The quality of slave trade investment in eighteenth century France[*]

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Abstract

This paper studies the characteristics of investment in slave trade and associated trades in France during the eighteenth century. The study of the accounts of an investor from Nantes, Bertrand de Cœuvre, shows that his investment compared favourably with domestic alternatives. It was more liquid, shorter and more profitable than private notarized credit without being more risky. It was less risky and had a shorter duration than government debt, without being less liquid or less profitable. The study of investments in a total of 238 ventures from Nantes, Marseilles, Rouen, Bordeaux, La Rochelle and Saint-Malo confirms that superiority from the 1710s to the 1780s. The fact that domestic investors and their capital were attracted to the centres of intercontinental trade investment during the period corroborates this conclusion.

Keywords: Profits, Slave trade, France, 18th century, international trade.

JEL Classification: F1, N7, N8.

Introduction

According to Marx, the relations between European nations and the rest of the world played a great role in the "primitive accumulation" of capital before the Industrial Revolution[1]. This view has been shared by Eric Williams[2] and, more recently the World System school researchers: Wallerstein, Frank, Amin, etc[3]. As the more striking aspect of intercontinental trade before the eighteenth century was the triangular trade, a heated debate has developed on the profits of slave trade. This debate has focused on the case of England[4].

However, the growth of trade between Europe and the rest of the world was not an English phenomenon. The largest trading power in Europe at the end of the 1780s was France. Its total intercontinental trade — including re-exports to the rest of Europe — was 25 million pounds sterling against 20 million pounds sterling for England. Its growth since the 1710s had been faster than the growth of English trade[5]. As such, French trade is an important case to study for anyone interested in the relations between Europe and the other continents during the eighteenth century.

This paper studies the profitability of investment in French slave trade and related trades. It starts with methodological remarks. They are followed by the examination of the attractive character of the investments of a single investor, Bertrand de Cœuvre. The study of other published investments confirms that investment in slave trade and related trade was more desirable than domestic alternatives. Finally, the paper provides supporting evidence and concludes.

Part 1: Methodological remarks

A typical French slave trade expedition would proceed in the following manner. An outfitter would gather capital from investors under quasi-equity arrangement by selling ship

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[1] Marx (1867 (1993)), First book, section 7, chapter 24.

[2] Williams (1944 (1966)).

[3] Cf. Amin (1974) Frank (1978); Wallerstein (1980); Wallerstein (1989). This list is not complete. Cf. Crouzet (1972), p. 8 for Williams's predecessors.

[4] Cf. the debate around Inikori (1981) : Anderson & Richardson (1983) ; Inikori (1983) ; Anderson & Richardson (1985) ; Darity (1985).

[5] Arnould (1791), table 1 and 2, Davis (1969) for early 18th c. English trade, Davis (1979), pp. 94-5, 102 and 110, for late eighteenth c. English trade.

shares. The outfitter would typically provide only a small fraction of the total outfit cost. The ship would go to Africa, sell its goods and buy slaves and then go to the West Indies to sell slaves. The proceeds of the sale would be transformed into colonial goods that would be brought back to France and sold there. The proceeds of this last sale were then distributed to investors. That took time, as slave cargo were more valuable than colonial goods cargo: a single slave cargo required four to six direct trade operations with the West Indies to remit its income in colonial goods[6].

To study the quality of investment, we have to look into investors' accounts. Investors provided capital. Income of captains and outfitters — that provided both capital and work — should not be taken into account without estimating what share of their income went to work[7]. This is an additional difficulty we will not try to deal with.

The final profitability of a slave trade expedition depended crucially on how fast could the proceeds of the slave sale be repatriated. This is just one of the example of the fact that profit is only one aspect of the attractiveness of an investment. Liquidity, maturity and risk have also to be taken into account to assess the quality of investment. Even thought eighteenth century investors were not using modern tools to assess investments[8], we should. They allow us to debate objectively around notions that investors understood and took into account: profits of course, but also liquidity, maturity and risk. But these notions are all relative rather than absolute. Slave trade investments should not be examined by themselves, but should be compared to other investments.

There have been three ways of examining the attractiveness of investment in slave trade. This paper will look into actors' own accounts of profits[9]. An alternative would be to study a theoretical investment from estimates of prices and costs. Relying on the quality of numerous estimates increases the chances of being mislaid by a single one of them[10]. Yet another approach, in the words of Inikori, is to "generalize about the profitability of the trade on a basis of an *a priori* application of the theory of competition relating profits to market structure". This method depends both on a proper analysis of the existing market structure and

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[6] Tarrade (1972), pp. 113-5; Saugera (1995), pp. 237-8.

[7] However it must be noticed that someone might be a "passive capitalist", that is an investor, in regard to a particular investment while being an "active capitalist", that is an outfitter for another one.

[8] Although it would be wrong to undervalue the sophistication of eighteenth-century investors: cf. Velde & Weir (1992), p. 11.

[9] Richardson (1975); Inikori (1983) and the replies; for France: Stein (1975)

[10] Anstey (1975b); Anstey (1975a); Richardson (1987); Darity (1989); Richardson (1989).

on the proper use of applicable theoretical results. It is faced with two difficulties rather than one[11]. Looking into actual profit accounts is a more direct way to measure the quality of investment.

Part 2: Bertrand de Cœuvre's investment

The best published source available to study French profits in slave trade are the estate accounts of Bertrand de Cœuvre fils. They have been fully transcribed and published by Meyer in a book recently re-printed[12]. Studying a source already published might seem useless. However, the tools Meyer used to analyse these data can be improved on by using modern investment evaluation instruments.

These accounts were established between 1794 and 1798. The last operation recorded took place in 1796. The main two documents are a summary report of all the investments made by Bertrand de Cœuvre and his father and a detailed report of the investments made by Bertrand de Cœuvre himself. Out of these, the detailed report describes 29 investments for which no money was owned anymore. Each investment is a share in a ship. The 29 investments correspond to 65 travels: 39 slave trade ventures, 23 direct West Indies trade ventures, and three miscellaneous ventures: one to China, one to India and one to "Amérique" — probably the U.S.A. Returns coming from different travels by the same ship are aggregated. It is not possible to discriminate between West Indies trade investments and slave trade investments, as the same ship would do both kinds of travels during its career. For these investments, the full schedule of cash inflows is given: we now exactly when the outfitters paid money to Bertrand de Cœuvre. Information on outflows is sketchier: the costs associated with the preparation of each travel — outfitting — are given simply with the year of the travel[13].

These 29 investments are the core of our analysis of the quality of investment in slave trade and related trades.

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[11] Thomas and Bean (1974). The phrase is taken from Inikori (1981).

[12] Meyer (1969). The data are to be found pp. 384-439. The discussion of the data by Meyer is pp. 215-224. A copy of the data is available upon request.

[13] An additional cost is given as well, associated to a particular travel, but without any date. It is named "*Quote-part des dépenses depuis la mise-hors*": I will suppose that this cost was incurred between the outfitting and the departure of the ship. Some outflows lack a date. Here are the choices we have made to give them one. Last investment on the *St.-Charles* (dossier n°5): 1777 (as this is given elsewhere as the last date of outfitting). Second investment on the *St.-Hilaire* (dossier n°14): 1766 (as there is one investment in 1765 and one in 1767) ; Last investment on the *Le Quartier Morin* (dossier n°37): 1778 (as this is given elsewhere as the last date of outfitting).

2.1. Rate of profit

The most popular measure of the quality of an investment is the rate of profit it provides. However, this notion is not as useful as it seems. The rate of profit is the ratio between the income coming from an investment and its price. But getting 5% of the capital over 30 years or nothing during 29 years and then 150% on the last year are two different things, even if the rate of profit and the maturity of both investments are the same. Two main standard criteria are used nowadays to take into account the schedule of cash flow[14]. The first one is to compute the present value of an investment. However, that requires to use an *a priori* interest rate as a reference. The second one is to compute the internal rate of return of each investment. The internal rate of return of an investment is the interest rate that would make its present value equal 0. To put it in other words, for an investment bought at year 1, it is the *r* that verifies:

Erreur! Signet non défini.

The difficulty with using the internal rate of return is that the full schedule of cash flows has to be available. That is the case for 29 of Bertrand de Cœuvre's investments, made from 1756 to 1792, and for which no money was still owned in 1797. The internal rate of return of Bertrand de Cœuvre's portfolio was 6%[15].

That compares favourably with alternative investments:

– The maximum legal rate of interest, had been fixed at 5% in 1665. It was the same in England. In France, it did not change until 1807[16].

– Because of legal problems linked to the notion of usury, there were only two investment instruments in the traditional notarized credit: *obligations* and *rentes*. *Obligations* were zero-coupon bonds. Only the date and the capital to be repaid was ever specified in the contract: it is not possible to compute the interest rate. For that reason, we cannot use them in this study. *Rentes* were perpetual bonds serving a constant interest. The capital and the interest paid were specified in the contract: in Paris at least, "around 1750, the legal rate had imposed itself to a great extent"[17]. In the same way, the interest rate charged on *rentes*

[14] Luenberger (1998), pp. 24-27.
[15] We have taken into account inflows and outflows at the yearly level rather than the monthly or daily level. For comparison, his rate of profit was 23%.
[16] Postel-Vinay (1997), p. 86.
[17] Postel-Vinay (1997), pp. 91-98, especially p. 92.

converged toward 5% in rural markets[18].

– Short-term commercial interest rates varied much more, and yet, the mean of the price of short-term loans between Paris and London was 4.99% between 1740 and 1790[19].

– It is difficult to point to a single interest rate for French government debt, as it was not consolidated[20]. Different assets had different interest rates depending on how strong was their default risk. Starting in 1737, the state offered lifelong rentes at a rate of 10% per year: that corresponded to an internal rate of return higher than 5%[21]. That rate went up to 12% during the Seven Years War (1757-1763), and after Terray's partial bankruptcy in 1770, varied between 6 and 8%. The most secure French debt obligations were the *Rentes sur l'Hôtel de Ville de Paris*, and, after 1770, the October Loans. Their interest rates varied usually between 4.8% and 6.5% between 1746 and 1792[22].

– Velde and Weir suggest that the level of interest rate was similar in France and in England. That allows us to take into account English rates. In England, the interest rate on mortgages was around 4.5%[23]. In 1788, debt service was 7.5% of the French state debt, but only 3.8% of the English state debt[24]. English debt was remunerated between 3 and 3.5%, the debt of Dutch public corporations was remunerated between 2.5% and 3%[25].

– Comparison of land prices and rents suggest that land investment had a remuneration varying between 3.5% and 4.5% in England and France, including an presumed .5% capital gain per year[26].

To sum up, the internal rate of return of Bertrand de Cœuvre's portfolio was comparable to that of the most secured French state debts. It was between 33% and 70% higher than the return of a land portfolio, and 20% higher than a return on *rentes*.

2.2. Risk

This high rate of return could be a compensation for extra risk. To affirm that slave trade

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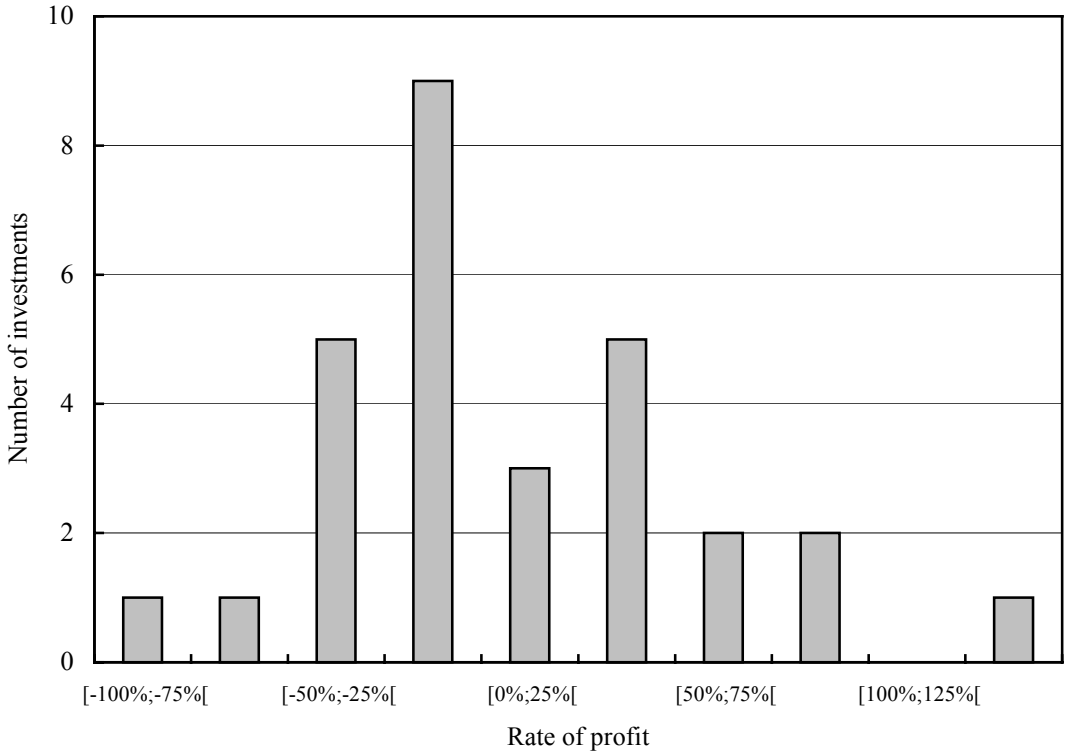
[18] Rosenthal (1993), pp. 133-4.
[19] Luckett (1992), quoted by Postel-Vinay (1997), p. 90.
[20] Velde & Weir (1992).
[21] Riley (1986), p. 176.
[22] Velde & Weir (1992), p. 14.
[23] Velde & Weir (1992), p. 19.
[24] Crouzet (1993), pp. 58-76.
[25] Net of tax. Thanks to Jan Luiten van Zanden for bringing this fact to my attention. Cf. Riley (1980), p. 72.
[26] Cf. Velde & Weir (1992), p. 19: they quote debates during the nationalization of church goods and different

was a risky lottery-like business is a banality. Despite insurances, the rentability of individual expeditions varied widely. That is confirmed by the distribution of the rate of profit in the Bertrand de Cœuvre's investments, as illustrated in graph 1.

Graph 1: Dispersion of profit rates in Bertrand de Cœuvre's 29 trade investments



Source: cf. text.

However, the common idea that variance is a good measure of risk is wrong. The risk premium associated with an investment is not linked to the variance of its returns, but to its covariance with other similar investments[27]. There are two types of risk: "private" risk is associated with each individual investment whereas "market" risk is associated with the whole sector. If private risk is high and market risk is low — high variance but low covariance — it is possible to protect against risk by diversifying. In the absence of any large covariance among the returns of slave expeditions, it was possible to create a safe portfolio composed of small participations in many slave expeditions.

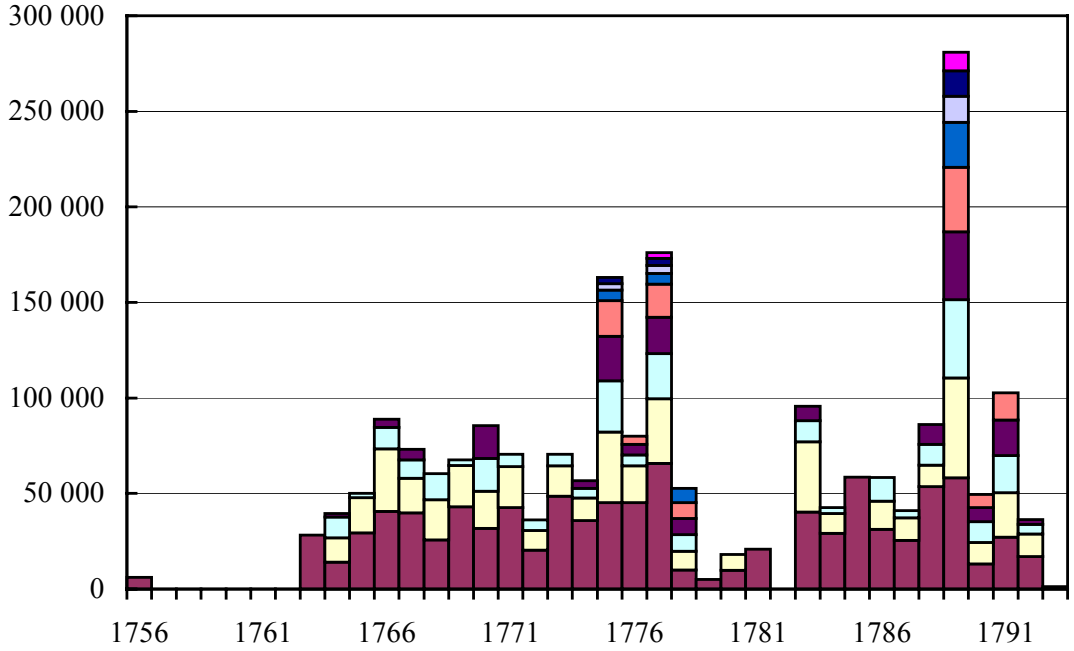
Graph 2 shows that Bertrand de Cœuvre fils did follow a strategy of investment

regional studies: Frêche (1974), pp. 568-73; Poitrineau (1965), pp. 513-514; Saint-Jacob (1960), p. 293.

[27] The CAPM (Capital Price Asset Market) model is an illustration of that. Cf. Luenberger (1998), pp. 205-6.

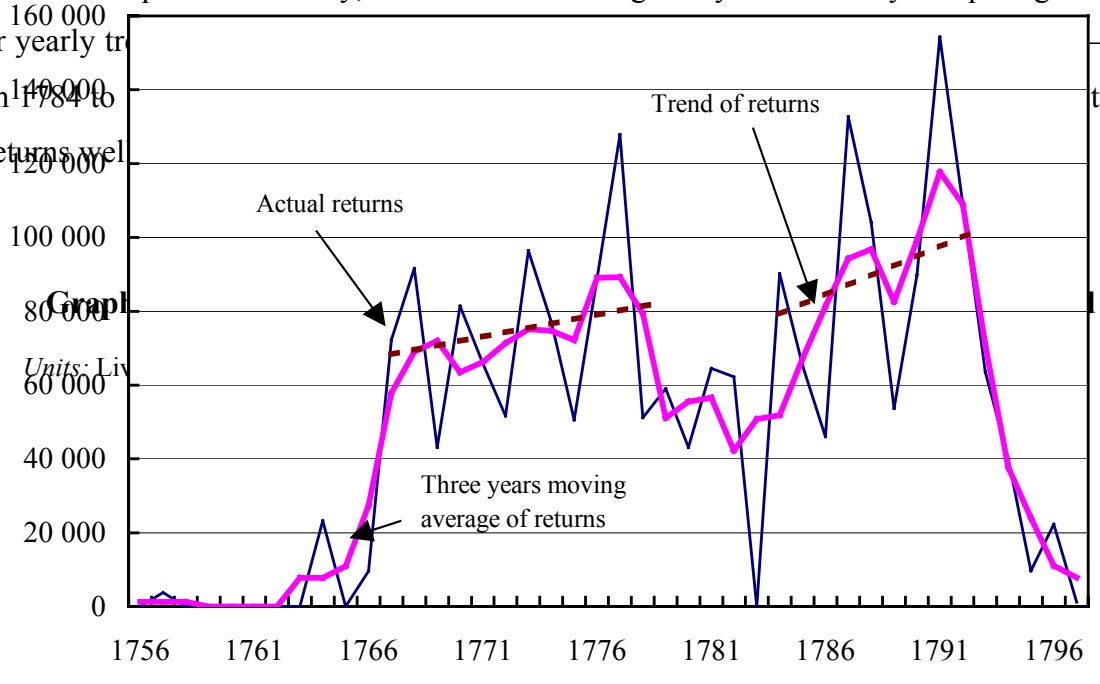
diversification.

Graph 2: Size and dispersion of Bertrand de Cœuvre fils's annual investment



Units: Livres tournois
Source: cf. text. The length of each bar is the amount invested in that year. Each different coloured section corresponds to a different investment. We have included the 47 investments for which the schedule of investments is available. The total number of expeditions is 113.

For these reasons, it is difficult to say how successful his diversification was. Ideally, we would need to compute the stochastic law governing the returns of each expedition and compute the reduction in the variance of each annual returns caused by diversification. However, this is tricky, because we cannot distinguish returns coming from different travels of the same ship. Not so ideally, we can assess the regularity of returns by comparing them to their yearly tr and from 1784 to of returns wel



Graph

Units: Liv

and

trend

Source: This is based on the 47 investments for which the schedule of returns is available.

It can be assumed that Bertrand de Cœuvre was indeed diversifying his risk away. The question, then, is the measure of the market risk that slave trade was faced with. Wars had an ambiguous role: they could be difficult times. Yet trading investment continued, under other forms: privateers and the use of neutral ships. Furthermore, there preparation and their closing were occasions for speculation — as it can be seen from the timing of Bertrand de Cœuvre's investment. The decline in trade during the Seven Years war was for example fully compensated by the increase in trade before and after the war[28]. Wars before the French Revolution did not completely undermine the stability of the trading system. The real market risk was the crumbling down of the plantation system: that actually happened during the revolution with the slave revolts in Saint-Domingue.

Rentes were in a similar situation. They were not risk-less investments. Private notarized credit was local, secured by collateral and grounded in the private *notaires*' information. However, *notaires* were not providing any formal guarantee and could be wrong; collateral was often illusory — it was impossible for example to know if it had already been mortgaged. Even if it was not, the actual recovery of collateral could only be accomplished through a costly legal action[29]. Moreover, this legal action was often unsuccessful: in particular, collateral provided by peasant borrowers were often illusory[30]. Traditional private credit hence had private risks[31]. The market risk was limited to generalized bankruptcy. That happened through monetary crises twice in the eighteenth century, once in the late 1710s[32] and once in the 1790s[33]. During both periods, debtors would refund creditors in highly depreciated currency: there was a drop of 40% in the stock of notarised debt in Paris from 1718 to 1720. Nearly all pre-Revolution debts had been repaid by 1797[34] — a large part of *rentes* being repaid in spring and summer 1795, when the value of the currency was less than 20% of what it had been before the Revolution[35].

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[28] Riley (1986).
[29] Hoffman, Postel-Vinay & Rosenthal (2000), p.19.
[30] Fontaine (2001), p. 44. She notices that this is confirmed by Boheler (1995), pp. 1180-1.
[31] For more on the issue of imperfect information and collateral problems: Postel-Vinay (1997,)pp. 103-127; Hoffman, Postel-Vinay & Rosenthal (1999), pp. 79-80; Hoffman et al. (2000), pp. 62-68.
[32] Faure (1977).
[33] Crouzet (1993).
[34] Hoffman et al. (2000), pp. 308-312.
[35] Hoffman et al. (2000), p. 188-192.

In short, market risk was at least as important on *rentes* as it was on slave trade investments.

The market risk associated with the French state debt dwarfed the market risk associated with *rentes* or slave trade investments. The state bankrupted in the 1710s during the Law affair and during the Revolution. It also went through two partial bankruptcies in 1759 and 1770. Velde and Weir have studied the different private risk associated with each different type of obligation. It is clear that the rate of interest on government debt included a risk premium[36]. Even the "surest" government debt had a risk that could not be diversified away.

2.3. Liquidity

Liquidity is also an important characteristic of investment, as it made investors' capital available to them. Ship shares could be sold and bought without any legal difficulties, sometimes even at auctions. Meyer suggests that this flexibility both crowed out and prepared the development of modern-style negotiable share enterprises[37]. The share of the ship owned by Bertrand de Cœuvre changed between travels in five cases. This is confirmed by the study of the number of travels per Bertrand de Cœuvre's investment in table 1.

Table 1: Number of travels per investments (47 investments)

Number of travels per investment	1	2	3	4	5	6	7
Number of investments	14	7	1	4	1	1	1
Number of travels	14	14	3	16	5	6	7
Average profit rate	– 7.7%	11.8%	42.3%	11.4%	42.1%	50.6%	53.6%

This table shows that Bertrand de Cœuvre must have been able to sell ship shares between travels. The average life of a ship was higher than one travel: if Bertrand did not sell ship shares, it would be difficult to understand why nearly one half of his investments were on ships that only did one travel. Furthermore, the inverse correlation between the profitability of an investment and the number of travels it did suggests that Bertrand de Cœuvre was able to sell the shares of non-profitable ships he owned. Slave trade was a liquid investment.

Private debt liquidity was certainly lower. It was formally possible to sell notarized long-term instruments of credits, at least in some regions. However, transaction costs were very

[36] Velde & Weir (1992), p. 19.
[37] Meyer (1969), pp. 103-4, 113-4 and Carrière (1973), pp. 537-539.

high on these markets. The buyer of a *rente* had to be convinced that the debtor was trustful and had to been explained the particular clauses of each contract. Private information was difficult to transfer.

In Paris, a *bourse* had been created after the Law's bankruptcy. It developed as a resale market for some state-issued assets after the late 1740s[38] and for a limited number of firm stocks — for the *Compagnie des Indes* or the *Caisse d'Escompte*. However, exchanging through this market had a cost, especially for provincial or foreign investors that had to deal through Parisians agents[39]. Furthermore, Hoffman has estimated that 80% of the state debt did not have an active resale market[40]. For example, the *rentes sur l'Hôtel de Ville de Paris* were treated as real estate and hence rather illiquid. Life annuities formed the bulk of state's debt and were not tradable once the "lives" they were attached to were specified.

Shipping investment was at worst as liquid as state debt. It was more liquid than private debt.

2.4. Maturity

Liquidity might not actually be an important issue. It is less critical to be able to sell an asset if its maturity is only 3 years than if it is 15 years. To some extent, investing in short term investment can mitigate liquidity problems. It does the same to market risk. If the rotation of capital is short, it is possible to act quickly on new information.

The average maturity of *obligations* was 4.2 years in 1780s Paris[41]. *Rentes*, at least in Paris, had no *ex-ante* maturity, as it was never possible for the lender to ask for repayment: the borrowers decided alone when (and if) the capital should be reimbursed. Their mean *ex-post* maturity was 12.7 years in Paris in 1718 and 15 years in 1789[42]. On rural markets, 20% of *rentes* lasted more than 50 years: their median maturity was higher than 17 years[43]. Fontaine has studied the evolution a country gentleman's portfolio from 1728 to 1748. Only 4 of the 35 *rentes* that were reimbursed by peasants were so in less than 10 years, whereas 16 were reimbursed 52 to 78 years after the lending. Other categories were not better at repaying

[38] Cf. Velde & Weir (1992), p. 13-14, Hoffman et al. (2000), p. 111.
[39] Antonetti (1963), pp. 162-174, Potter & Rosenthal (1997) Potter (2000)
[40] Hoffman et al. (2000), p. 100.
[41] Hoffman et al. (2000), p. 213.
[42] Hoffman et al. (2000), p. 39.
[43] Rosenthal (1993), p. 153.

the money they had borrowed[44].

The record of maritime investment seems to be mixed. The long *"queues"* — payments received years after the initial investment — were a striking feature. There were caused by the difficulties of remitting credit in the West Indies. The mean maturity of the 82 Bertrand de Coeuvre's ship investments was between 17 and 18 years[45]. However, most of the income was actually collected in two or three years. Obviously a simple measure of maturity as the length of the income stream is not enough. A generalised measure of maturity exists. It is called the "duration" of an investment. Here is how it is computed[46]:

Erreur! Signet non défini.

The "present value" of cash flows is simply their value discounted by an interest rate *r*. Hence, the computation of a duration implies using a reference interest rate. This is difficult to find in eighteenth century France. However, one can use the internal rate of return of an investment to measure its duration: this is called a Macaulay duration.

The Macaulay duration does not depend only on the relative calendar of payment, but also on the internal rate of return and the year chosen as a starting point for present values computations. The median Macaulay duration of Bertrand de Cœuvre's maritime investments was 5.2 years. That is equal to the Macaulay duration of a hypothetical 6 year 6% rente, a 5.2 year obligation, or a 15 year 23% rente. Hence, Bertrand de Cœuvre's investment had a much shorter duration than what was available in the domestic economy.

Table 2 sums up our assessment of the comparative quality of Bertrand de Cœuvre's investment. For every characteristic, Bertrand de Cœuvre's investment was equivalent or better than the alternatives.

Table 2: Relative characteristics of different investments in eighteenth c. France:

[44] Where the gentleman lived, in Dauphiné, it was possible to buy bonds giving both a repayment date and an interest rate. But the repayment dates were not enforced. Cf. Fontaine (2001), pp. 43-45.
[45] Meyer (1969), p. 219.
[46] Luenberger (1998), pp. 57-62.

	Trade	State debt	Private debt (*rentes*)
I.R.R.	6%	4.8%-6.5%	5%
Risk	Low market, high private	High market, low private	Low market, high private
Liquidity	Medium	Medium	Low
Maturity	Short	Long	Long

Part 3: Other investments

The study of a single source is not enough to give a definite opinion on the quality of investment in slave trade. There are no other sources of the same quality as Bertrand de Cœuvre's papers[47]. Notably, there are only few extra data providing durations or internal rate of return. Yet, it is possible to compute rates of profit for 238 other ventures. The computation shows that Bertrand de Cœuvre profitability was not atypical.

3.1. Data

Apart from the data we use in the preceding section, it is possible to compute the rate of profit of 33 extra investments by Bertrand de Cœuvre and his father; for 37 ventures outfitted by Chaurand from Nantes from 1776 to 1791[48]. It is also possible to compute the rate of profit of 1 venture that had van Alstein as a captain in 1769[49], and 3 ventures in which Dobrée had a stake between 1784 to 1790[50]. It is worthwhile to go beyond the boundaries of Nantes to study intercontinental trade profits. From Rouen we know 41 rates of profit related to the trade made by Dugard with the Canada and the West Indies from 1730 to 1755[51]. From Marseilles, we know the rate of profit of 17 ventures outfitted by Solier to the West Indies, the United States and the East Indies from 1781 to 1791 and the profits of 3 ventures by different outfitters to the East Indies[52]. From Bordeaux, we know the profits of 25 expeditions outfitted by Pellet and Gradis from 1724 to 1738 and of 8 expeditions scattered through the eighteenth century[53]. From Saint-Malo, we know the profits of 9 South Sea trade expeditions

[47] Cf. discussion in Daudin (2001), chpt. V, 1.3.2.
[48] Rinchon (1956), pp. 81, 112 and 126-7.
[49] Rinchon (1964), pp. 285-91.
[50] Stein (1975), pp. 786-7.
[51] Miquelon (1978), pp. 202-3.
[52] Dermigny (1960), p. 146 and passim.
[53] Butel (1974), pp. 261-277 and Morineau (1973), pp. 5-14.

from 1717 to 1735. We also have 9 rates of profits related to 47 ventures made by Chateaubriand's father from 1763 to 1778[54] and 1 rate of profit related to the activity of Meslé de Grandclos. From La Rochelle, we know the profits of 7 investments made by Depont des Granges after 1722[55]. We have some indications on 11 country trade ventures in the East Indies[56] and four expeditions by a privateer from Bayonne during the Seven Years War[57].

In some cases from Bordeaux and La Rochelle the author has not stated explicitly if the profit rates were those of the outfitter or those of the investors. The main difference would be the inclusion or not of commissions. However, accounts were reports of the success or not of specific ventures. They were in priority made for submission to investors. The outfitter's specific remuneration was included in the costs in all the accounts I could examine. As such, I am going to assume that all the sources we present here actually report investors' profits.

The mean, non-weighted rate of profit in these 238 observations[58] is 28% (confidence interval[59]: 16-40%). This is higher than Bertrand de Cœuvre's rate of profit, 23%. However, some very high profit observations might play too large a role in determining the mean rate of profit. If every profit rates are truncated at 250% is replaced by 250% (8 observations), the mean rate of profit falls to 23% (confidence interval: 15%-30%); if every rate higher than 200% is replaced by 200% (9 ventures), the mean rate of profit falls to 21% (confidence interval: 13%-28%). It is not possible to weight the observations properly. However, replacing Bertrand de Cœuvre mean profit by investment (7%) by the rate of profit of its portfolio (23%)[60], increases the mean rate of profit an all observations by two points.

Bertrand de Cœuvre rate of profit seem to have been representative of the whole sector. This conclusion is all the more convincing as we have already reached a similar conclusion through a different method of aggregation — by source instead of observation[61]. However, there are a number of possible objections to that conclusion.

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[54] Lespagnol (1997), p. 490, Roman (2001), pp. 67 and 195-203.
[55] Clark (1981), p. 146.
[56] Manning (1996), p. 75.
[57] Vignes (1942), pp. 93-7 and 125-31.
[58] One can find a more detailed examination of these sources in: Daudin (2001), chpt. V, section 2. These data are available upon request.
[59] At 5%, like all the other ones
[60] The difference is explained by the fact that less successful ships were not kept for more than one travel in Bertrand de Cœuvre's portfolio. Cf. Table.
[61] Daudin (2001), chpt. V, section 3, especially table 70.

3.2. Difficulties

The first possible objection relates to the large confidence intervals we observe. They are caused by the existence of high private risk. Because of them, the research of a strict statistically significant conclusion is condemned to fail. However, this is also the case in the contemporaneous estimates of means of returns, because of the "mean blur" problem[62]. There is not much to do the remedy it, except obtaining even larger amount of data. Our estimation already takes into account data an order of magnitude more abundant that has been the case in the literature till now: it is not possible to go further. Statistical doubt shall remain.

A second objection is that there might be a selection bias in our data. Success might have attracted more curiosity than failure: secondary sources might give an undue place to successful ventures. We have only used private account sources: the curiosity of the eighteenth century public should not affect us. Considering the paucity of the data, it is doubtful that twentieth century researchers were particularly picky. If something was available, they took it. Their curiosity should not affect us either. The selection bias, then, can only come from what data has actually survived in the archives. When a bankruptcy occurred, account books were taken away from traders' whims to be put in official archives: they had more chances of having survived there than in private archives. In the same way, when something went wrong, investors became less trustful and demanded to be given more details on what was happening. As a consequence, the evidence on ventures was repeated in many letters, dispatched to different places. It had more chances of surviving. The selection bias should lead to an underestimation of the usual profit rate rather than an overestimation.

A third objection is that the data used come from a range of different activities, not only slave trade. This is necessary to gather enough data. The fact that actors of slave trade were not specialists warrants it. Most of them — like Bertrand de Cœuvre — invested in all kind of intercontinental trade activities. They must have expected comparable returns from their different trade operations. Furthermore, there was a strong interdependence between different intercontinental trades. That encouraged equalisation of the rate of profit. The data we use also comes from numerous French ports. As they were all faced with a similar situation, the rate of profit might not have been too different. Table 3 tries to assess if there is a systematic difference between different activities and different harbours.

[62] Luenberger (1998), pp. 214-5.

Table 3: Rate of profit and number of observations by type and origin of venture

	Harbour								
Activity	Nantes	Rouen	Bor-deaux	Marseille	Saint-Malo	East Indies	La Rochelle	Bayonne	Total
West Indies direct trade	33% 43	3% 18	21% 2	– 10% 9	30% 1				20% 73
?	20% 33		24% 30				77% 7		28% 70
Slave trade	7% 24				22% 7				11% 31
East Indies				9% 10		27% 11			18% 21
Canada or USA		10% 15		– 17% 1					8% 16
Spanish Empire					22% 9				22% 9
Canada or USA and West Indies	– 21% 1	2% 8							– 1% 9
Miscellaneous	– 22% 2		15% 1		3% 2			28% 4	10% 9
Average Profit	21%	5%	23%	– 1%	20%	27%	77%	28%	19%
Number of observations	103	41	33	20	19	11	7	4	238

This table could be interpreted as showing that rates of profit were very different from type of venture to type of venture and from place of origin to place of origin. However, there is a problem with the data: we observe expeditions from the entrepreneur's book, not the investors' ones. Hence, specific port and activity rate of profit reveal something about the success and failure of a particular entrepreneur rather than about the general investment opportunities that existed in that port and that activity.

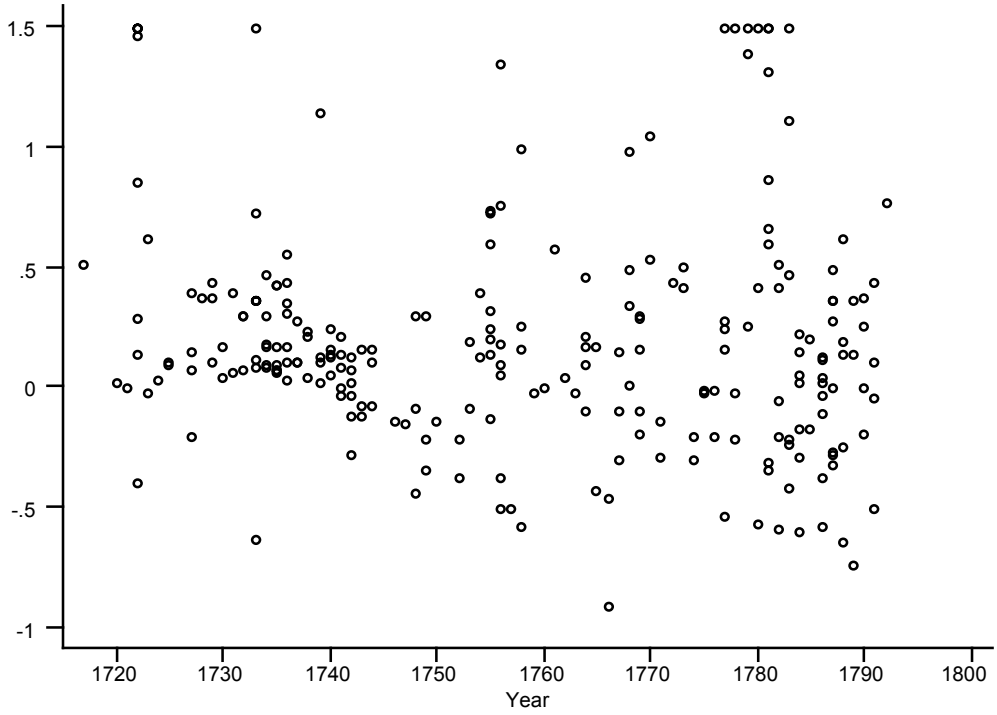
For example, Rouen, Marseille and La Rochelle strike as being atypical places. Yet, the bad results of Rouen are based on a single source, the Dugard company. This company was not very successful: it had to be liquidated among bickering between its outfitter and his investors. Solier and Cie are behind the bad results in Marseilles. They were newcomers in the trade, Swiss protestants sent there, or attracted there, by apparent high profits to be made in the 1780s. They were not successful. Finally, the good results of La Rochelle come from

operations all made in 1722, before the definite stabilization of the *livre tournois*: it is possible that part of the this profits were simply due to monetary movements. Nothing be said either of the differences between West Indies and slave trade for two reasons: most the "?" come from Bertrand de Cœuvre père's investments and might go in one or the other category, maybe increasing the mean slave trade profit; the low slave trade profits are associated with Bertrand de Cœuvre fils's expeditions: we have seen that it is depressed by the absence of weight. The bad results of the Canada trade are associated with Dugard's unlucky business career. It is possible to tell a story for every number that comes out of Table 3 to show that it was not "typical" of its sector or port. To that extend, the general mean represents more than the mean for individual ports and activities.

A fourth objection would be to cast doubt on the stability of the rate of profit throughout the period. Graph 4 shows that there is nothing to indicate that there was any trend in the evolution of the profit rate.

Graph 4: Evolution of profits (truncated at 150%) through time

(The vertical axis is the truncated rate of profit)



This is reinforced by the computation of time trends. If the data is truncated at 250%, there is positive time trend. If it is truncated at 150%, there is a negative time trend. Neither one nor the other is statistically significant.

A closer look at the data confirms that Bertrand de Cœuvre's rate of profit were not atypical. If his schedules of income were typical, we can conclude that the usual internal rate of return in the sector was comparable to his and superior to the usual internal rate of return in the economy. There are reasons to believe that Bertrand de Cœuvre's schedules of income were not typical, but they reinforce our conclusion. 90% of his ventures started after the Seven Years war. The net position of plantation owners declined particularly toward the end of the Ancien Régime, to the extent that their debts were more and more difficult to recover: that must have reduced Bertrand de Cœuvre's internal rate of return compared to his rate of profit. 73% of his ventures were at least partly slave trade ventures. Buying slaves was the main reason why plantation owners in the West Indies had to go into debt. Hence, slave trade was more prone than other trades to long repayment period. This also must have reduced Bertrand de Cœuvre's internal rate of return compared to his rate of profit.

Part 4: Movements of people and capital

The two preceding sections have given reasons to believe that investment in slave trade and related activities had better characteristics than domestic alternative. This conclusion is reinforced by the observation of movements of people and capital.

The French harbours attracted people from all the rest of the country. We know the origins of 166 Nantes families involved in colonial trade in the second half of the eighteenth century[63]. The local bourgeoisie had been at the centre of the late 17th century expansion, but it did not represent more than 9.4% of the trading families in the second half of the eighteenth century. Most immigrants were traders from the interior economy. We know the profession of the father of 92 immigrants: 59 were coming from trading families. Migration from other French ports — like Bordeaux —, or from maritime Western France — that sent penniless nobles or families ascending the social ladder — was the exception rather than the norm. In Marseilles, the number of *négociants* increased from 275 at the end of the 17th c. to 450 around 1750 and to 750 at the end of the *Ancien Régime*. *Négociants* from outside Marseilles were 18.7% of the total at the beginning of the century, 24.6% in the mid-century and 46.3% at the end of the *Ancien Régime*. The Solier — whose activity has been studied by Dermigny[64] — are a good example of the migrating movement[65]. As Carrière said: 'The migration curve follows closely the expansion curve, and that is to be expected'[66]. In La Rochelle at the end of the *Ancien Régime*, only 58% of the ship outfitters came from the town or the adjoining regions: Aunis, Saintonge, Guyenne and Gascogne. In Lorient at the same time, 63% of the ship outfitters did not come from the town but from the neighbourhood dioceses — especially Vannes. In Bordeaux, "the majority of the ship outfitters were strangers to the region: either Languedoc protestants, Bretagne and Bayonne catholics or aliens like the Bethmann from Frankfort"[67]. That can be observed for earlier trade prosperities: in the 17th century, "the Saint-Malo capitalist centre was […] the heir of the Vitry centre"; "the Saint-Malo trading group was open […] it became larger throughout the

[63] Pétré-Grenouilleau (1996), pp. 18-41.
[64] Dermigny (1960).
[65] Carrière (1973), pp. 265 and following.
[66] However, a caveat must be added to this sentence. That was true in the long and medium run. However, in the short run, times of crisis offered opportunities that facilitated the entry of new comers.
[67] Cf, quoted by Pétré-Grenouilleau: Bouniol (1972); Moutet (1974); Butel (1974), p. 16.

17th century by attracting dynamic elements from the cities and ports in its attraction zone"[68].

Once they were there, these entrepreneurs accumulated capital. In return, this capital did not move out of the intercontinental trade sector easily. That is especially clear in the facts accumulated to study the effect of trading capital in industry. In the case of Nantes, Pétré-Grenouilleau reminds us that after the "starting" period of industries, intercontinental traders had a tendency to get their capital back:

"All in all, two phases can be distinguished. The first one is contemporaneous with the birth of large colonial trade: the trading community tried then to create the industrial fabric that was to complement its own speculations (sugar factories, calico printing). The second phase starts very early, probably even before the mid-century. It is characterized by a clear withdrawal. This withdrawal became obvious just before the Revolution"[69].

Boulle notices that, even before the Seven Years war, intercontinental traders did not invest outside Nantes. He remarks that "the range of investments from Nantes was limited". He underlines that in Le Havre, capital was moving from industry to trade rather than the reverse around the mid-century[70].

Centres of investment in slave trade and other related activities attracted talents during the whole eighteenth century and retained capital. That would not have been the case if their activity had not been advantageous compared to domestic alternatives.

Conclusion

This paper first clarified a number of methodological issues related to the measure of the characteristics of slave trade investment. Then it has studied both the portfolio a specific investor in slave trade and the other available sources. Finally, it has looked at the movements of capital and of people. That has allowed this paper to reject two opposite points of view. The first one is that slave trade and associated activities were providing private agent with huge returns, twice or thrice as high as what could be obtained in domestic activities. There was nothing "fabulous" in the returns of slave trade. The second hypothesis is that rate of return of inter-continental activity was not higher than the rates of return of domestic

[68] Lespagnol (1997), p. 88.
[69] Pétré-Grenouilleau (1996), p. 82.
[70] Boulle (1972) p. 98; Boulle (1975), pp. 320-321.

investment. That was not the case either. However, the idea that these higher rates contributed to some "primitive accumulation" seems misguided, as the ports attracted talents and retained capital[71]. But if there was continuous entry into the sector, how come it kept providing higher returns to its actors?

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[71] The role of slave trade and related activities in capital accumulation is discussed in: Daudin (2002).

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