Value drivers of the Holland Land Company negotiations

Lennard van Veen

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Keywords: Holland Land Company, Value drivers, Negotiations, Financial history, Bonds, Underwriters

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Acknowledgements
I would like to thank Dr. Frehen for his support and useful insights that he provided me with during the process of writing my thesis. Furthermore, I am very grateful to my parents Co and Ulrike for their mental, financial, and educational support throughout my student life. I would also like to thank my friends for the joy they have given me during my time at Tilburg University. A special thanks goes out to Michael Koop for providing me with useful suggestions and critical remarks on my paper. Last but not least, I would like to thank Judith Verweij for her unconditional support at all times.

1. INTRODUCTION

Amsterdam, Rotterdam, Holland, and Batavia are all names of towns in the state of New York that remind of the role that the Dutch have played in developing the Northeastern part of America. Dutch influences percolated throughout this area ever since the foundation of the Holland Land Company at the end of the 18th century. Paul D. Evans (1924) describes one of the most prominent Dutch ventures regarding land sales in America. It tells the story of entrepreneurial spirit and financial innovation of several Dutch merchant houses during the 18th and 19th century. The Holland Land Company represented a syndicate of several prominent merchant houses which bought large sections of land in the western part of the state New York and Pennsylvania in order to develop, promote and eventually resell it to settlers. The project was financed with debt instruments called negotiations. These instruments resemble bonds[1] and were issued in 1793 on the credit market of Amsterdam in The Netherlands. Investment opportunities in the U.S. sparked the interest of Dutch investors after earlier investments in U.S. government bonds paid off generously. Therefore, the Holland Land Company had no trouble finding subscribers for their negotiations. Although they faced many difficulties from the start on, the company managed to survive for more than half a decade. In 1869, the operation finally came to an end after having sold of all tracts of land and generating a substantial return for its investors.

The price of the Holland Land Company bonds showed a lot of volatility over the lifetime of the enterprise, from a discount of 85 percent below par value in 1810 to a premium far above par value in the 1830s. The bonds were backed by the purchased acres of land in the state of New York and Pennsylvania. The principle of asset backed bonds was not new. However, what set them apart from earlier issues was that they were entirely dependent on the expected economic benefit derived from land price appreciation, while older securities were a means to finance transatlantic commodity trade (Frehen, Rouwenhorst, & Goetzmann, 2012). The expected economic benefit of this international opportunity would have been difficult to estimate for the Dutch

[1] The terms Holland Land Company bonds and Holland Land Company negotiations will alternately be used throughout this paper.

investors as information was relatively hard to obtain. Therefore, it is interesting to investigate how investors valued the Holland Land Company negotiations. In this paper it will be analyzed what the value drivers behind the Holland Land Company negotiations were. First, an overview of the financial history of The Netherlands is provided, to illustrate the time frame during which the Holland Land Company operated. Then, information about the Holland Land Company and its negotiations will be given and the independent variables will be described. These independent variables will be gathered from the *Prys-courant der Effecten*, which was the first daily newspaper that posted quotes of financial instruments that were traded on the credit market of Amsterdam. It was the primary source of information that Dutch investors obtained in order to make their investment decision. This is the first time that data from the Prys-courant on American bonds will be analyzed in an academic context. In the empirical part, the research design is illustrated. Thereafter, the results of the research will be presented. In this section, it is tried to answer whether Dutch investors were able to base their valuation of the negotiations on the appreciation of the land, or whether they relied on the reputation of the underwriter and the performance of the category to which the bonds belonged. The conclusion will be presented in chapter six and is followed by the limitations of this paper and recommendations for future research.

2. LITERATURE

The existence of the stock exchange has led to periods of economic prosperity and made the Dutch Republic become an acclaimed leading force in trade, science, and military during the 17th century. Ramon Wernsen (n.d.) describes in his paper how the exchange has enabled companies to finance their growth by linking them with investors. He states that investors have always been tempted by the prospects of huge short term profits and more than once greed has been mentioned as one of the main causes for the many periods of economic turmoil. In the past four hundred years, investment booms and recessions have interchanged on a regular basis. Together with many other external factors like technological developments and politics, they have made the capital market an ever evolving mechanism of financial innovation. In order to illustrate the time frame, this chapter will provide an overview of the financial history of the

Netherlands up to and including the researched time frame of the Holland Land Company (1795 – 1825). Furthermore, it sheds light on the Holland Land Company and its negotiations. Finally, information is provided on the Prys-courant der Effecten from which the independent variables are obtained.

2.1 Financial history of The Netherlands 1600 – 1825

The Amsterdam Stock Exchange is the oldest stock exchange in the world. It was founded in 1602 with the IPO of the Dutch East India Company.[2] Many IPOs have followed since. In the early days, most people did not enter the capital markets to invest their money for the long term, but rather to make a quick buck. Speculating was the name of the game. This game was not without risks, as investors soon found out. The first bubble was recorded during the 1630s, when contract prices of tulip bulbs reached extreme high levels and then suddenly collapsed, since known as Tulip Mania.[3] The impact of this bubble was very limited as prices soared, but money did not exchange hands between buyers and sellers (Goldgar 2008, p. 233). However, it did reveal to investors what the consequences of endless speculation could be. Even though the investors were alarmed by the events of Tulip Mania and its negative consequences, most investors continued their speculative operations. The Dutch Golden Age (1602 - 1720) was still ongoing and investments in the Dutch East India Company and West India Company reeked enormous profits.

In 1720, word got around that the French East India Company and the British South Sea Company found themselves in dire straits. The South Sea Bubble had burst on the London Stock Exchange and this had its effect on the exchange in Amsterdam, leading many companies and individuals into bankruptcy.[4] The crash marks the end of the Dutch Golden Age. During the 1730s, several influential Dutch families got control over the East and West India Companies. The families use the profits of the firms to increase their personal level of wealth, leading to a decline in stock prices and lower dividend

[2] Initial Public Offering: the first sale of stock by a private company to the public.
[3] A bubble is a surge in equity prices, often more than warranted by the fundamentals and usually in a particular sector, followed by a drastic drop in prices as a massive selloff occurs.
[4] Stocks in the South Sea Company were traded for 1,000 British pounds (unadjusted for inflation) and then were reduced to nothing by the latter half of 1720. A massive amount of money was lost.

payments. In 1774, the first mutual funds[5] emerged, which mainly invested in foreign bonds. Their returns were poor, destroying value for their investors. As a result, it took till 1869 before another mutual fund started catering the Dutch markets.

The beginning of the 18th century in The Netherlands is marked by the presence of the French. The army of Napoleon had entered the Dutch Republic in 1795 and had set regulations for the stock exchange. From 1796 onwards, stock prices were published in the first Dutch daily financial newspaper, the 'Prys-courant der Effecten'. Van der Woude & De Vries explain in their book that Dutch investors encountered two developments during the period 1780 until 1805: a strong increase in demand for their monetary funds and an increase in the level of risk that comes with investing.[6] After the Fourth Anglo-Dutch War[7], the level of foreign investments increased explosively, together with property taxes and compulsory loans to the Republic of Holland. The Republic was desperately searching for funds to finance their defensive capabilities. The level of interest that Dutch investors received on domestic and foreign loans rose from 30 million per year in 1790 to 50 million per year in 1805. There was a strong demand for new loans, making it impossible to finance the enormous new issues of domestic bonds and the even larger demand for capital from foreign countries by reinvesting earnings from current loans. It is estimated that between 1780 and 1804 a figure close to 600 and 775 million guilders floated to the domestic and foreign bond markets. It was a period of disinvesting in economic activities and transferring capital from private investors to the government.[8] Due to economic problems and general war conditions, the former Kingdom of Holland experienced a large increase in public debt. At its height in 1810, the level of debt had grown to 1,232 million guilders. The interest that had to be paid over this debt exceeded the earnings. In 1810, the government

[5] An investment vehicle that is made up of a pool of funds collected from many investors for the purpose of investing in securities such as stocks, bonds, money market instruments and similar assets.
[6] 'The first modern economy: success, failure, and perseverance of the Dutch economy, 1500-1815'. (1997)
[7] The Fourth Anglo–Dutch War (1780–1784) was a conflict between the Kingdom of Great Britain and the Dutch Republic. The war, tangentially related to the American Revolutionary War, broke out over British and Dutch disagreements on the legality and conduct of Dutch trade with Britain's enemies in that war.
[8] Van der Woude & De Vries, 1997, p. 127.

received 33 million guilders in interest earnings while 39 million was due on debt outstanding. Treasury could no longer afford to pay the interest that was due on perpetual bonds. In the 1808 and 1809, the Dutch government had already defaulted on its bonds and no interest was paid out to investors. To prevent this from happening in 1810, Napoleon introduced a measure called tiërcering on July 9, 1810. [9] With this measure, he determined that only one third of interest due would actually be paid out to the investors. Overnight, the interest rate dropped from 3.37 percent to 1.12 percent, reducing the government's interest burden from 41.5 million to 13.8 million. This was a serious financial setback for many wealthy citizens, charities, pensioners and communities, some of which were legally required to invest a large part of their wealth into government bonds. Their financial revenue was reduced by two thirds and consequently the value of their investment decreased dramatically. Not only government bonds were affected by this measure. The level of trust on the Dutch capital markets had taken a massive blow as the foundation under the markets had been swept away.[10] It was a very unpopular, though a necessary measure.

The effective bankruptcy of the nation was acknowledged in 1814 when the independence was restored with the formation of a new Kingdom of the Netherlands. King Willem I imposed the National Debt Law, which converted all public debt into one interest category of 2.5 percent. It was then further divided into an actual liability part and a deferred liability part. The actual liability part would consist of one third of the 1726.5 million guilders of public debt. Every year, four million guilders of deferred debt would transform to actual debt, while the government would yearly redeem four million of actual debt. The market showed little confidence in the ability of the government to honor this commitment. Two years after their issuance, the actual liability bonds traded at 42 percent of their par value, while the deferred liability bonds traded at only 4 percent of par value.

[9] From the French word tierce, meaning a third.
[10] Van der Woude & De Vries, 1997, p. 128.

2.2 Holland Land Company

After the American Revolution (1775 – 1783), America almost defaulted on their treasury bonds. As a result, the government bonds were trading far below par. Dutch merchants had invested large amounts in U.S. government bonds and made huge profits when Alexander Hamilton[11] restructured the nation's debt in 1790. In 1792 and 1793, the well-known and reputable merchant houses of P. Stadnitski, N and J. van Staphorst & Hubbard, P and C. van Eeghen, Ten Cate & Vollenhoven, W. Willink, and R.J. Schimmelpennick were interested in other investment opportunities that the United States had to offer. Together they formed the Holland Land Company and, with the newly earned money, bought a total of 5.500.000 acres of land in New York (see Figure I) and Pennsylvania. Although the original intentions of the merchant are unknown, they found it necessary to retain and develop much of their land for years in order to eventually resell it to settlers. These settlers were often poor people to whom they must extend credit. According to Evans (1924), the merchants of the Holland Land Company became the promoters of these people's lives and guardians of their rights and interests.

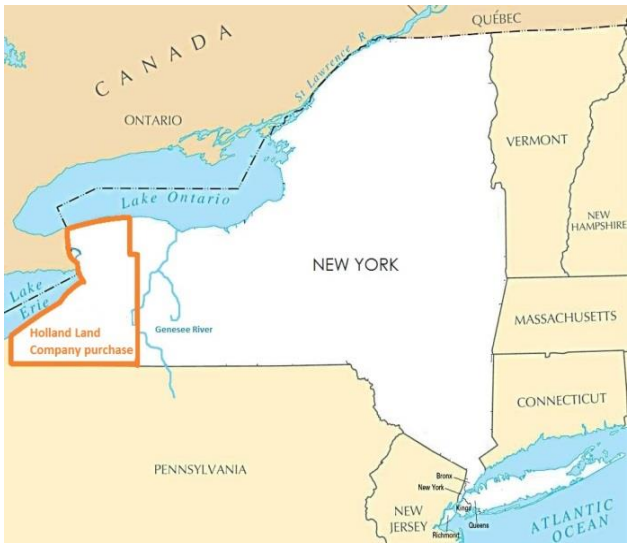


Figure I: The Holland Land Company purchase in the state of New York

In order to make the land attractive for settlers, the company invested in the construction of roads, canals, churches, and mills. These projects were financed by issuing two debt instruments called negotiations on the capital market of Amsterdam in 1793. However, land sales were lagging and expenses were very high. After a few years they changed their strategy; settlers now had to make their own improvements to the acres. Still, sales of the acres remained behind schedule. Settlers were often unable to repay their debts and as a result many debts were not collected. By 1804, cash

[11] 1st United States Secretary of the Treasury, in office from 1789 till 1795.

reserves of the company had declined dramatically and the directors of the Holland Land Company were forced to restructure the debt in order to prevent the company from going bankrupt. The Dutch investors, who previously were creditors of the company, became shareholders as a result of the restructuring. They received an equity stub in the final distribution of the residual profits of the land sales. After the restructuring, the company was in good financial health and continued its operations. In 1849, the firm sold of its last tract of land after which the company was terminated in 1869. In the end, the Holland Land Company did not reap the large profits that were once hoped for. [12] The sale of the western New York lands resulted in a financial gain of 1.4 million dollars, though a loss of one million dollars was sustained upon the purchased tracts in Pennsylvania.

2.2.1 Holland Land Company negotiations

In order to finance the operation, the Holland Land Company issued two negotiations in 1793. These negotiations had a structure very similar to bonds. This section will start by providing an overview of this product. In the Netherlands, the negotiations were issued and sold to the public. A correspondent of the firm in America collected the money from the settlers and sent the receipts to the Netherlands. Once the receipts had arrived, the firm paid the investors their interest after it had deducted a commission for its work. Due to this underlying revenue model, the Holland Land Company negotiations can be seen as asset backed securities. The securities represented the value of the underlying acres of land.

On January 1, 1793 the firms issued their first negotiation which consisted of 3000 shares with a face value of 1000 guilders. The negotiations were issued under the management of Stadnitski for 1.000.000 acres of land in the Genesee valley. Stadnitski told interested investors that land would be sold on credit to settlers who would start to repay their debt after five years. To meet interest payments of five percent in the first five years of operating, the company invested 1.200.000 guilders in American

[12] According to Evans, the original investment was retrieved with interest of five to six percent. It is unclear whether Evans has adjusted the return for risk and has accounted for the time value of money.

government securities in order to address the issue of mismatch between duration of assets and liabilities. On June 1, 1793 another negation was issued for 1.000.000 acres and again 1.200.000 guilders were invested in American government securities to secure interest payments for the first years. Both issues were fully subscribed.

The company was able to meet debt obligations during its first five years of operating, due to the investments in American government securities. However, by 1798 cash reserves of the company had suffered. Land sales were lagging and making surveys took longer than anticipated. The directors feared the funds would be exhausted before the land would be self-supporting. They decided not to draw upon the small cash reserve that was left in the organization and thus interest payments were suspended. Meanwhile, the price for which the negotiations were exchanged on the stock market had already fallen far below par. The sentiment on the market towards land bonds was not positive. In 1796, a land speculation bubble in the U.S. burst. This bubble was caused by a series of land speculation schemes that issued commercial paper backed by claims to Western lands. One of the largest of these schemes was that of merchant James Greenleaf, and financiers Robert Morris and John Nicholson. The three had acquired building lots in the new capital of the United States, Washington D.C. Greenleaf planned to finance the purchased lots with loans from Dutch banks, but failed to do so because of the French invasion in the Netherlands. To consolidate their land holdings, the three formed the North American Land Company in 1795 and started issuing their own notes in order to finance the recent purchases. The detailed story of their downfall will not be recounted here, but by 1797 their paper pyramid had collapsed altogether, sending the speculators into debtor's prison. The burst resulted in a transatlantic legal dispute over the collateral which dragged on for decades. Dutch investor made severe losses as ineffective protection of investor rights and manipulation by Greenleaf reduced the recovery of the collateral (Frehen, et al. 2012). According to Evans, the land speculation bubble caused a general distrust of U.S. land bonds amongst European investors.[13] In December 1798, it became known that interest on the

[13] The Holland Land Company, 1924, p. XII.

Holland Land Company negotiations would not be paid out. As a consequence, the price dropped to one third of its original value.

After a few years of operating, the existence of two negotiations had proven to be difficult to manage. One of the problems was the fair distribution of administrative expenses amongst the two. Furthermore, as the head office of the Holland Land Company had been established on the land of the January negotiation, this negotiation traded at a premium to the June issue. The main problem, however, was that disappointing land sales made it impossible to pay interest on the negotiations. The commissioners decided that simplification was needed and proposed to restructure the company's debt by merging the two negotiations. The proposition was accepted by the shareholders on July 2, 1804. The merger entailed an arrangement for the distribution of receipts that came from the American lands. This money would be used to repurchase a certain amount of shares from investors every year. These shares would be drawn by lot and the investors whose negotiations would be repurchased would receive a stake in any money to be distributed after the retirement of all shares. In order to participate in this arrangement, investors were required to register their shares. 2116 shares of the first issue of 3000 shares were registered and 2061 of the 3450 shares of the second negotiation participated in the arrangement. In the end, investors who did not register regretted their decision as unregistered shares lost half of their value compared to their registered equivalents.

Frehen, et al. (2012) mention several precedents of the American property securities, showing that the Dutch market was familiar with asset backed securities during the late 18th century. Nonetheless, they mention that these negotiations differed from earlier asset backed securities in the way they were entirely dependent on the expected economic benefit derived from land price appreciation, while earlier securities were a means to finance transatlantic commodity trade. In 1809, the American Joseph Ellicott, who was hired by the Dutch merchants to survey the purchased land, said: "*The great objective in my opinion for the Company is to get these lands settled and under improvement. Whilever they remain in a state of nature they have no real value;*

because they are not productive to any individual, and their value will be enhanced in proportion to the extent and populousness of the settlement." (Brooks, 1996, p. 22) The acquired land was located overseas and was in a state of wilderness at the time of purchase. Furthermore, during the 18th century, only very limited sources of information were available to investors. Therefore, it is assumed that investors experienced difficulties in valuing the expected economic benefits of the property that was represented by the negotiations. As a result, it is argued in this paper that investors relied, at least in part, on information from the Prys-courant der Effecten for their valuation. As mentioned before, the Prys-courant der Effecten was the first daily financial newspaper available in the Netherlands and will be further described in the following chapter.

2.3 Prys-courant der Effecten

Although the stock exchange was founded in 1602, it took until 1796 before the first financial newspaper emerged. While other pricelists were already published in small quantities, the Prys-courant der Effecten was the first daily newspaper which was widely spread. It reported quotes of financial instruments that were traded on the credit market of Amsterdam and, as such, was a very important source of information for people interested to invest. The Prys-courant provided investors with the name of the bond, bid and ask price, geographical location to which it was related, coupon rate, and underwriter. The fact that the editors chose to enclose these characteristics makes it plausible that this data was considered to be most useful for investors when valuing financial securities. Hence, it is assumed that these factors will have an influence on the return of the bond. This paper will focus on the effect that the underwriter and bond category have on the bond return. Both variables and their importance for investors during the time of the Holland Land Company will be elaborated on in the next section.

2.3.1 Underwriter

In today's financial markets, investment banks often fulfill the role of underwriter. Underwriters play an important role in bridging the gap between a firm in need of capital and investors looking for an investment opportunity. By reducing the information

asymmetry that is usually present between the issuing firm and the investors, the underwriter is able to lower the informational cost of capital and therefore the overall cost of capital that issuers would have to pay. [14] According to Fang (2005) a good reputation is very important for an underwriting firm as they are repeated players in the financial market. Betraying one party may lead to a short term profit, but future income will undoubtedly suffer. Furthermore, Helou & Park (2001) state that a reputable underwriter makes that the market clears at a higher price for the issuer because investors perceive a good reputation as a positive signal.

During the time of the Holland Land Company merchant houses fulfilled the role of underwriter by bringing together issuers and investors. The main securities in the eighteenth century were bonds issued by governments. When a government wanted to issue new bonds, they had to enter the market on their own. This is where the merchant houses came into play. The sovereign would contact the merchant houses, who would agree to take a fraction of these bonds if they could compose a list of people they could rely upon. The people on this list were the actual investors. The merchants would negotiate with the government on the terms of the bond and, naturally, a larger list would enhance the bargaining position of the merchant house. Therefore, it was very important for the merchants to be trusted by the people on the list and by the sovereign (Iannota, 2010, p. vii). According to Riley, investors distinguished among houses on the basis of the confidence which a firm inspired.[15] This confidence was mainly boosted by long-standing expertise and contacts in a given region. However, a merchant house also had to meet standards concerning the scale of their activities and thus to be able credibly to suggest that it could market and administer a large-scale loan. They had to be able to readily transfer large sums of money to the borrower. In some cases, a merchant house was persuaded in return for better terms to guarantee the success of the issue, and therefore a firm had to have sufficient capital to cover that guarantee if the loan failed to find subscribers. In other cases, subscribers were usually paid in over

[14] Information asymmetry is a situation in which one party in a transaction has more or superior information compared another. This often happens in transactions where the seller knows more than the buyer, although the reverse can happen as well. Potentially, this could be a harmful situation because one party can take advantage of the other party's lack of knowledge.
[15] International government finance and the Amsterdam capital market, 1740-1815, 1980, p. 42.

several months whereas anticipated proceeds were sometimes due soon after issuance. The merchants then had to arrange short-term credit to transfer sums not yet paid in. The wide range of services that merchants had to offer and the importance of their competence made it clear to borrowers and investors that there were only few merchant houses worth considering. Initially, the services of the houses were limited to British and Austrian loans, but the Fourth Anglo-Dutch War made Dutch investors liquidate their British portfolios and reinvest into French, Spanish, Polish, and American government bonds.

The importance of the reputation of merchant houses is visible in the Prys-courant der Effecten, the daily financial newspaper. The merchant house that has underwritten the bond is clearly denoted with each security. From 1813 onwards, the financial newspaper classified the bonds based on the merchant house that had underwritten them, stretching even further the importance of a good reputation (see Figure II). According to Frehen et al. (2012) the reputation of the merchant houses that had underwritten the Holland Land Company bonds could have played an important role in the fact that Dutch investors were willing to take significant risks in exchange for a modest return. The merchants had earned high returns on recent investments in America and, although it was unlikely that creditors would easily be able to liquidate the property in the wilderness of New York, both negotiations were fully subscribed quickly after their issuance.


A M E R I K A.

BIJ H. en J. en R. VAN STAPHORST. p^{Ct}.

Oblig. op 3 p^{Cts}. fondf., van jan., junij en nov. Inter. f 15:— 40 à 41
——— dito, van april 1791 ——— » 20:— 50 à 50¼
——— dito, van julij 1791 ——— » 7:10 20 à 20¼
Aand. in een asſoc. van orig. 6 p^{Ct} fondf., van ¼⅝¾ 5¼ pct. 102 à 102¼
Bewijzen van 3 p^{Cts}. fondſen ..... 80 à 81
——— van 6 — fondſen ..... 103 à 104
——— van 6 — fondſen 1812..... — à —

BIJ DANIEL CROMMELIN en SOONEN.

Oblig. op 6 en 3 p^{Cts}. fondſen, van 15 junij 1791 5¼ p^{Ct} 102 à 103
——— differed debts of uitgeſtelde ſchulden ..... 6 — 102¼ à 103¼
——— liquidated debts, van 15 november 1790 6 — 122 à 123

BIJ TEXIER, ANGELY en MASSAC.

Oblig. liquidated debts..... ..... 6 p^{Ct}. 99¼ à 100¼

BIJ CROESE en COMP.

Oblig. liquidated debts..... 4¼ p^{Ct}. 75 à 76
5¼ · 96 à 97
6 — 101¼ à 102

BIJ STADNITSKI en VAN HEUKELOM.

Oblig. op akkers-land, van 1 januarij 1793 55 à 56 } Waarvoor in de
——— dito, van junij ..... 50 à 52 } loting is getoek.
——— dito, van 1 januarij 1793 30 à 31 } Waarvoor niet
——— dito, van 1 junij ....27 à 29 } geteekend is.

Figure II: Excision from the Prys-courant der Effecten

In the modern day market, a popular measure of underwriter reputation is the Carter-Manaster ranking, which is based on tombstone announcements of equity offerings

(Fang, 2005). [16] Unfortunately, but not surprisingly, no such ranking is available for the merchants houses on the Amsterdam Stock Exchange during the late 18th century. There is no information available regarding the reputability of the merchants relative to each other. However, the Holland Land Company was a syndicate of several Dutch merchant houses, all of which were capable of providing their services to underwrite the negotiations. Among the merchants, the Stadnitski firm was appointed as director of the enterprise and was responsible for underwriting the negotiations, together with the Van Heukelom firm. As a result, it seems reasonable to assume that Stadnitski and Van Heukelom were regarded as the most reputable underwriters, which would make the market clear at the highest price for the Holland Land Company. Therefore, it is expected that bonds issued by Stadnitski and Van Heukelom denoted higher returns than bonds serviced by other merchant homes.

2.3.2 Bond category

In today's financial markets, there are many different types of bonds that can be distinguished. Examples of these are municipal bonds, government bonds, corporate bonds, asset backed bonds, international bonds, and more. Within each of these broad bond sectors there are securities with different issuers, credit ratings, coupon rates, maturities, yields and many more features. During the late 18th and early 19th century, the Prys-courant der Effecten denoted 47 bonds with regard to the United States. In this paper, the bonds will be divided into six categories, based on the revenue model that underlies the bond or a specific event which is at the root of the bond's existence. The six categories are described here:

American funds from the trade organization. These bonds are issued on the trade organization that promoted trade between the Netherlands and America. Although not much is known about this organization, its bonds cover a time span of 23 years in the dataset.

[16] A tombstone announcement is a written advertisement placed by investment bankers in a public offering of a security. It gives basic details about the issue and, in order of importance, the underwriting groups involved in the deal.

Asset backed bonds. This is the main category of interest. The interest payments and value of these types of bonds are collateralized by an underlying asset. In the dataset, this category is made up out of the Holland Land Company negotiations and bonds that are issued on tracts in the city of Washington.

Consolidated government debt bonds. In order to prevent the United States from going bankrupt, Alexander Hamilton restructured the nation's debt by means of the Funding and Assumption Act of 1790. The act entailed the consolidation of all public debt into three categories; the first category would pay six percent interest, the second category would pay six percent interest as of 1800, and the last category would pay three percent interest over the interest that was overdue. In the dataset, the bonds that were issued with regard to the act are categorized as 'Consolidated government debt bonds'.

Corporate bonds. These bonds are issued by corporations to finance their operations. Only one corporate bond, issued by the Amerikaansche Bank, is present in the dataset.

Government bonds. These are bonds issued on behalf of the United States. As there is no notion of an underwriter in the Prys-courant, it is assumed that these bonds are issued without the interference of a merchant house.

Liquidated debt bonds. When the United States of America was founded in 1776, they issued interest bearing certificates called loan-office-certificates. Quickly after their issuance, these debt instruments traded far below par due to a lack of interest from the general public. In 1780, these certificates were renamed 'Liquidated debt', although no actual liquidation had taken place. This category contains all bonds that are issued with regard to these loan-office-certificates and which are issued before the Funding and Assumption Act of 1790.

The main category of interest is the Asset backed bond category, as this is the category to which the Holland Land Company bonds belong. As mentioned before, Frehen et al. (2012) demonstrated that late 18th century Dutch investors had become comfortable

with the principal of asset backed securities. However, the 1796 U.S. land speculation bubble made Dutch investors leery of American land bonds. As a result, it is expected that the category asset backed bonds denotes lower returns than other bond categories in the dataset.

3. RESARCH DESIGN

In this section, the research design is described that is used to test the expectations that are stated in the previous chapter.

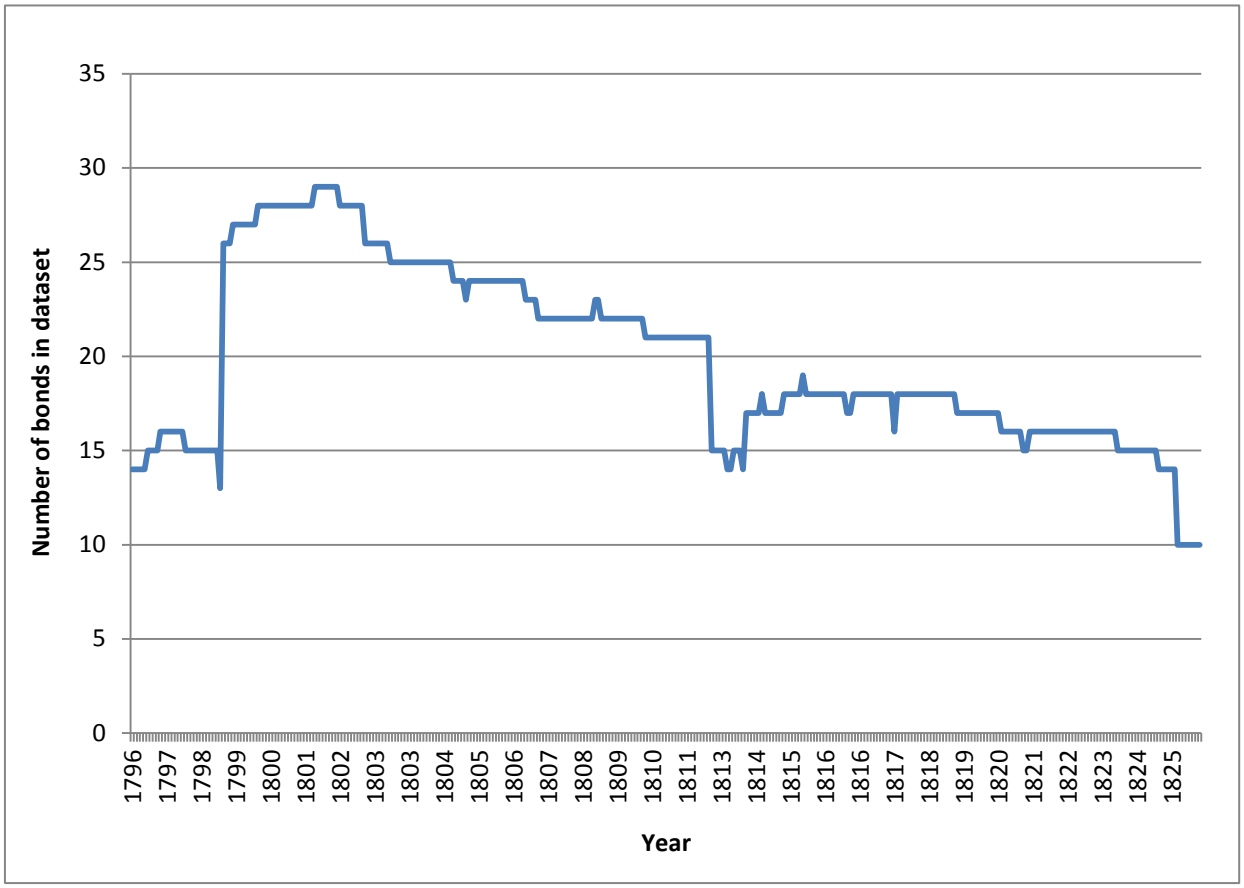
3.1 Data and method

The primary data source used in this study is the 'Prys-courant der Effecten'. An encrypted database is available via http://vvde.preserveer.nl.[17] The sample used in this study consists of 51 bonds that were traded on the Amsterdam stock exchange and that have been issued on the U.S. region during the period September 1796 until December 1825. [18] Monthly data has been gathered, using the last trading day from that corresponding month as a reference. This gives a maximum of 339 observations per bond. However, as bonds are issued with different times to maturity, availability of returns differs across time, as is shown in Chart I. As a result, the majority of the bonds denote less than 339 observations. Two issues are deleted as they are stocks rather than bonds. Furthermore, the two negotiations which were not signed at the Holland Land Company bond merger of 1804 are deleted as they do not represent the true value of the underlying property. After deleting these observations, there are 47 bonds left in the dataset. The variables, which are obtained from the Prys-courant for the analysis are the name of the bond, the bid price, and the ask price.

[17] Access was granted to me by Dr. Frehen.
[18] For the complete list of bond names, see table I in the Appendix.

Chart I
Amount of bonds in sample

This chart shows the number of bonds in the dataset across time. The dataset ranges from September 1796 until December 1825. All bonds are identified through the Prys-courant der Effecten.



3.2 Independent variables

In this section, the independent variables that will be included in the analyses are presented.

Bond underwriter

The underwriter is obtained from the name of the bond. In the dataset, eight different underwriters are denoted. These are: Croese, Crommelin, Rocquette & Elezevier & Beeldemaker, Stadnitski, Staphorst, Texier & Angely & Massas, Van Heukelom, and Hubbard. There are eight bonds of which the underwriter is unknown. Dummy variables are created for every individual underwriter that take the value one if the specific underwriter has serviced the bond and zero if it is serviced by another underwriter.

Bond categorization

The bond categorization is obtained from the name of the bond. As discussed in the previous chapter, bonds are categorized in six different types, namely: American funds from the trade organization, asset backed bonds, consolidated government debt bonds, corporate bonds, government bonds, and liquidated debt bonds. Dummy variables are created for every bond category that takes the value one if the bond falls into that specific category and zero if it belongs to another category.

3.3 Dependent variable

In this section, the dependent variable that will be analyzed is presented.

Bond return

The return of the bond must be determined in order to investigate what the relation between a bond's characteristics and its performance is. The bid price and ask price of the last day of each month have been taken from the Prys-courant. The price of the bond is determined as the average of the bid and the ask price. The Prys-courant denotes the value of the bonds as a percentage of its par value. Hence, the bond price is also denoted as a percentage of par value. In order to compare performances across the dataset the data will be normalized. This is done by calculating monthly logarithmic bond returns. Log returns are used because it is commonly assumed that market returns are normally distributed. In this case, logarithmic are superior to arithmetic returns since the sum of repeated samples from a normal distribution is normally distributed (DMorgan, 2013).

3.4 Model

To test whether the underwriter or the bond category has an effect on the return of the bond, a cross sectional- and a time series analysis will be conducted. During the first part, the cross-sectional returns of every month are regressed upon either underwriter dummies or bond category dummies. The formula to test cross-sectional for underwriters is the following linear regression equation:

$$r_{it} = \alpha_t + \beta_1 UD_{it} + \beta_2 UD_{it} + \beta_3 UD_{it} \ \ldots + \beta_{339} UD_{it} + \varepsilon_{it}$$

To test cross-sectional for bond category, the linear regression equation is:

$$r_{it} = \alpha_t + \beta_1 CD_{it} + \beta_2 CD_{it} + \beta_3 CD_{it} \ \ldots + \beta_{339} CD_{it} + \varepsilon_{it}$$

where:

r_{it} = monthly return
i = bond
t = month
α = constant
β = beta
UD_{it} = underwriter dummy
CD_{it} = category dummy
ε_{it} = error term

After running the analysis for all months in the dataset, 339 betas are obtained per underwriter and bond category. In the second part, the betas are tested during a time-series analysis, to find out whether they significantly differ from zero. This is done by means of a two-tailed t-test, where the betas are tested against zero. In case the obtained betas fall into the critical area, the alternative hypothesis is accepted.

3.5 Other tests

A similar test as in the previous section will be performed for the Holland Land Company bonds. During the first part, the cross-sectional returns of every month are regressed upon dummies for the two negotiations of the Holland Land Company. In the second step, the obtained coefficients from the cross-sectional analysis are tested using a time series analysis to find out whether they significantly differ from zero.

Furthermore, it will be analyzed whether the Holland Land Company bonds performed differently from the rest of the bond market during sub periods. This will be researched

by dividing the dataset into four time periods, after which the same analysis will be conducted as in the previous test.

4. RESULTS

In this section, the results of the analyses will be presented.

4.1 Descriptives

The descriptive statistics of the underwriters and bond categories are presented in Table I and Table II. Three aspects can be observed from looking at Table I. First, from the eight merchants in the dataset, Staphorst and Crommelin prove to be the most active underwriters.

Table I
Summary statistics for underwriters

In this table, the underwriters are given with their corresponding mean, standard deviation, and return. The dataset ranges from September 1796 until December 1825. All bonds are identified through the Prys-courant der Effecten.

Variable	N	Mean	Stdev	Return
Croese	5	77.5	10.3	11.0%
Crommelin	12	95.1	7.7	-6.2%
Hubbard	8	84.2	17.2	-33.3%
Rocquette & Elzevier & Beeldemaker	1	108.2	13.4	-78.2%
Stadnitski	6	92.5	12.4	1.1%
Staphorst	12	92.6	13.5	-14.1%
Texier & Angely & Massas	3	80.8	4.6	4.8%
van Heukelom	3	83.5	13.8	-17.7%
Unknown	8	91.1	4.3	-4.9%

They are involved with the issuance of respectively 13 and 12 bonds on America during the researched period. Other active issuers are Hubbard, Stadnitski, and Croese with 8, 6, and 5 bonds respectively. Second, other than Rocquette & Elzevier & Beeldemaker, all underwriters record prices that trade on average below par value, indicating that investments in America were not always financially successful. Finally, Croese has achieved the highest, unadjusted return with 11.0 percent, followed by Texier & Angely & Massas with an overall return of 4.8 percent. Most merchant houses recorded a

negative overall return, indicating that buying American bonds during the researched period was not likely to be a profitable investment.

Table II denotes all bond categories that are present in the dataset. The consolidated government debt bonds and liquidated debt bonds are the most popular types of bond with 17 and 14 appearances. During the researched period, eight American asset backed bonds were traded on the capital markets of Amsterdam. In accordance with the data in Table I, most bond categories trade below par, again indicating that it was not always profitable to invest in the United States. However, liquidated debt bonds seem to be an exception. Although they achieved a negative return over the period 1796 – 1825, they traded on average above par value. Asset backed bonds do not seem to have been a good investment, having the lowest mean value and recording a negative return of 28 percent. The discrepancy in the level of return indicates that the category to which a bond belongs could have an influence on its price.

Table II
Summary statistics for bond categorization

In this table, the bond categorizations are given with their corresponding mean, standard deviation, and return. The dataset ranges from September 1796 until December 1825. All bonds are identified through the Prys-courant der Effecten.

	N	Mean	Stdev	Return
American funds trade organization	2	92.6	5.8	13.6%
Asset backed bond	8	72.2	9.6	-28.0%
Consolidated government debt bond	17	79.6	8.7	-1.4%
Corporate bond	1	92.9	3.0	9.7%
Government bond	5	94.2	4.4	-0.4%
Liquidated debt bond	14	106.9	13.4	-4.2%

Chart II, which is shown on the next page, shows the different bond categories that underwriters have serviced. With the exception of Rocquette & Elzevier & Beeldemaker, all underwriters service multiple categories of bonds, though never more than three. Furthermore, liquidated debt bonds, asset backed bonds, and consolidated government

debt bonds are underwritten by respectively six, six, and five different underwriters, suggesting that they were well-known and accepted instruments amongst merchant houses.

Chart II
Bond categorization per underwriter

This chart shows all underwriters that are present in the sample with the corresponding amount of bond types that they have issued. The dataset ranges from September 1796 until December 1825. All bonds are identified through the Prys-courant der Effecten.

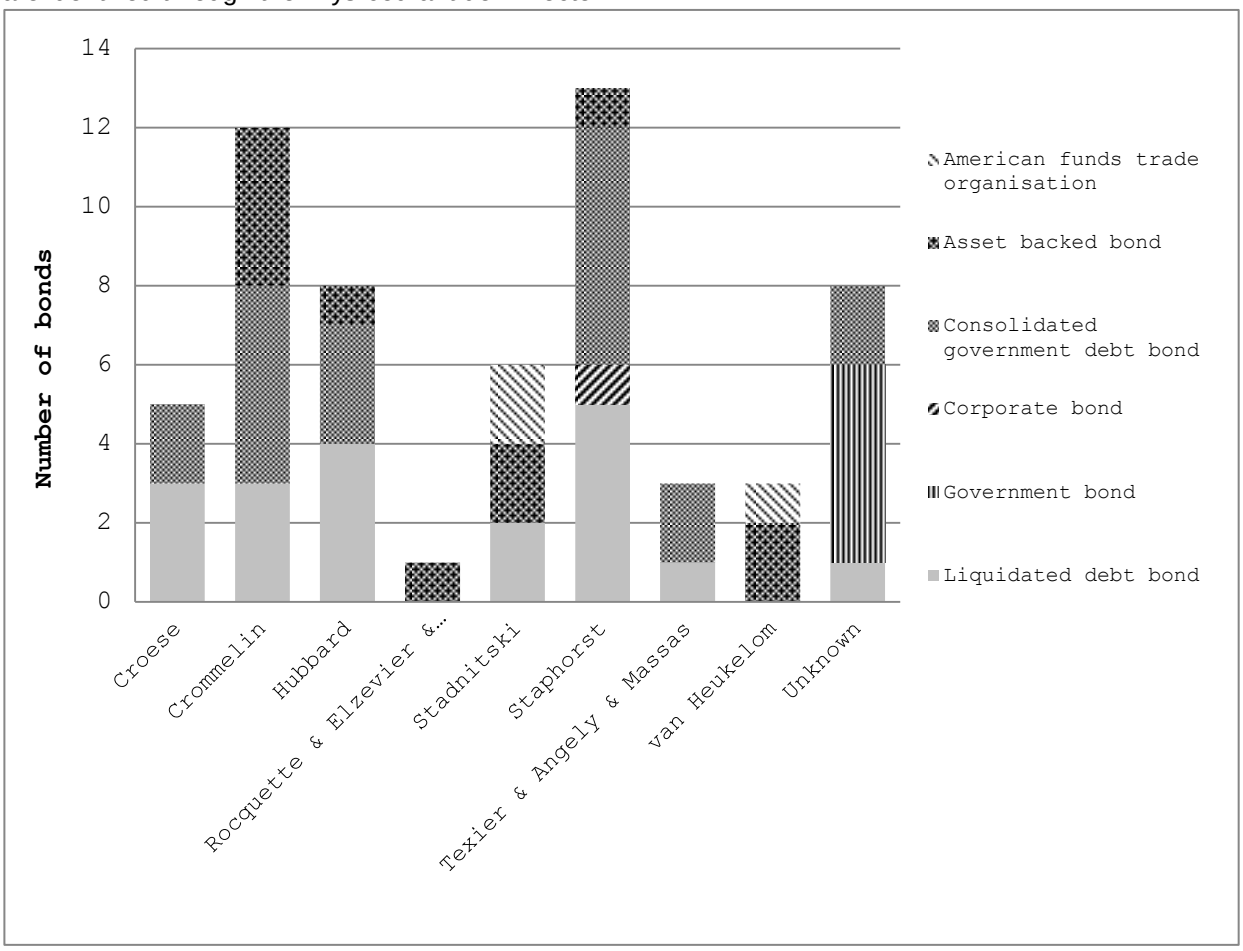
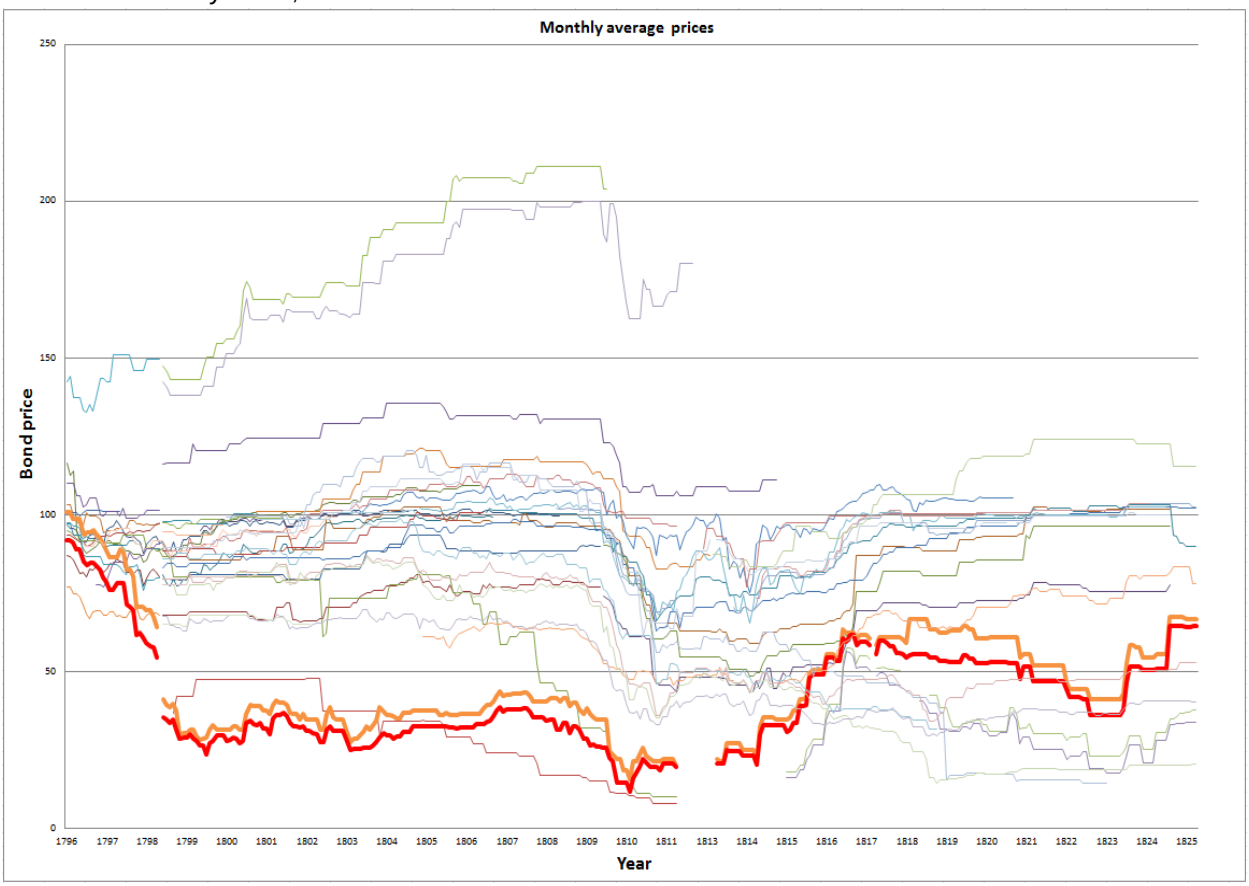


Chart III displays all individual bonds in the dataset. Over the period 1796 – 1799, the Holland Land Company bonds, the thick lines in the graph, experienced a steep drop in price. In 1796 the bonds traded nearly at par value, while three years later the price had decreased to merely 30 percent of par value, a drop of 70 percent. The decline in price

Chart III
Individual bond prices

This chart shows the monthly prices of all individual bonds that are present in the sample. The price is determined as the average of the bid and ask quote of the last trading day of the month. The dataset ranges from September 1796 until December 1825. All bonds are identified through the Prys-courant der Effecten. The Holland Land Company negotiations are represented by the thick lines. The orange line shows the January issue, the red line shows the June issue.



had resulted from the U.S. land speculation bubble burst of 1796, which caused a general distrust of U.S. land bonds. Furthermore, land sales were lagging, making the surveys take longer than anticipated. The directors feared the funds would be exhausted before the land would be self-supporting. When in December 1798 it became known that interest would not be paid out, the negotiations dropped to one third of their original value. During these years, the total market for bonds issued on America dropped 14 percent. A possible cause for this drop is the French Revolutionary War that took place from 1792 till 1802. France declared war on the Dutch Republic in 1793 and seized the country in 1795, after which it established the Batavian Republic as a puppet

state.[19] According to Riley (1980), investors might not have felt safe under the supervision of the French and decided to forego investments are transfer their money to other countries, in order not to finance their military occupier.[20] Furthermore, the tiërcering, which was introduced by Napoleon mid 1810, seems to have had a clear effect on bond prices. Even though the bonds on America were not directly affected by the drastic measure, the measure made that investors lost their faith in the capital market of Amsterdam. During 1810, bonds on America lost on average 20 percent. In 1811, the bonds lost another 16.3 percent of their value. The National Debt Law of 1814, which followed as a result of the tiërcering, is likely to have influenced the 10.5 percent drop in prices of bonds issued on America during 1814.

Finally, the years 1815 and 1816 are characterized by a steep increase in price. The bonds of the Holland Land Company experience an increase of more than 200 percent in value, which is likely to be attributable to the second Anglo-American War of 1812 - 1815[21]. At first, this war was perceived as a threatening disaster for the New York region. However, it soon proved to be a profitable development as many Yankee emigrants who would otherwise have passed by the Holland Land Company tracts in favor of others further west, took counsel of discretion and fixed themselves on lands less exposed to the war zone. The prices of all sorts of foods sky rocketed, making farmers able to considerably reduce their level of debt. According to Evans, money circulation also grew with the presence of a large body of troops on Lake Ontario and the extraordinary growth in number of banks.[22]

[19] A government that is appointed by and whose affairs are directed by an outside authority that may impose hardships on those governed.
[20] International government finance and the Amsterdam capital market, 1740-1815, p. 83.
[21] The second Anglo-American War (also known as the War of 1812) was fought between the United States and Great Britain and lasted from 1812 to 1815. Resulting from American anger over trade issues, impressments of sailors, and British support of Indian attacks on the frontier, the conflict saw the US Army attempt to invade Canada while British forces attacked south. During the war, neither side gained a decisive advantage. In the end, no side gained territory and economic and political rights remained unchanged.
[22] The Holland Land Company, 1924, p. 58.

4.2 Regression results

The regression results of the underwriters are presented in Table III.

Table III
Underwriters

The obtained underwriter coefficients from the cross-sectional analysis are tested using a time series analysis to find out whether they significantly differ from zero. The t-values of these tests are presented in this table. The t-value must be higher than 1.64 or lower than -1.64 to be significant on a ten percent level. For all variables the number of observations, mean, standard error, and t-value is given.

Variable	Obs	Mean	Std. Err.	t
dumcroes	297	0.001	0.002	0.049
dumcrom	339	-0.001	0.002	-0.043
dumreb	130	-0.007	0.004	-1.622
dumstad	311	0.003	0.002	1.485
dumstap	339	-0.001	0.002	-0.381
dumtam	202	0.001	0.003	0.270
dumvheuk	278	0.002	0.002	0.761
dumhubba	310	-0.002	0.002	-1.189

The variables *dumcroes, dumcrom, dumreb, dumstad, dumstap, dumtam, dumvheuk*, and *dumhubba* are dummy variables of the underwriters *Croese*, *Crommelin, Rocquette & Elzevier & Beeldemaker, Stadnitski, Staphorst, Texier & Angely & Massas, Van Heukelom, and Hubbard*. During the cross-sectional analysis, the returns of every month are regressed upon the underwriters, in this case represented by underwriter dummies. This gives a coefficient for every month that the underwriter has recorded a return. In the next step, it is tested per underwriter whether the coefficients that are obtained differ significantly from zero. In the table above, the mean describes the average of the coefficients. A positive mean indicates that when a certain underwriter has been involved with the issuance of a bond on America, it has a positive effect on the return. Likewise, a negative mean means that the involvement of a certain underwriter has a negative effect on the return of the bond. The t-value in the fifth column shows whether the mean differs significantly from zero. From this column in the table, it can be concluded that neither the services of Stadnitski nor that of Van Heukelom have had an effect on the performance of the bonds they have underwritten. Furthermore, none of the underwriters in the dataset has a coefficient that is on average

significantly different from zero on a ten percent significance level. Therefore, it cannot be concluded that the underwriter had an influence on the return of bonds on America during the researched period. This is not in line with what was expected. A possible explanation for the lack of significant results is the length of the timespan over which the effect is measured. In this analysis, the influence of the underwriter is measured over the total period during which the bond is present in the dataset. However, current literature concerning the underwriter effect examines long-run performance of IPO's over a three-year period (Ritter, 1991, Loughran and Ritter, 1995, Carter, Dark and Singh, 1998). Although it is not said that the underwriter effect is absent beyond this period, it is likely that the effect dilutes over time.

Table IV
Bond categorization

The obtained bond category coefficients from the cross-sectional analysis are tested using a time series analysis to find out whether they significantly differ from zero. The t-values of these tests are presented in this table. The t-value must be higher than 1.64 or lower than -1.64 to be significant on a ten percent level. For all variables the number of observations, mean, standard error, and t-value is given.

Variable	Obs	Mean	Std. Err.	t
dumafto	182	0.000	0.002	0.057
dumabb	279	-0.003	0.003	-1.166
dumcgdb	327	-0.003	0.001	-1.893
dumcb	52	0.001	0.003	0.290
dumgb	148	-0.001	0.001	-0.384
dumldb	278	-0.003	0.002	-1.845

The regression results of the bond categories are presented in Table IV. The variables *dumafto , dumabb, dumcgdb, dumcb, dumgb,* and *dumldb* are dummy variables of the bond categories *american funds of the trade organization, asset backed bonds, consolidated government bonds, corporate bonds, government bonds,* and *liquidated debt bonds.* The same analysis as in the case of the underwriters is used. A positive mean indicates that the category to which a bond belongs has a positive effect on the return of the bond. A negative mean indicates that the category to which a bond belongs has a negative effect on its return. The fifth column shows that both dumcgdb and

dumldb are significant on a ten percent level with t-values of -1.893 and -1.845. This means that the mean of the coefficients from *consolidated government debt bonds* and *liquidated debt bonds* is significantly different from zero. Both means are negative, indicating that the bond category to which these bonds belong have a negative influence on the return of the bonds. Asset backed bonds, to which the Holland Land Company bonds belong, also do not show a significant result. This is not in line with what was anticipated. A possible explanation might be that the sentiment towards land bonds changed for the better over the course of the researched period. This change likely emerged when sales of the Holland Land Company lands started to take off after the company had undergone a structural reorganization.

Table V
Performance of Holland Land Company bonds

The obtained Holland Land Company bond coefficients from the cross-sectional analysis are tested using a time series analysis to find out whether they significantly differ from zero. The t-values of these tests are presented in this table. The t-value must be higher than 1.64 or lower than -1.64 to be significant on a ten percent level. For all variables the number of observations, mean, standard error, and t-value is given.

Variable	Obs	Mean	Std. Err.	t
dumhlcbonds	323	0.002	0.003	0.567

The subsequent part of this study will focus on the performance of the Holland Land Company bonds in contrast to the rest of the sample. The variable *dumhlcbonds* is a dummy variable for the two Holland Land Company negotiations. Again, we use a similar procedure as in previous tests. A positive mean indicates that the bonds have outperformed the other bonds and a negative mean indicates that the bonds would have performed worse than their equivalents. The t-value in the fifth column of Table V shows a value of 0.567, indicating that the mean is not significantly different from zero on a ten percent level. Therefore, it cannot be concluded that Holland Land Company bonds have performed significantly better or worse than other bonds over the course of the researched period. This is not as expected, since Chart III showed that the negotiations have seen strong decreases and increases in price during the researched period.

Therefore, the dataset will now be split up into four terms, in order to test the performance of the negotiations during smaller periods in time.[23]

These periods are September 1796 – September 1803, October 1803 – October 1810, November 1810 – December 1818, and January 1819 – December 1825. A cross-sectional analysis will be performed, where the returns of every month in the subset are regressed upon the Holland Land Company bonds. This gives a coefficient for every month in the subset that the Holland Land Company bonds have recorded a return. In the next step it is tested whether the coefficients that are obtained differ significantly from zero. The mean describes the average of the coefficients. A positive mean indicates that the Holland Land Company bonds have denoted higher returns than the rest of the bond market; a negative mean indicates lower returns. Table IV shows the results.

Table VI
Sub period performance of Holland Land Company bonds

The obtained Holland Land Company bond coefficients from the cross-sectional analysis are tested using a time series analysis to find out whether they significantly differ from zero during the sub period. The t-values of these tests are presented in this table. The t-value must be higher than 1.64 or lower than -1.64 to be significant on a ten percent level. For all variables the number of observations, mean, standard error, and t-value is given.

Variable	Obs	Mean	Std. Err.	t
1796sep-1803sep	83	-0.011	0.005	-1.943
1803oct-1810oct	85	0.000	0.006	0.061
1810nov-1818dec	71	0.017	0.008	2.087
1819jan-1825dec	84	0.001	0.005	0.225

The t-value shows a negative and significant result for the period September 1796 – September 1803 and a positive and significant result for the period November 1810 – December 1818. The former is a good indication of the difficulties the organization had to cope with during its first decade of existence. The burst of the U.S. land speculation bubble in 1796, lagging sales of the purchased acres, and shrinking financial reserves

[23] In order to check for robustness, another test is performed with five sub periods. The results of this test are given in the Appendix and are further explained in section Limitations and robustness checks section of this paper.

of the company had its effect on the return of the negotiations. As a result, they performed worse than other bonds that were issued on America.

The latter is a noteworthy finding, as it makes it more likely that investors were able to value asset backed bonds based on the value of the underlying asset. As mentioned before, the second Anglo-American War was fought during this period and turned out to be profitable development for the local settlers. They were able to reduce the level of debt which they owed to the Holland Land Company. Consequently, the company received a steady flow of receipts from America. The war provided specific benefits to the Holland land Company bonds, which other bonds on America did not have. It is therefore likely that their outperformance during these years can be attributed to the fact that local settlers were reducing their level of debt. Hence, it seems that investors valued these asset backed bonds on the amount of the receipts that were received.

5. LIMITATIONS AND ROBUSTNESS CHECKS

A limitation of this paper is the lack of sufficient sources of information, due to the historical nature of the topic. As a consequence, a possible limitation of this research is the lack of control variables. The regressions are run without control variables because they are simply not available for the researched time frame. Therefore, it cannot be ruled out that the dependent variable is influenced by factors other than the independent variables that are included in the analysis.

Furthermore, geographical bias might be a limitation as this research solely makes use of bonds issued on America. Therefore, the results may not be representative for bonds issued on other parts of the world. Further research can be done on the value drivers of bonds issued on other locations.

Another limitation of this study is the lack of literature on historical bonds. The fact that only little light has been shed on this topic makes it difficult to categorize these bonds. The bonds in this paper have been categorized using common sense and information available at the moment, whilst no actual literature exists. This provides room for error in

the results and makes the categorization arbitrary; a different classification might yield different results.

Moreover, the analysis which tests the performance of the Holland Land Company bonds during sub periods might be subject to limitations. Therefore, a robustness check will be performed to check whether the sub period results remain significant when the test is slightly altered. For this check, the sample is split up into five sub periods instead of four. These sub periods are September 1796 – April 1802, May 1802 – December 1807, January 1808 – September 1814, October 1814 – May 1820, and June 1820 – December 1825. The expectation is that period September 1796 – April 1802 and January 1808 – September 1814 will return similar results as the significant periods in the previous analysis. The results can be found in the Appendix. The sub period January 1808 – September 1814 remains significant and positive. However, the sub period September 1796 – April 1802 is still negative but no longer significant. This might be due to the shortened timespan which leads to fewer observations.

6. CONCLUSION

This research tried to shed more light on the value drivers behind the negotiations issued by the Holland Land Company. The data is gathered from the Prys-courant der Effecten and ranges from 1796 until 1825. The results do not show that there is a relation between the underwriter of a bond and the return of that bond. As a result, it cannot be concluded that the underwriter has had an effect on the performance of the Holland Land Company negotiations. With respect to the influence of the corresponding bond category, the results show that the consolidated government debt category and liquidated debt category have a negative influence on the return of the bond. However, no effect has been found for the asset backed bonds. Therefore, the negotiations of the Holland Land Company do not seem to have been influenced by the fact that they belong to this bond category. Moreover, over the total researched period, the results do not show that the Holland Land Company negotiations have performed differently from the rest of the bond market. However, over the sub period September 1796 – September 1803 the negotiations performed significantly worse than the rest of the

bond market while during November 1810 – December 1818, the Holland Land Company negotiations performed significantly better than equivalent securities. A robustness check with altered sub periods supports the findings of the latter result. This may indicate that investors were aware that the Holland Land Company negotiations represented the acres land in New York and valued them according the amount of receipts that were received from the settlers.

7. RECOMMENDATIONS

This paper tries to shed light on the value drivers behind the negotiations of the Holland Land Company. The results do not show that the variables, which are identified as possible value drivers in this research, have had an influence on the performance of the bonds. However, the study focuses solely on cross-sectional variables, while the price most likely has also been influenced by times series variables. Therefore, future research could be done on identifying the effect of important historical events on these securities, for example the influence of tiërcering or the several wars that war fought during this period in time. Moreover, the identified value drivers in this paper are based on the information that was available to investors through the Prys-courant der Effecten. Alternative sources of information might give a different insight on which information was considered to be important. To identify which alternative sources were available to the Dutch investors at the time, field research should be performed.

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APPENDIX

Table I
List of bonds

List of bonds that are issued on America during the period 1796 – 1825. Obtained from the Prys-courant der Effecten. Included is the corresponding underwriter and bond category.

Bond name	Underwriter	Category
Oblig. op 6 en 3 pCt. Fondfen, by Croefe en Comp.	Croese	Consolidated government debt bond
Oblig. op 6 en 3 pCt. Fondfen, by Croefe en Comp.	Croese	Consolidated government debt bond
Oblig. dito, bij dito	Croese	Liquidated debt bond
Oblig. dito, bij dito	Croese	Liquidated debt bond
Oblig. Idem, by Croefe en Comp.	Croese	Liquidated debt bond
Oblig. Beleening op Americaanfche Fondfen, by Crommelin en Soonen	Crommelin	Asset backed bond
Oblig. Beleening op gemelde Fondfen met Premie, by Crommelin	Crommelin	Asset backed bond
Oblig. op Gronden, gelegen in de Stad Washington	Crommelin	Asset backed bond
Oblig. Idem idem, zonder Premie, by dito	Crommelin	Asset backed bond
Oblig. op idem en 6 pCts. Fondfen. by Crommelin	Crommelin	Consolidated government debt bond
Oblig. Deferred, of Uitgeftelde Schulden, by Crommelin en Soonen	Crommelin	Consolidated government debt bond
Oblig. Deferred of Uitgeftelde Schulden	Crommelin	Consolidated government debt bond
Oblig. op 6 en 3 pCt. Fondfen, by Crommelin en Soonen, van 15 Juny 1791	Crommelin	Consolidated government debt bond
Oblig. Idem, by Crommelin en Soonen	Crommelin	Liquidated debt bond
Oblig. Idem, by Crommelin en Soonen, van 15 Nov. 1790	Crommelin	Liquidated debt bond
Oblig. liquidated debts, van 15 november 1790, bij dito,	Crommelin	Consolidated government debt bond
Oblig. Idem, by Crommelin en Soonen, van 15 Nov. 1790	Crommelin	Liquidated debt bond
Oblig. Idem, idem, by Rocquette, Elzevier en Beeldemaker	Rocquette & Elzevier & Beeldemaker	Asset backed bond
Oblig. Liquidated Debts, met Premie by Stadnitski	Stadnitski	Liquidated debt bond
Oblig. Americaanfche Fondfen uit de Handel-Societeit, nu by Stadnitski en Cuperus	Stadnitski & Cuperus	American funds trade organisation
Oblig. Liquidated Debts, met Premie, by Stadnitski en Staphorst	Stadnitski & Staphorst	Liquidated debt bond
Oblig. op Akkers Land, 1 Jan. 1793, by Stadnitski	Stadnitski & Van Heukelom	Asset backed bond
Oblig. Idem idem, 1 Juny 1793, by dito	Stadnitski & Van Heukelom	Asset backed bond
Oblig. Americaanfche Fondfen uit de Handel-Societeit, by Stadnitski en Van Heukelom	Stadnitski & Van Heukelom	American funds trade organisation
Bewyzen van 3 pct Americaanfehe Fondfen, by dito	Staphorst	Consolidated government debt bond
Bewyzen van 6 pct Amricaanfche Fondfen, Louifana Schuld, bij dito	Staphorst	Consolidated government debt bond
Bewijzen van 6 pCt, fondfen 1812, bij dito	Staphorst	Consolidated government debt bond
Oblig. Beleening op Americaanfche Fondfen, by Staphorst en Hubbard, 1 Maart 1801	Staphorst & Hubbard	Asset backed bond
Oblig. op 6 en 3 pCt. Fondfen, by Staphorst en Hubbart	Staphorst & Hubbard	Consolidated government debt bond
Oblig. op 6 en 3 pCt. Fondfen, by Staphorst en Hubbart, van April 1791	Staphorst & Hubbard	Consolidated government debt bond
Oblig. op 6 en 3 pCt. Fondfen, by Staphorst en Hubbart, van July 1791	Staphorst & Hubbard	Consolidated government debt bond
Oblig. Idem, by Staphorst en Hubbard	Staphorst & Hubbard	Liquidated debt bond
Oblig. Idem, by Staphorst en Hubbart, van Septemb. 1790	Staphorst & Hubbard	Liquidated debt bond
Oblig. Idem, by Staphorst en Hubbart, van Septemb. 1790	Staphorst & Hubbard	Liquidated debt bond
Oblig. Idem, by Staphorst en Hubbard, van January 1791	Staphorst & Hubbard	Liquidated debt bond
Oblig. Americaanfche Bank by Staphorst	Staphorst & Willink	Corporate bond
Oblig. op 6 en 3 pCt. Fondfen, by Texier, Angely en Masfac	Texier & Angely & Massas	Consolidated government debt bond
Oblig. op 6 en 3 pCt. Fondfen, by Texier, Angely en Masfac	Texier & Angely & Massas	Consolidated government debt bond
Oblig. Idem, by Texier, Angely en Masfac	Texier & Angely & Massas	Liquidated debt bond
Oblig. op 6 en 3 pCts. Fondfen. by Diverfen	Unknown	Consolidated government debt bond
Oblig. op 6 en 3 pCts. Fondfen. by Diverfen	Unknown	Consolidated government debt bond
Oblig. Liquidated Debts, Zonder Premie, by Diverfen	Unknown	Liquidated debt bond
Oblig. met Premie	Unknown	Government bond
Oblig. op de Vereenigde Staaten	Unknown	Government bond
Oblig. op de Vereenigde Staaten	Unknown	Government bond
Oblig. Idem, van 1787, 1788 en 1790, welke in de Uitlo-looting vallen	Unknown	Government bond
Oblig. zonder dito	Unknown	Government bond

Table II
Sub period performance of Holland Land Company bonds - Robustness

The obtained Holland Land Company bond coefficients from the cross-sectional analysis are tested using a time series analysis to find out whether they significantly differ from zero during the sub period. The t-values of these tests are presented in this table. The t-value must be higher than 1.64 or lower than -1.64 to be significant on a ten percent level. For all variables the number of observations, mean, standard error, and t-value is given.

Variable	Obs	Mean	Std. Err.	t
1796sep-1802apr	66	-0.009	0.006	-1.487
1802may-1807dec	68	0.002	0.002	0.382
1808jan-1814sep	56	-0.001	0.004	-0.054
1814oct-1820may	66	0.013	0.002	1.762
1820jun-1825dec	67	0.001	0.002	0.157