports and plantation sale transactions from the

[2] *(SAA 5075, 12728-15).*

[3] Research finds that intermediaries did not properly screen and monitor borrowers of securitized mortgages, and retained higher quality mortgages while selling lower quality (Mian & Sufi 2009; Keys, Mukherjee, Seru & Vig 2010; Purnanandam 2011; Keys, Seru & Vig 2012). Recent literature shows that not only a reduced intermediary effort and classic information asymmetry played a role, but conflicts of interest also led to fraud, and misrepresentation of asset quality (Piskorski et al. 2015; Griffin & Maturana 2016b).

[4] During the period in which intermediaries issued large volumes of MBS, pricing of housing mortgage credit was distorted due to the high complexity of tranched MBS (Ashcraft, Goldsmith-Pinkham, Hull & Vickery 2011), combined with issues in credit rating agencies (Coval, Jurek & Stafford 2009). Furthermore, pricing in the housing market was affected by government housing policy (Wallison 2014), and monetary policy (Drechsler, Savov & Schnabl 2019).

original contracts that are stored in notarial archives. In 1770, there were about 460 active plantations in the colony, the majority of which was financed with mortgage debt. We construct a database of 5,603 secondary market plantation MBS transactions, 507 mortgage observations, and 1,144 plantation appraisal reports, over the period 1755–1780.

We show that the magnitude of appraisal overstatements exhibited a procyclical trend. The proportion of highly overstated appraisals increased towards the height of the lending boom, and declined afterwards. Comparing plantation sale prices with the appraised value of the same plantations, we find that during the boom years 1769-1770, the magnitude of appraisal overstatement in the top quartile of appraisal reports was over 50% of the value, even reaching 77.5% overstatement. Due to the limitation of mortgage sums up to 5/8 of the appraised value of the plantation, plantation buyers were required to bring in equity. However, if the buyer managed to secure a mortgage based on a 60% overstated appraisal value, the mortgage would cover the full plantation sale sum. Before and after the boom appraisal overstatement was common as well, although the magnitude of highly overstated appraisals was smaller. During the period 1761-1768 the 25th percentile overstatement was 31.1% and in the period 1771-1780 this was 28.4%.

Next, we show that the occurrence of this asset valuation fraud was related of a broader trend in intermediary lending standards. Over the economic cycle, the quality of new mortgages declined. We show at the height of the lending boom, banks provided a much larger proportion of mortgages to low quality borrowers. At the same time, collateral quality declined. The proportion of mortgages with maximum mortgage sums of 5/8 of the appraised plantation value increased towards the height of the boom, and decreased afterwards. At the peak of the boom in 1770, more than 75% of new mortgages had a reported loan-to-value ratio (LTV) of 5/8 of the appraised value of the plantation. The mean reported LTV increased from 0.419 in the period 1761-1765 to 0.601 in the period 1770. After 1770 the reported LTV values declined again to 0.555 on average. However, when we compare the mortgage sums not with the appraised plantation values, but with the amount of primary production factors on the plantation, the figures of declining collateral values are much more striking. In the period 1761-1765, the average mortgage sum was about half (56.2%) of the total value of primary production factors on the plantation. In 1770, facilitated by plantation appreciation and appraisal overstatements, the average mortgage sum collateralized by the same primary production factors, was about

three times higher (144.4% of the 1761-1765-value). After 1770, this ratio declined to 91.7% in the period 1774-1780.

We provide explanations for declining lending standards. We show that during the plantation lending boom of the 1760s, deterioration in lending standards in intermediaries in the market for plantation securities was concentrated in intermediaries without a reputation to lose. The aggregate borrower quality and the aggregate collateral quality of plantation mortgages of reputable intermediaries, were higher than those of mortgages of non-reputable intermediaries. Mortgages issued by reputable banks performed better than mortgages issued by non-reputable peers. Our results are consistent with Winton and Yerramilli (2015), in which low-reputation intermediaries are willing to relax lending standards in boom times, because the revenues of meeting boom demand is higher than the reputational cost it will bring in the future.

The empirical literature on fraud procyclicality is thin. Two related papers empirically investigate financial market fraud dynamics over the business cycle. Wang, Winton and Yu (2010) focus on corporate IPO fraud and find results consistent with a procyclical fraud trend driven by investor beliefs. Begley, Purnanandam and Zheng (2017) investigate risk misreporting by banks, and find that incentives to misreport vary over the economic cycle. The setting that we consider in this paper is different from today's in several respects. First of all, in our setting information asymmetries were amplified, since it took information several weeks to travel by ship between the Caribbean and the Dutch Republic. Furthermore, the smaller size of banks eliminated 'too-big-to-fail' considerations and deposit insurance was non-existent. Therefore, moral hazard problems induced by government policies did not play a role.

This paper is also related to the empirical literature on conflicts of interest between intermediaries and investors in ABS markets (Mian & Sufi 2009; Keys et al. 2010; Purnanandam 2011; Keys et al. 2012; Piskorski et al. 2015; Griffin & Maturana 2016b). This research has focussed on the most recent episode of large-scale asset securitization, prior to the 2007 meltdown of the market for U.S. residential MBS. This paper provides out-of-sample tests for the effects of agency problems in securitizations. As an alternative setting, our setting has a number of advantages. The plantation MBS were less complex than most modern-day structured finance products. The majority of plantation MBS were simple pooled-funds securities, and not tranched. Furthermore, there was no external

validation of securities through credit rating agencies, and the government did not interfere with the plantation mortgage markets. We show that in this simpler setting, implicit liability sustained a less sizable decline in lending standards during the lending boom.

This paper contributes to the broader literature on information problems in financial markets. Leland and Pyle (1977) and Diamond (1984) show that financial intermediaries can arise to solve these information problems by monitoring. Greenbaum and Thakor (1987) and Pennacchi (1988) show that under conditions the intermediary has incentives to sell loans, and at that point incentives to properly fulfil this key monitoring function come under pressure, as this gives rise to a new principal-agent problem between the intermediary and the investor. Optimal solutions in contract design for how to deal with this problem are subsequently investigated in large literature, amongst which Greenbaum and Thakor (1987); Pennacchi (1988); Gorton and Pennacchi (1995); DeMarzo and Duffie (1999); DeMarzo (2005).

The remainder of the paper is structured as follows. We describe the historical background of the research setting in Section 2. In Section 3, we describe the new dataset that is constructed for this paper. In Section 4 we present our tests on appraisal overstatements. In Section 5, we analyse trends in intermediary lending standards. In Section 6, we analyse the causes of fraud procyclicality. We conclude in Section 7.

2 Historical Background

In this section we describe the design of plantation MBS, and we explain developments in the financial market in the period 1760-1780.

2.1 Mortgage-backed securities for plantations: negotiaties

In the 18th century, the Caribbean region was colonized by European powers. Surinam was a Dutch colony under management of a private company, jointly owned by the Dutch West Indian Company, the City of Amsterdam and the family Aerssen van Sommelsdijck. The local plantation economy housed mainly slave-plantations producing sugar and coffee for the European market. All products were shipped to the Dutch republic, where they were sold in the Amsterdam, which was a central market place in the integrated West-European commodity market. The plantations were capital intensive operations, as

they required the purchase of slaves, land, trees, machinery, and the construction of plantations houses. The majority of plantations was partly financed with long-term debt, provided by bankers in Amsterdam. The bankers sold mortgages through MBS to investors in the Dutch republic.

Starting point of the securitization chain was an appraisal report, drafted in Surinam. The local government appointed public servants as independent appraisers, who were typically plantation owners themselves. Based on the appraisal report, the plantation owner would be granted a plantation mortgage by a local agent of the Dutch bankers. The agents would screen suitable candidates and then send paper work to the bankers in the Dutch Republic, by ship. Frequently, agents were associated with multiple bankers, and they would typically receive both a fixed yearly fee and a percentage of the new mortgages. In the Dutch Republic the bank would approved the mortgage, acting as director of an investment vehicle. The mortgage was placed in this separate fund, not on the balance sheet of the banker, who was thus not formally liable for this mortgage. The majority of the mortgages were placed in pooled vehicle portfolios, but securities collateralized by a single mortgage were issued as well. Investors could invest in the fund by buying notional value bonds of 1,000 guilders of the MBS fund.

As a rule of thumb, mortgage sums were limited to 5/8, (62.5%) of the appraised value of the plantation. The equity (3/8) of the plantation value serves to guarantee sufficient collateral value if the plantation would be liquidated. Mortgages were collateralized with everything present on a plantation, including the enslaved laborers. The blue print for the typical mortgage was an interest rate was 6%, and two fixed terms of 10 years, the first interest-only and the second with principal repayments in equal yearly installments. The mortgage contracts provided that all plantation production was to be shipped to and sold by the banker, for as long as the loan was outstanding. The banker thus profited from the transportation, insurance, storage and sales of the sugar and coffee. The plantation was required to purchase all imported supplies via the banker. Additionally, the banker could profit from an interest rate differential and a percentage fee at mortgage issuance. For local expenses, the plantation drew bills of exchange on the current account by the banker, who would charge interest if there was short term credit outstanding. In Surinam, the banker's agent monitored the plantation.

2.2 Boom and bust, 1760-1780

During the 1760s a drive of the Dutch government to reduce the debt burden that was accumulated during past wars, caused the supply of government loans to fall to historically low levels and interest rates fell (De Vries and Van der Woude 1997). This pushed Dutch investors into riskier ventures (De Vries 1976), and plantation MBS were viewed as a solid investment due to the strict collateral requirements and collateral guarantee through the integrated judicial systems of the colonies and homeland. In the period 1750 to 1772 in total 198 of these *negotiatie* funds were raised, with a total capital of 67 million guilders (Van de Voort, 1973), compared to a Dutch government debt in 1770 of fl.212 million. The majority was invested in Surinam, while also Berbice and Essequebo and Demarary (currently Guyana) received significant amounts.

Figure 1 illustrates the plantation lending boom and bust of the 1760s and 1770s. During the lending boom up to 1772, the plantation economy was characterized by rising real estate prices. Figure 2 shows that development plantation values over time closely mimicked the path of the lending boom. The bust of the market after 1772 was triggered by a drop in commodity prices. Figure 3 shows that after a run-up period, there was a sharp drop in coffee prices from 1771 onwards. This resulted in a meltdown in the MBS market as shown in Figure 4.

3 Data

In this section we describe the dataset constructed for this paper. We first discuss the data and its sources, and subsequently we discuss the resulting summary statistics of our data.

3.1 Sources

Data on plantation securities auction prices comes from monthly publications of the *Maandelykse Nederlandische Mercurius.*[5] The publications provide a list of all voluntary sales of securities administered by the City of Amsterdam, with information on date, security characteristics and price. We collect information on all traded Surinam plantation

[5] This database was kindly provided by Joost Jonker and Chritiaan van Bochove.

MBS over the period 1766-1796, resulting in a sample of 5,759 transactions, of 137 unique securities. Where we needed additional information to identify the MBS we have obtained detailed auction information from the Archives of the Mayor of Amsterdam.[6] To reconstruct MBS collateral portfolios of all traded Surinam MBS we have used security collateral information in the *Maandelykse Nederlandische Mercurius*, information collected by van de Voort (1973), and various documents from the complete Notarial deeds records of the City of Amsterdam.[7]

Data on plantation mortgages, plantation appraisal reports and plantation sale transactions primarily comes from the original contracts in the notarial archives of Amsterdam and the Notarial archives of Surinam.[8] For each banker we have identified preferred notaries in Amsterdam, and we have collected all mortgage contracts from these notaries' records. We check for missing mortgage information using the duplicates of the mortgage contracts that were sent to Surinam and stored in the local notarial archives.[9] Figure 5 shows a map of the colony Surinam dating from 1770. At this time there were about 460 active plantations in the colony, the majority of which was (partly) financed with mortgage debt. Plantation appraisal reports were drafted by public servants, and filed in the government archives. We have plantation characteristics from all available appraisal reports over the period 1755–1780, providing a database of 1,144 plantation appraisal reports.[10]

We collect information on bankers from Elias (1963), Magerus and Lequien junior (1768), published tax lists,[11] the archive of the Wisselbank,[12] and several private bank archives.[13]

[6] City Archive Amsterdam, Archief van de Burgemeesters: willige verkopingen (veilingen van huizen, erven en obligaties), inv. No. 127-201.
[7] City Archive Amsterdam, 5075: Archief van de Notarissen ter Standplaats Amsterdam.
[8] National Archive The Hague, digital duplicaat van de notariele archieven van Suriame.
[9] National Archive The Hague, digital duplicaat van de notariele archieven van Suriame, 716-736.
[10] National Archive The Hague, digital duplicaat van de notariele archeiven van Suriame, inv. No. 197-253, 692-706.
[11] Oldewelt, Het kohier van de Personele Quotisatie te Amsterdam over het jaar 1742.
[12] City Archive Amsterdam, 5077 Archief van de Wisselbank, inv no. 475-477.
[13] Rotterdam City Archives, 68 Fa. Coopstad & Rochussen (Hudig) / Ferrand Whaley.

3.2 Summary statistics

This section presents the summary statistics of our sample. First, we look at plantation mortgage statistics. Secondly, we show the statistics of our sample of plantation of MBS, and thirty we look at summary statistics of the banks in our main sample.

3.2.1 Plantation mortgages

Table 1 reports summary statistics for the key bank variables. During the height of the plantation lending boom there were about 460 active plantations in Surinam. Our sample of mortgage observations contains 507 mortgage observations of 310 unique plantations. This set of mortgage contracts comprised for 72% of newly initiated mortgages, while the remaining 28% of mortgage observations were amendments on existing mortgages. The overwhelming majority of the mortgages involved coffee plantations, while about one fifth of mortgage observations relates to a sugar plantation. The summary statistics illustrate the high degree of standardization in plantation mortgage contracts. The blue print for the typical mortgage was an interest rate was 6%, and two fixed terms of 10 years, the first interest-only and the second with principal repayments in equal yearly installments. From the mortgage observations in our sample, the 25^{th} percentile to the 75^{th} percentile are compliant to this format. As a rule of thumb, mortgage sums were limited up to 5/8 (62.5%) of the appraised value of the plantation. In our sample, 47% of mortgage observations the mortgage sum is equal to this 62.5% of the appraised planation value.

We differentiate between prime mortgage borrowers and subprime mortgage borrowers. We identify the prime borrowers as all plantation owners that were active as government official in Surinam or in the Dutch Republic. We identify all other planters as subprime borrowers. Officials were appointed to the by the other officials in the councils. Due to reputational benefits, network benefits and indirect monetary benefits, seats in the local administrations were highly desired and only reserved for the local elites (Israel 1998).

3.2.2 Plantation MBS

Table 2 reports summary statistics for the negotiaties in our sample. The table shows that the majority of mortgage securities was collateralised by a single mortgage, while 17.9% of negotiaties was collateralised by a pool of multiple plantation mortgages. Obviously,

the pooled negotiaties were much larger in terms of funds however, such that the majority of mortgage credit was provided through pooled negotiaties. This is also shown by the fat right tail of the distribution of portfolio size, with a median portfolio value of fl.150,000, while the mean portfolio value was equal to fl.337,000.

3.2.3 Banks

Table 3 presents summary statistics for key bank variables. The average bank in our sample issued about 3 negotiaties, and about half of the banks in our sample issued at least one negotiatie collateralized by a pool of multiple mortgages. The average total volume of plantation mortgages sold through plantations securities was fl.835,000 per bank.

We label banks that initiated their first plantation securities in the period 1768-1770 as Boom Bank. During this period 31% of all banks entered the market for plantation securities. The majority (82%) of banks was located in Amsterdam. We differentiate between Reputable Banks and Non-Reputable Banks. From all intermediaries from Amsterdam, we categorize as Reputable Banks all banks that were located in the primary commercial centre and most expensive part of the city, on either the Herengracht or Keizersgracht. From the intermediaries from Rotterdam and other cities we categorize intermediaries as Reputable if the banker was a member of the local aristocracy. All other intermediaries are labelled Non-Reputable. This classification labels about 53% of banks as Reputable.

4 Asset Quality Misrepresentation

In this section we present the results of our tests for asset quality misrepresentation in plantation mortgages. We study whether plantation appraisal overstatements occurred more towards the end of the business cycle.

To measure plantation appraisal overstatement, we compare plantation sale prices with the appraised values of the plantations. We start the analysis with our sample of plantation sale transactions in Surinam over the period 1760-1780 (N=253). We match each plantation sale transaction with the closest appraisal report, within one year before the date of the plantation sale, or in within three months after the transaction. We corresponding appraisal values for 79 plantation sale transactions.

Table 4 shows statistics on overstated appraisals. Over the full period 1760-1780, appraised plantation values were customarily higher than the transaction value of the plantation. Before the boom years 1769-1770, during the boom years and after the lending boom, even the 25th percentile of the ratio appraised value over plantation sale price was higher than 1. The mean appraisal overstatement during the period 1760-1768 was 22.4%. This percentage increased to 30.2% during the lending boom years 17769-1770. After 1770 the average overvaluation declined to 16.2%. Variation in appraisal overstatements between the distinct periods was particularly pronounced in the right tail of the overvaluation distribution. At the height of the boom, the proportion of transactions with highly overstated appraisals was much larger than before the boom and after. The 25% highest appraisal overstatements, were concentrated around 60% overvaluation (1.504 for the 75th percentile to 1.775 for the maximum). Since plantation mortgage sums were limited to 5/8 of the appraised value of the plantation, the only opportunity for plantation buyers to finance 100% of the plantation with mortgage debt, was by providing an appraisal overvaluation of 1.6.

The figures show that the magnitude of appraisal overstatements exhibited a procyclical trend. The proportion of highly overstated appraisals increased towards the height of the lending boom, and declined afterwards.

5 Shifting Lending Standards

In this section we investigate whether the procyclical incidence of appraisal overstatement was related to the lending standards of financial intermediaries. We study whether intermediary lending standards developed countercyclical, by looking at the quality of mortgage borrowers, and by looking at collateral quality.

5.1 Borrower Quality

We start our analysis of variation in borrower quality over time with our sample of plantation mortgages (*N*=507). As mentioned, we have identified prime borrowers as all plantation owners that were active as government official in Surinam or in the Dutch Republic. We identify all other planters as subprime borrowers.

Figure 6 shows that the aggregate borrower quality of newly issued mortgages sharply declined during boom years 1769-1770. In the period 1766-1768 just over half (51.9%) of total mortgage volume was provided to prime borrowers. This proportion was substantially lower during the lending boom. In 1769 only 34.8% of lending volumes was provided to prime borrowers, while in 1770 prime borrowers received 38% of total newly issued mortgage volume. After the bust, lending volumes strongly contracted and the major proportion of the volumes went to prime borrowers, 59.7% in the period 1771-1773 and 69.4% in period 1774-1780.

5.2 Collateral Quality

Our second strategy to investigate whether intermediary lending standards developed countercyclical, is to study changes in quality of mortgage collateral over time. In the previous section, we studied collateral misrepresentation, which is closely related to asset quality. In this section, we study developments in asset quality in greater detail, by using a larger number of observations. We measure collateral quality by comparing mortgage loan sums to the total amount of primary production factors on the plantation. This allows us to study a broader sample of appraisal reports, that is not limited to the mortgages that were related to plantation sales. We label as primary production factors the total acres of the plantation, the productive crops and the number of slaves. We construct a Loan-to-Fundamentals (LTF) measure. We estimate the LTF as follows. We match each mortgage to the corresponding appraisal report and provide statistics only for mortgages for which we have a corresponding appraisal report. For each observation, we express the value of the combined acres, crops and the slaves in baseline-values of these production factors. We determine the baseline values by taking the average appraised value of each of the production factors in the same region in the period 1760-1765. The LTF is the ratio of the mortgage sum over the baseline value of the primary production factors.

Table 5 provides statistics on collateral quality over time. We find that the Reported LTVs (the mortgage sum over the appraised value of the plantation) were procyclical. Over the lending boom, an increasing proportion of new mortgages had a mortgage sum equal to the maximum of 5/8 of the appraised value of the plantation. The mean Reported LTV increased from 0.419 in the period 1761-1765 to 0.601 in the period 1770. After 1770 the Reported LTV values declined again to 0.555 on average. At the peak of the boom in 1770,

more than 75% of new mortgages had a reported LTV of 5/8 of the appraised value of the plantation.

This increase in the proportion of mortgages with the maximum mortgage sum of 5/8 of the appraised value of the plantation – combined with rising plantation values (Figure 2) and with an increasing occurrence of appraisal overstatements – led to strongly increasing LTFs over the business cycle. Table 5 shows that LTF values surged between 1761 to 1770. In the period 1761-1765, the average loan sum was about half (56.2%) of the total value of primary production factors on the plantation. In 1770, the average mortgage sum received by the same plantation was about three times higher, collateralized by the same primary production factors. The average mortgage sum had an LTF ration of 1.439. After 1770, LTF values of newly issued mortgages declined.

The figures show that mortgage collateral quality exhibited a countercyclical trend. At the height of the boom intermediaries provided mortgage sums, relative to collateral fundamentals on average almost three times than during the period 1761-1765. The observed changes in LTF are much larger than the changes in Reported LTV.

5.3 Mortgage Performance

If our measures of borrower quality and collateral quality correctly measure borrower quality and collateral quality, low quality mortgages will be associated with poorer mortgage performance.

We study mortgage performance by looking at MBS auction prices. For each plantation MBS we determine the aggregate quality of mortgage borrowers and the aggregate quality of mortgage collateral in the portfolio of the MBS. We regress plantation MBS auction prices on a series of plantation MBS characteristics. We determine aggregate quality of mortgage borrowers by the proportion of total mortgage volume in the MBS portfolio that was provided to prime borrowers and subprime borrowers. We measure the aggregate quality of mortgage collateral for each plantation MBS, using the average LTF of the mortgages in the MBS portfolio.

Table 6 demonstrates that subprime borrower mortgages and mortgages with high LTF values performed worse. In regression model (3), controlling for negotiatie size, size increased and portfolio type, an increase in the proportion of subprime borrower mortgages in the negotiatie portfolio from 0 to 1 corresponds to a 10.9 percentage point decrease in

MBS prices. An increase in the mean LTF in the negotiatie portfolio from 0.5 (approximately the mean LTF in period 1761-1765) to 1.5 (approximately the mean LTF in period 1770), corresponds to a 9.5-percentage point decrease in MBS prices.

6 Why are lending standards procyclical?

In this section we present results of our tests on causes of procyclicality of lending standards. We study whether lending standards of all intermediaries declined equally during the plantation lending boom, or whether this decline was concentrated within a particular group of intermediaries.

6.1 Lending standards across Banks

During the period 1766-1770, there was a large amount of new bank entries in the market for negotiaties. We study whether the intermediaries that entered the market towards the height of the lending boom had different lending standards from the intermediaries that had been active in the market before that time. We compare Boom Banks with Non-Boom Banks. Boom Banks are all banks that issued their first negotiatie in the period 1768-1770. We also study whether reputational concerns affected lending standards. Figure 7 shows that the majority of banks that entered the plantation securities market during the lending boom were Non-Reputable intermediaries.

We study the lending standards of each group of intermediaries by looking at the aggregate amount of mortgage volumes issued by each group. Table 7 presents statistics on newly issued mortgage volumes. Over the period 1760-1767 the largest proportion of new mortgage volume was issued by Reputable Banks, who jointly accounted for fl.4.1 mln mortgage volume, against fl.0.9 mln by Non-Reputable Banks. However, during the lending boom this radically changed. In the period 1768-1770 roughly half of new mortgage volume came from intermediaries that had entered the market during the boom, and the other half from intermediaries that had been active in the plantation market before that time. By far the largest part of newly issued mortgage volume during the boom came from Non-Reputable banks. Within the group of Boom Banks, Non-Reputable Banks lend fl.7.1 mln, against 1.6 mln by Reputable Banks. In the group of Non-Boom banks, Non-Reputable Banks issued fl.5.6 mln mortgages, while Reputable Banks issued fl.4.3 mln.

After the lending boom in the period 1771-1780, the contraction in newly issued mortgage volume was concentrated in Non-Reputable Banks.

We study whether there were differences in the aggregate borrower quality between the different groups of intermediaries. We measure aggregate borrower quality by the total amount of mortgage volume to subprime borrowers. The largest proportion of mortgages to subprime borrowers was provided by Non-Reputable banks. Over the period 1760-1767, Reputable banks issued a higher absolute volume to subprime borrowers, but a much lower volume in relative terms. Reputable banks issued fl.2.2 mln subprime mortgages, which was 56% of total mortgage volume issued by these banks in this period, while non-reputable banks issued fl.1.3 mln, which was 89% of total mortgage volume issued by these banks in this period. This percentage was 64% for Non-Boom Non-Reputable Banks during the boom period 1768-1770 and 81% during the period 1771-1780. Notably, the proportion of subprime mortgages was much lower for the group of Reputable banks. During the boom period 1768-1770, Non-Boom Reputable Banks scaled back the subprime mortgage volumes to 35% of their total mortgage volume, and 40% in the period 1771-1780. Interestingly, initially there was not much difference in aggregate mortgage borrower quality for different groups of intermediaries that entered the market during the boom. The proportion of subprime mortgages was lay at 55% for Non-Reputable Banks in the period 1768-1771, and 57% for Reputable Banks. Subsequently in the period 1771-1780 Non-Reputable Boom Banks issued 56% of mortgage volume to subprime borrowers, while 100% of the small volume of Reputable Banks mortgages was to subprime borrowers.

We study the differences in aggregate collateral quality between the different types of intermediaries. We are interested in the relative differences in LTF between banks. When we compare average Loan-to-Fundamentals of mortgages, we do not find much difference between Reputable and Non-Reputable Banks in the period 1760-1767, with 0.74 and 0.72 respectively. However, during the period 1768-1770 there were substantial differences in mean LTF values. Non-Reputable Banks had an average LTF of 1.34 if they had entered during the boom, and 1.43 if otherwise. Reputable banks that had been active before the lending boom had a much lower average LTF (1.12). Interestingly, the Reputable banks that entered the market during the boom had a very high average LTF with 1.49. Subsequently in the period 1771-1780 all groups of intermediaries showed

lower average LTF values, between 1.0 and 1.1, except the Reputable Boom Banks that had an mean LTF of 1.36.

6.2 Bank Performance

We find that lending standards vary over time, and over different types of intermediaries. We study whether this is related to bank performance. Table 6 shows out of the variables Mortgage Boom, Bank Boom, and Reputable Banks, the latter variable is the best predictor of mortgage performance. We find that mortgages issued by Reputable Banks seem to fare better than others, except for the Reputable Banks that entered the plantation securities market during the boom. The estimated coefficients are however not statistically significant.

7 Conclusion

We have shown that financial misconduct in the market for plantation mortgage-backed securities in the Dutch Republic was procyclical, and related to intermediary lending standards. At the height of the business cycle, the proportion of highly overstated plantation appraisals increased, while intermediary lending standards declined. The decline in lending standards was concentrated in low-reputation intermediaries who were willing to compromise on screening and monitoring in order to meet boom demand.

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Figures and Tables

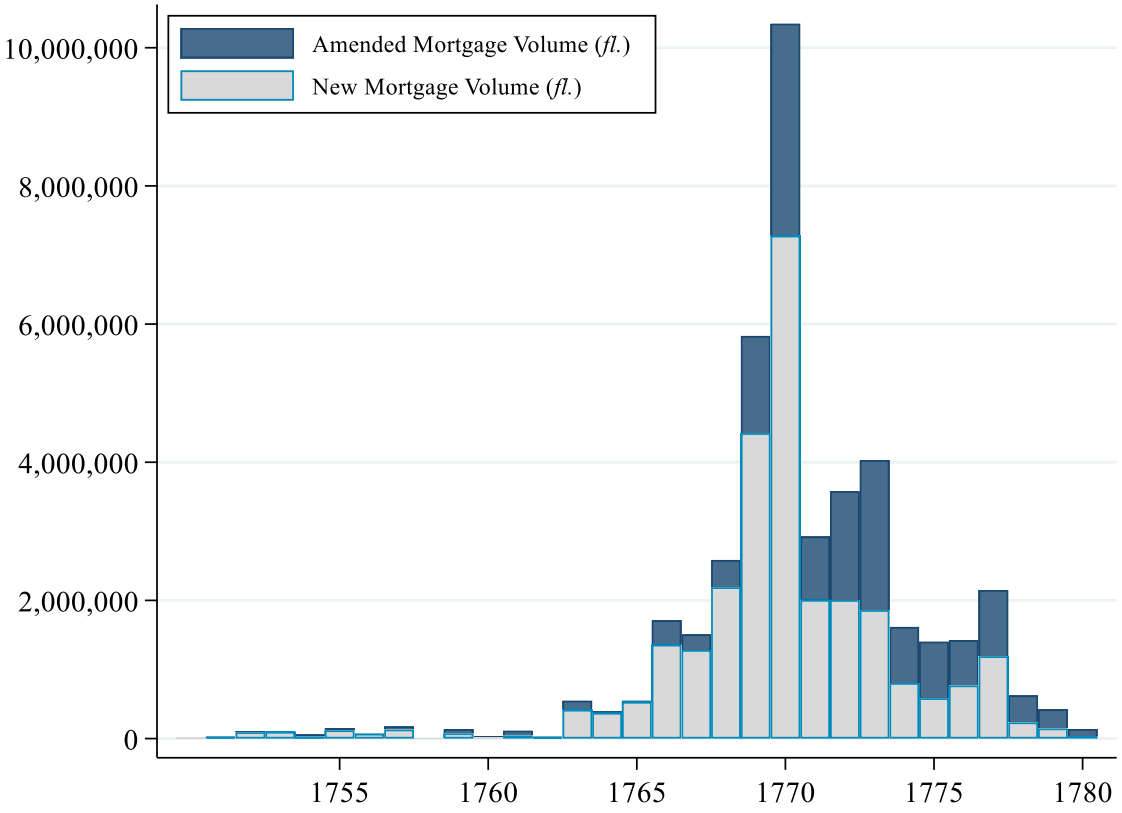

Figure 1 Lending Boom and Bust
This graph displays Surinam negotiatie mortgage volume over the period 1755-1780. *Total Mortgage Volume* is the aggregated sum of all issued mortgage contracts for each year. *New Mortgage Volume* is the yearly volume of new plantation mortgage volumes, which disregards amendments of already outstanding mortgage sums.

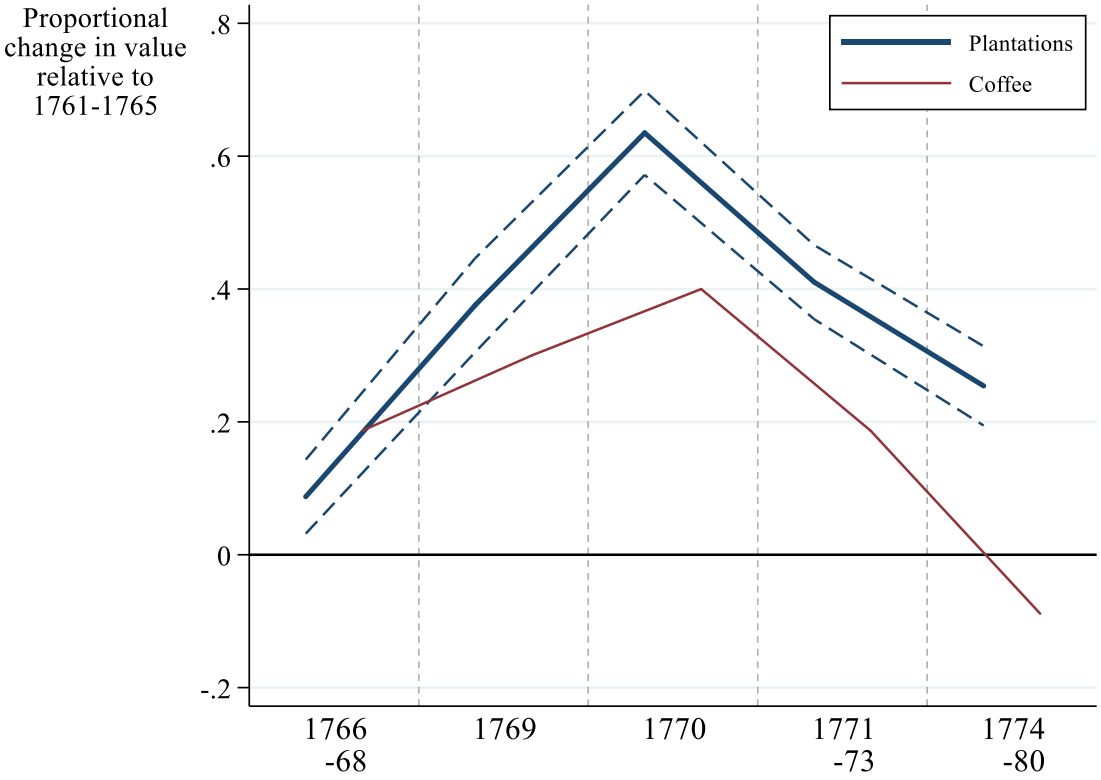

Figure 2 Plantation Values
This figure shows the relative change in appraised value of plantation fundamentals (the combined acres, crops and slaves) relative to the period 1761-1765. We consider 6 separate periods: 1761-1765, 1766-1768, 1769, 1770, 1771-1773 and 1774-1780. The peak at 0.6 in the period 1770 shows that plantation fundamentals were valued 60% higher during this period, than in the period 1761-1765. The dashed line illustrates the 95% confidence interval. The red line illustrates the change in coffee prices.

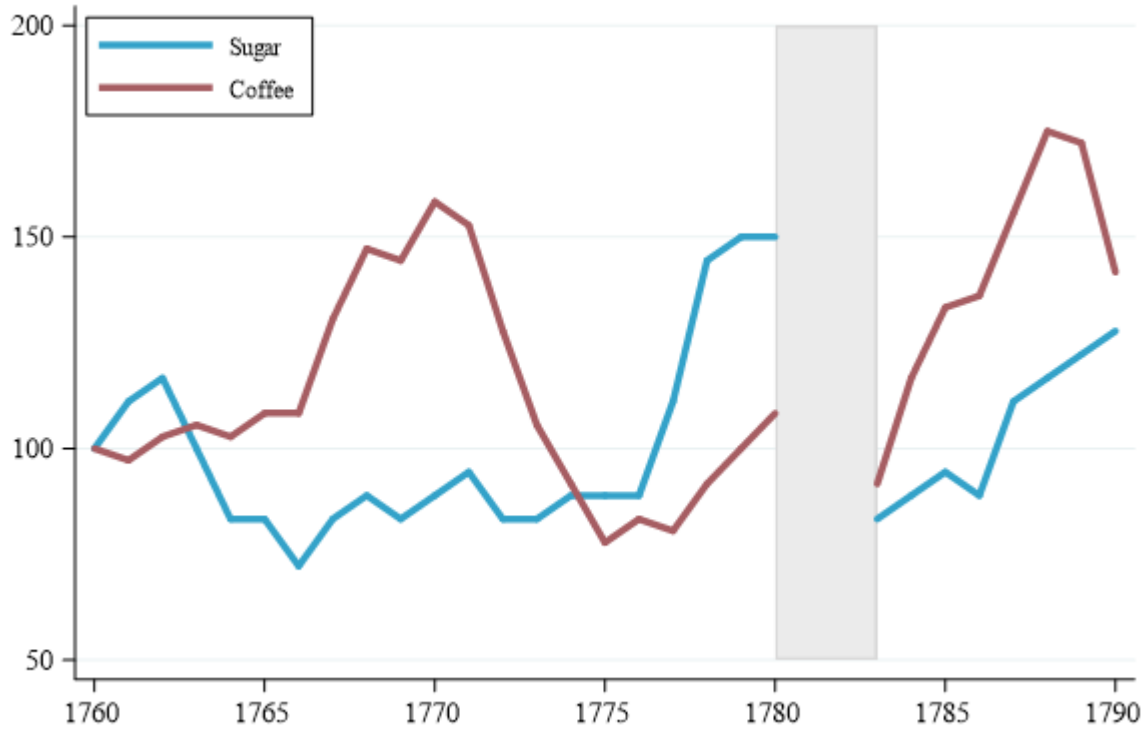

Figure 3 Commodity prices
This figure shows index prices for Surinam coffee and sugar, where the 1760 price is 100. The shaded area indicates the Fourth Anglo-Dutch War that severely limited intercontinental trade.

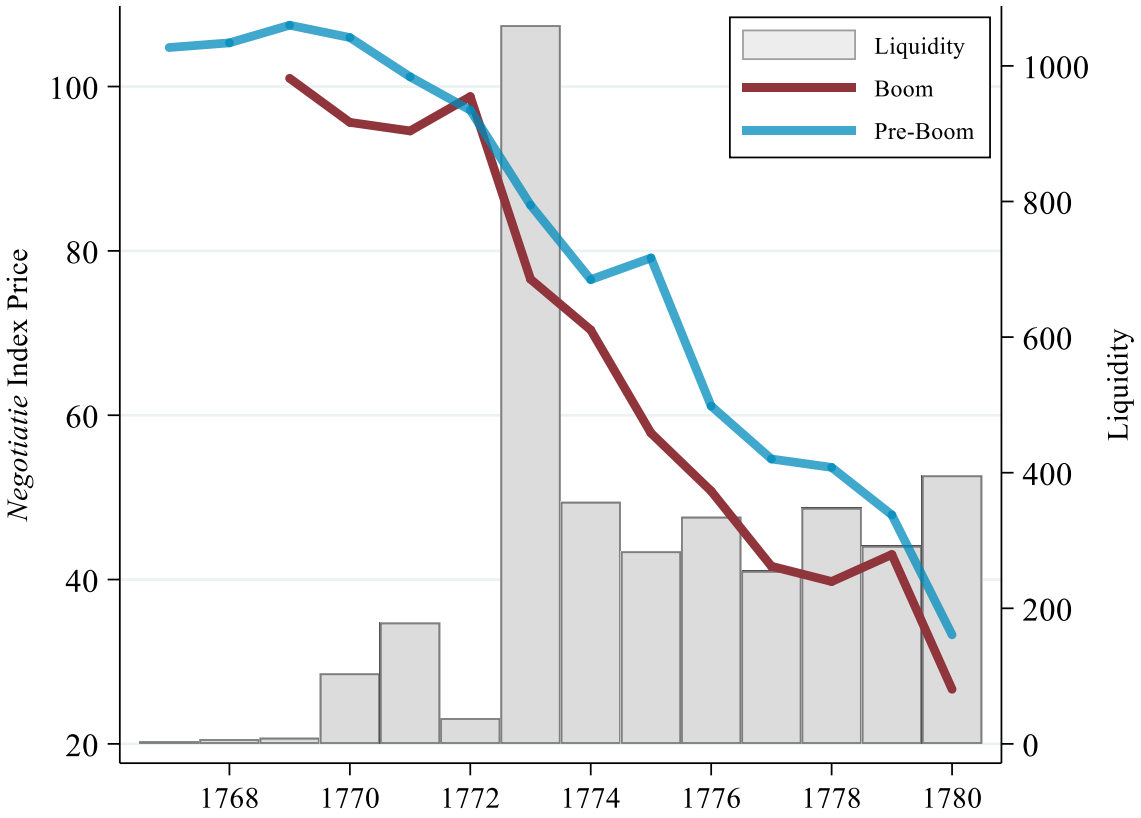

Figure 4 MBS market
This figure illustrates planation MBS market dynamics over the period 1766-1780. The light line indicates an equal weighted MBS price index of all traded plantation securities issued prior to 1769. The dark line indicates an equal weighted MBS price index of all traded plantation securities issued during the period 1769-1770. The grey bars represent the total yearly number of auctioned securities.

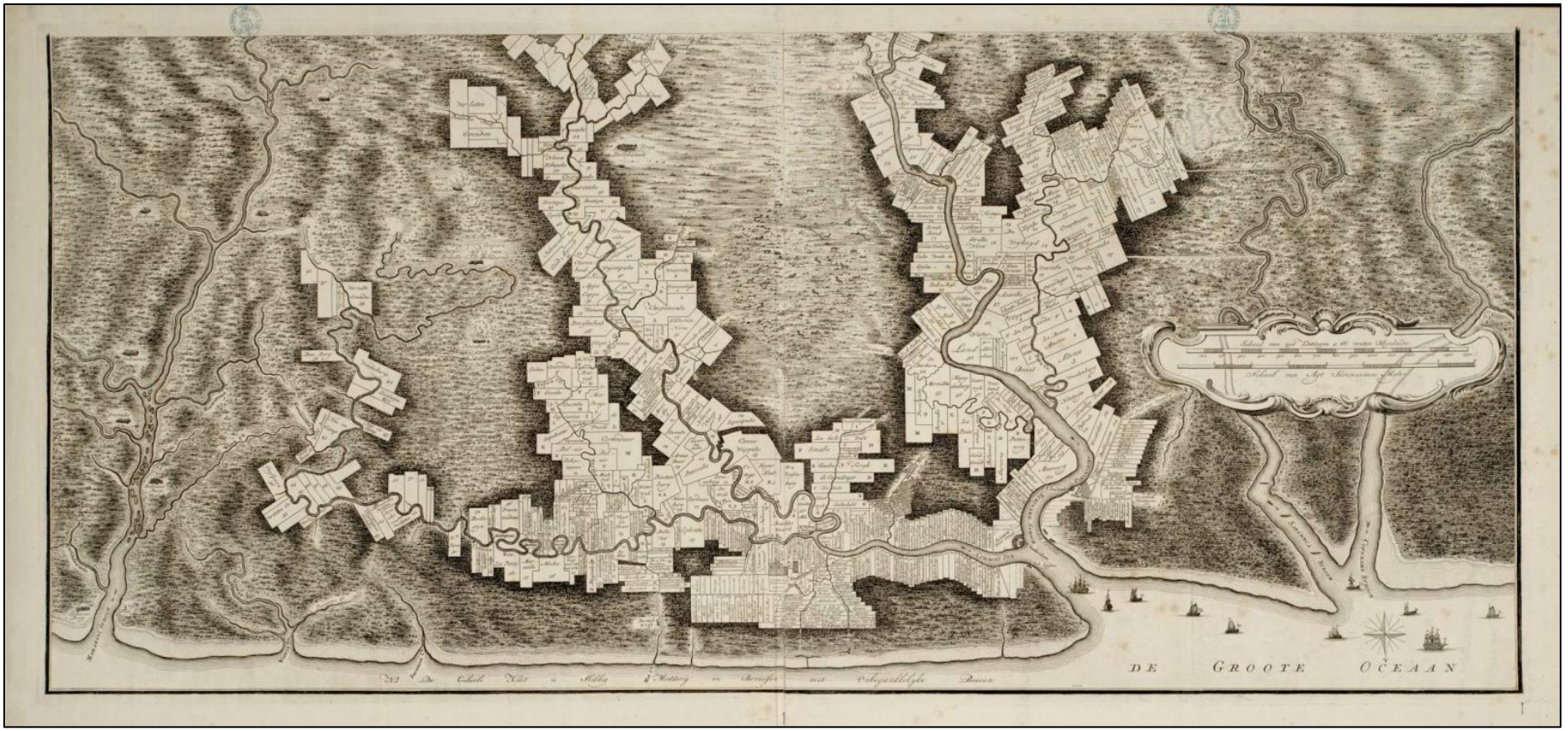

Figure 5
This figure shows a map of Surinam in 1770.

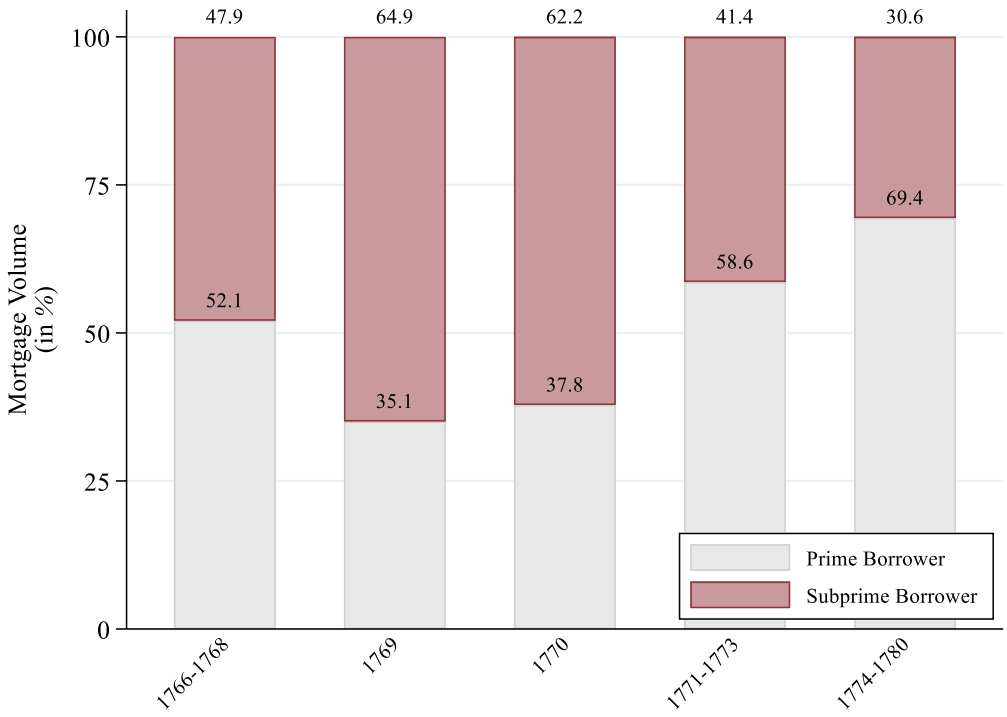

Figure 6 Borrower Quality
This graph compares the relative flows of new mortgage volume to Prime and Subprime borrowers. We identify prime borrowers as all plantation owners that were active as government official in Surinam or in the Dutch Republic. We identify all other planters as subprime borrowers.

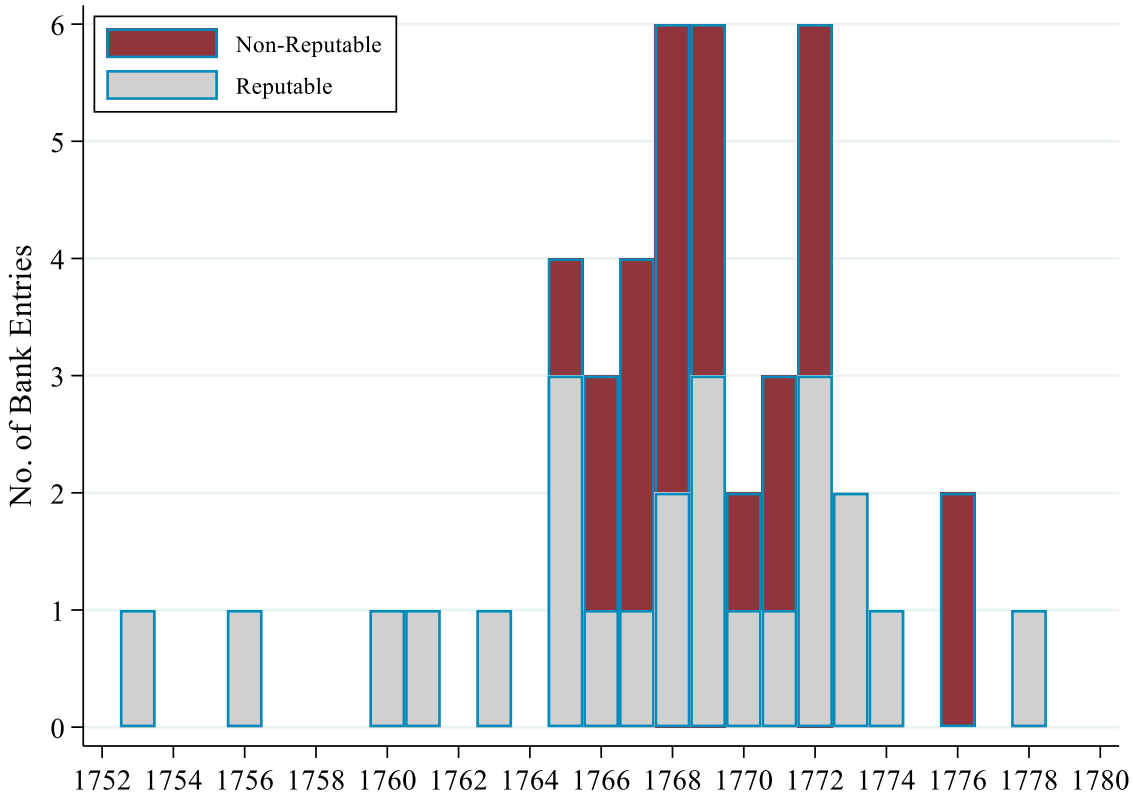

Figure 7 Bank Entries
This graph illustrates bank entries in the market for Surinam plantation MBS over the period 1752-1780. For each bank, the year of entry is the year of the bank's first plantation MBS issuance. *Reputable Banks* are all banks located on either the Herengracht or Keizersgracht, and bankers that were member of the local aristocracy if the bank was not located in Amsterdam.

Table 1 Mortgage Summary Statistics

This table shows mortgage summary statistics. The variable *Year* is the year of the mortgage issuance, where 70 is 1770. *Sum* is the mortgage sum in guilders. *Mortgage New* is an indicator variable equal to 1 when the mortgage is a new mortgage contract, or 0 when a previous mortgage is amended. *Term* is the total mortgage term in years. *Term<20* is an indicator variable equal to 1 if the mortgage term is shorter than 20 years, *Term=20* indicates a 20 year mortgage term, and *Term>20* indicates a mortgage term of more than 20 years. The variable *Term 1* is the length of the principal repayment free period of the mortgage in years. The variable *Term 2* is the length of second mortgage period with required principal repayments in years. *Interest* is the mortgage interest rate in %. *LTV* is equal to the mortgage sum divided by the appraised value of the plantation. *LTV > 5/8* is an indicator variable equal to 1 if the mortgage sum is more than 62.5% of the appraised value of the plantation, and *LTV < 5/8* indicates a mortgage sum smaller than 62.5% of the appraised value of the plantation. *Sugar* is an indicator variable equal to 1 if the plantation produces sugar. *Subprime Borrower* is an indicator variable equal to 1 when the borrower is labeled as subprime. We identify prime borrowers as all plantation owners that were active as government official in Surinam or in the Dutch Republic. We identify all other planters as subprime borrowers. We estimate *Loan-to-Fundamentals* as follows. We match each mortgage to the corresponding appraisal report and provide statistics only for mortgages for which we have a corresponding appraisal report. For each observation, we express the value of the combined acres, crops and the slaves in baseline-values of these production factors. We determine the baseline values, by taking the average appraised value of each of the production factors in the same region in the period 1760-1765. The LTF is the ratio of the mortgage sum over the baseline value of the primary production factors.

	N	Mean	Sd	p25	Median	p75
Year	507	69.23	5.190	67	70	72
Sum	452	94,909	72,117	36,040	81,288	138,984
Mortgage New	507	0.722	0.449	0	1	1
Term	314	17.59	4.789	18	20	20
Term<20	314	0.277	0.448	0	0	1
Term=20	314	0.704	0.457	0	1	1
Term>20	314	0.0191	0.137	0	0	0
Term 1	314	8.890	2.671	10	10	10
Term 2	314	8.701	4.274	10	10	10
Interest	397	0.0590	0.00545	0.0600	0.0600	0.0600
LTV	343	0.640	0.806	0.500	0.625	0.625
LTV < 5/8	342	0.389	0.488	0	0	1
LTV = 5/8	342	0.477	0.500	0	0	1
LTV > 5/8	342	0.135	0.342	0	0	0
Sugar	507	0.193	0.395	0	0	0
Subprime Borrower	507	0.586	0.493	0	1	1
LTF	255	1.143	0.612	0.778	1.090	1.455

Table 2 Plantation MBS summary statistics

This table shows plantation MBS summary statistics. The variable *Year* is the year of the negotiatie issuance, where 70 is 1770. *Pooled* is an indicator variable equal to 1 when the MBS collateral is a set of pooled mortgages, and 0 when collateral is a single mortgage. The variable *Size initial* is equal to the initial negotiatie sum in guilders. The variable *Size* is equal to the maximum negotiatie sum in guilders. *Size increase* is equal to the initial negotiatie sum divided by the maximum negotiatie sum in guilders. *Morg boom* is the total value of mortgages in the negotiatie portfolio that was initiated in the period 1769-1771, standardized by the maximum value of the negotiatie. *Subprime Borrower* is an indicator variable equal to 1 when the borrower is subprime. *Subprime Borrower* is an indicator variable equal to 1 when the borrower is labeled as subprime. We identify prime borrowers as all plantation owners that were active as government official in Surinam or in the Dutch Republic. We identify all other planters as subprime borrowers. LTF is the average Loan-to-Fundamentals of the mortgages in the negotiatie portfolio. We estimate *Loan-to-Fundamentals* as follows. We match each mortgage to the corresponding appraisal report and provide statistics only for mortgages for which we have a corresponding appraisal report. For each observation, we express the value of the combined acres, crops and the slaves in baseline-values of these production factors. We determine the baseline values, by taking the average appraised value of each of the production factors in the same region in the period 1760-1765. The LTF is the ratio of the mortgage sum over the baseline value of the primary production factors. *Mortg sugar* is the proportion of mortgages on plantations that produce sugar.

	N	Mean	Sd	p25	Median	p75
Year	117	70.53	4.166	69	71	73
Pooled	117	0.179	0.385	0	0	0
Size initial	113	254,527	373,817	75,000	120,000	220,634
Size	113	337,121	550,558	86,240	150,000	300,000
Size Increase	117	1.287	0.634	1	1	1.138
Mortg boom	117	0.271	0.398	0	0	0.573
Subprime Borrower	117	0.586	0.474	0	1	1
LTF	63	1.115	0.473	0.772	1.178	1.421
Mortg sugar	117	0.177	0.337	0	0	0.175

Table 3 Bank summary statistics

This table shows summary statistics of the active banks in the market for plantation securities. *Negotiatie volume* is the bank's total volume of Negotiaties issued in the sample period 1755-1780 in guilders. *Negotiatie N* is the bank's total number of issued negotiaties. The variable *Pooled negotiatie N* is equal to the banks number of negotiaties collateralized by more than one plantation mortgages. *Negotiatie first year* is the year of the first negotiatie issue of each bank. *Boom Bank* is an indicator variable equal to 1 if the first negotiatie issue was during the boom period 1768-1771. *Amsterdam* is an indicator variable equal to 1 when the bank was located in Amsterdam. *Reputable* is an indicator variable equal to 1 if the bank was located on either the Herengracht or Keizersgracht, or when the banker was a member of the city aristocracy when not located in Amsterdam.

	N	Mean	Sd	p25	Median	p75
Negotiatie volume	45	835.0	1,179	128.9	361.4	1,090
Negotiatie N	45	3.089	2.968	1	2	3
Pooled negotiatie N	45	0.511	0.661	0	0	1
Negotiatie first year	45	68.36	4.778	66	69	72
Boom Bank	45	0.311	0.468	0	0	1
Amsterdam	45	0.822	0.387	1	1	1
Reputable	45	0.533	0.505	0	1	1

Table 4 Appraisal Overstatement

This table shows appraisal overstatement statistics. To measure plantation appraisal overstatement, we compare plantation sale prices with the appraised values of the same plantations. We match each plantation sale transaction with the closest appraisal report, within one year before the date of the plantation sale, or in within 3 months after the transaction. We measure appraisal overstatement as the appraised value over the plantation sale price.

	N	Mean	Sd.	Min	p25	p50	p75	Max
1761-1768	19	1.224	0.216	0.908	1.020	1.237	1.311	1.600
1769-1770	44	1.302	0.247	0.939	1.088	1.265	1.504	1.775
1771-1780	16	1.162	0.221	0.764	1.042	1.108	1.284	1.600

Table 5 Collateral Quality

This table shows statistics on plantation mortgage collateral quality. The first rows present the reported Loan-to-Value (LTV) ratios of newly issued mortgages. The reported LTV is measured as the mortgage sum divided by the corresponding appraised value of the plantation. We consider 6 separate periods: 1761-1765, 1766-1768, 1769, 1770, 1771-1773 and 1774-1780. The last set of rows present statistics on Loan-to-Fundamentals (LTF). We estimate the LTF as follows. We match each mortgage to the corresponding appraisal report and provide statistics only for mortgages for which we have a corresponding appraisal report. For each observation, we express the value of the combined acres, crops and the slaves in baseline-values of these production factors. We determine the baseline values, by taking the average appraised value of each of the production factors in the same region in the period 1760-1765. The LTF is the ratio of the mortgage sum over the baseline value of the primary production factors.

LTV Reported	*N*	Mean	Sd.	Min	p25	p50	p75	Max
1761-1765	19	0.419	0.211	0.068	0.239	0.457	0.625	0.625
1766-1768	67	0.577	0.090	0.225	0.558	0.625	0.625	0.625
1769	44	0.592	0.077	0.236	0.618	0.625	0.625	0.625
1770	63	0.601	0.054	0.413	0.625	0.625	0.625	0.625
1771-1773	42	0.541	0.103	0.201	0.449	0.581	0.625	0.625
1774-1780	17	0.555	0.132	0.126	0.530	0.625	0.625	0.625
Loan-to-Fundamentals								
1761-1765	19	0.562	0.398	0.135	0.224	0.459	0.907	1.547
1766-1768	65	1.103	0.709	0.244	0.733	0.893	1.326	3.708
1769	42	1.285	0.469	0.355	1.042	1.179	1.401	3.204
1770	62	1.439	0.543	0.487	1.147	1.316	1.588	3.708
1771-1773	42	1.070	0.530	0.135	0.734	1.034	1.512	2.625
1774-1780	17	0.917	0.586	0.171	0.400	0.871	1.329	2.339

Table 6 Lending standards

This table presents tests on the effects of reduced lending standards. The table presents a series of models explaining prices of auctioned plantation securities. The first column lists the independent variables of each regression model. *Subprime Borrower* is the proportion of total mortgage volume of the negotiatie provided to subprime borrowers. We identify prime borrowers as all plantation owners that were active as government official in Surinam or in the Dutch Republic, and all plantation owners that were active as bank agent. We identify prime borrowers as all plantation owners that were active as government official in Surinam or in the Dutch Republic. We identify all other planters as subprime borrowers. *LTF* is the average Loan-to-Fundamentals of the mortgages in the negotiatie portfolio. We estimate Loan-to-Fundamentals as follows. We match each mortgage to the corresponding appraisal report and provide statistics only for mortgages for which we have a corresponding appraisal report. For each observation, we express the value of the combined acres, crops and the slaves in baseline-values of these production factors. We determine the baseline values, by taking the average appraised value of each of the production factors in the same region in the period 1760-1765. The LTF is the ratio of the mortgage sum over the baseline value of the primary production factors. The variable *Mortg Boom* is the proportion of total mortgage volume of the negotiatie provided to during the period 1769-1770. The variable *Negotiatie size* is equal to the z-score of the negotiatie sum. *Nego Size increase* is equal to the initial negotiatie sum divided by the maximum negotiatie sum. *Pooled* is an indicator variable equal to 1 when collateral is a set of pooled mortgages, and 0 when collateral is a single mortgage. *t*-statistic are reported in parentheses. *, **and *** indicate significance at the 10%, 5%, and 1% levels, respectively. Robust standard errors are clustered by MBS.

	(1)	(2)	(3)
Subprime Borrower	-14.3337***	-13.6614***	-10.9016**
	(-2.91)	(-2.81)	(-2.11)
LTF	-19.0607***	-14.9508**	-9.5051*
	(-2.88)	(-2.58)	(-1.97)
Mortg boom		-11.2866	-6.0465
		(-1.61)	(-1.41)
Negotiatie Size			2.1704**
			(2.05)
Nego Size Increase			2.8849**
			(2.15)
Pooled			-9.2537
			(-1.60)
Year	Yes	Yes	Yes
N	4543	4543	4494
R^2	0.77	0.78	0.81

Table 7 Lending standards across banks

This table compares statistics on lending standards across different types of banks. We compare Boom Banks with Non-Boom Banks. Boom Banks are all banks that issued their first negotiatie in the period 1769-1771. Within those groups we compare *Reputable Banks* and *Non-Reputable Banks*. *Reputable Banks* are all banks located on either the Herengracht or Keizersgracht, and banks part of the local aristocracy if the bank was not located in Amsterdam. Panel A presents statistics on newly issued mortgage volumes (in guilders). The first rows present total aggregate mortgage volumes issued by each group of banks. The rows below present statistics on aggregate subprime borrower mortgage volumes. The figure between brackets is the total aggregate subprime mortgage volume of each group of banks, divided by the total mortgage volume of this group. Panel B presents statistics on Loan-to-Fundamentals (LTF). We estimate the LTF as follows. We match each mortgage to the corresponding appraisal report and provide statistics only for mortgages for which we have a corresponding appraisal report. For each observation, we express the value of the combined acres, crops and the slaves in baseline-values of these production factors. We determine the baseline values, by taking the average appraised value of each of the production factors in the same region in the period 1760-1765. The LTF is the ratio of the mortgage sum over the baseline value of the primary production factors.

Panel A: Mortgage Volumes				
Total Mortgage Volume		**1760-1767**	**1768-1770**	**1771-1780**
Non-Boom Bank	Non-Reputable	916,610	5,617,321	1,971,161
	Reputable	4,140,779	4,369,629	8,220,423
Boom Bank	Non-Reputable		7,129,221	6,011,739
	Reputable		1,647,272	301,194
Subprime Borrower				
Non-Boom Bank	Non-Reputable	818,845	3,619,295	1,606,161
		(89%)	(64%)	(81%)
	Reputable	2,298,143	1,513,803	3,316,147
		(56%)	(35%)	(40%)
Boom Bank	Non-Reputable		3,887,298	2,738,097
			(55%)	(46%)
	Reputable		933,253	301,194
			(57%)	(100%)
Panel B: Loan-to-Fundamentals				
		1760-1767	**1768-1770**	**1771-1780**
Non-Boom Bank	Non-Reputable (μ)	.723	1.337	1.022
	(St. Dev.)	(.399)	(.738)	(.375)
	Reputable (μ)	.738	1.123	1.103
	(St. Dev.)	(.378)	(.355)	(.628)
Boom Bank	Non-Reputable (μ)		1.43	1.104
	(St. Dev.)		(.533)	(.5)
	Reputable (μ)		1.485	1.358
	(St. Dev.)		(.624)	(1.388)

Table 8 Variation in Bank performance

This table presents tests on variation in bank performance. The table presents a series of models explaining MBS pricing. The first column lists the independent variables of each regression model. The variable *Mortg Boom* is the proportion of total mortgage volume of the negotiatie provided to during the period 1769-1770. *Bank Boom* is an indicator variable equal to 1 when the Bank issued the first plantation securities in the period 1768-1771. The variable *Reputable* is an indicator variable equal to 1 if the bank was located on either the Herengracht or Keizersgracht, or when the banker was a member of the city aristocracy when not located in Amsterdam. *t*-statistic are reported in parentheses. *, **and *** indicate significance at the 10%, 5%, and 1% levels, respectively. Robust standard errors are clustered by MBS.

	Price	Price	Price	Price	Price
Mortg boom	-15.2105**			-13.2896*	-8.0751
	(-2.29)			(-1.70)	(-0.90)
Bank Boom		-7.0532*		-3.0524	1.9347
		(-1.70)		(-0.63)	(0.33)
Reputable			9.5435**		11.0545
			(2.12)		(1.31)
Bank Boom* Reputable					-11.3536
					(-1.32)
Mortg Boom* Reputable					-9.3655
					(-0.60)
Year	Yes	Yes	Yes	Yes	Yes
N	5221	5221	5221	5221	5221
R^2	0.66	0.64	0.65	0.66	0.67