

Government Equity and Money:
John Law's System in 1720 France*

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Abstract

John Law's System was a radical restructuring of French public finances, carried out from 1716 to 1720. It involved on the one hand a conversion of the existing French public debt into something like government equity, on the other hand the replacement of commodity money with fiat money. For strategic reasons, Law supported the equity at too high a level, resulting in uncontrolled money creation. The System ended with the recreation of a public debt at, surprisingly, the same level as before.

Keywords: Système, John Law, government equity, bubble, debt conversion (JEL B31, E42, N13, N23).

1 Introduction

The government's budget constraint and the interplay between its components across time and states is at the core of many macroeconomic questions. The nature and timing of taxes, the ability to and advisability of borrowing, the proper structure of government liabilities, are all recurrent themes. The purpose of this paper is to present a particular historical episode which uniquely illustrates them.

The episode takes place in the early eighteenth century in France. From 1716 to 1720, a Scotsman named John Law undertook a radical restructuring of French public finances. Because the entire operation appeared to be based on rational principles, it has been called "Law's System." The operation involved the floating of shares in a private company, the issue of paper money, and the conversion of government debt. The System ultimately unravelled with a coincident, and dramatic, fall in the market value of both the money and the equity.

Law's System, also known as the Mississippi Bubble, ranks as one of the mythical early bubbles (Garber 1990, 2000). It also represents a daring experiment in public finance, carried out by a man whom Schumpeter (1954, 295) placed in "the front ranks of monetary theorists of all time." Its story has been told many times,¹ but not (in my estimation) in a way that does full justice to the economic issues. This paper seeks to do just that.

The System had two components, one involving an operation in public finance, the other involving fiat money. The operation resulted in the conversion of the existing French public debt into a sort of government equity. Strictly speaking, a publicly traded company took over the collection of all taxes in France, ran the mints, monopolized all overseas trade and ran part of France's colonies. This company offered to government creditors the possibility of swapping their bonds for its equity, making itself the government's creditor. Since it was already collecting taxes, the government's annual payment was simply deducted from tax revenue by the company. Thus, bondholders became holders of a claim to the stochastic stream of fiscal revenues.

All the company offered was an *option* to convert, and visible capital gains provided a strong inducement for bondholders. As it happened, the System's other component was a plan to replace the existing commodity money with fiat money, at first on a voluntary basis, later relying on legal restrictions. This was the first full-scale attempt at replacing the metallic medium of exchange with paper in Europe (Bonney 2001). Law used money creation to support the price of shares, and legal restrictions to support the demand for money. Inflation did not follow immediately, but exchange rate depreciation did, leading Law to reverse course and seek ultimately fruitless ways to reduce the quantity of money. The end result was a reconversion of shares and money into bonds and a return to the pre-existing arrangements.

In retrospect, Law's System appears conceptually reasonable. Sims (2001) argues that government debt is like private debt in a fixed exchange rate regime, but like private equity

¹A complete bibliography of the early writings on Law by Paul Harsin can be found in Faure (1977). Major recent works include Harsin (1928, 1933), Faure (1977), Neal (1990), and Murphy (1997).

in a flexible rate regime; he also thinks that the latter is preferable. France was notionally on a fixed exchange rate regime (with frequent departures); I interpret Law's System as an attempt to move government debt closer to equity without sacrificing price stability. As for replacing commodity money with fiat money, what incongruity the idea held for contemporaries has clearly dispelled.

Law's System has been called a bubble; it has also been called a default. Quantitatively, I find that the share prices were overvalued at their peak by a factor of 2 to 5, but I attribute this to Law's systematic policy of price support. With fairly optimistic assumptions, a lower level of price support would have been feasible. As for the public debt, it was not significantly increased during the System, and it was restored by Law's successors at roughly its earlier level. In other words, France's first experiment in fiat money, as her second (Sargent and Velde 1995) was far from a default, perhaps surprisingly for a country otherwise prone to defaults.²

I proceed as follows. I first briefly describe the French fiscal system and practices in the late seventeenth and early eighteenth centuries, so as to know what Law was restructuring. I then describe the steps involved in the construction of Law's System and its collapse. I then conclude with an evaluation of the System. A separate appendix contains details on the securities issued during the System and their prices.

2 Features of French Fiscal System

2.1 Spending

A long tradition in macroeconomics takes as given the process governing the government's spending obligations. The main characteristics of the process faced by France in the early modern period (sixteenth to eighteenth centuries) can best be seen by dividing government spending into military and nonmilitary components (net of debt-related spending). The way accounts were kept distinguished spending in various ways: in some accounts, expenditures are divided by the treasurer who made the payments. More generally, the government distinguished between ordinary and extraordinary expenditures. The former were the recurrent, stable, and predictable items; the latter were temporary and unexpected items. Thus, my category of military spending includes ordinary items like peacetime garrisons and troops, upkeep of fortresses, horse-farms, and the like, as well as all extraordinary items related to wars. Nonmilitary spending net of debt-related items includes expenditures of the royal household (a quarter to a third of the total) and salaries and wages of government employees.

The pattern is shown in Figure 1.³ The main source of variation in government spending

²See however Hoffman et al. (2000) for the impact of the System on private credit markets.

³The numbers used in Figures 1, 2, and 3 are based on series published by three historians whose coverage varies: Mallet (1662–95), Boislielle (1683–1707) and Forbonnais (1682–1716). The series themselves are available as part of the European State Finance Database of Richard J. Bonney (URL <<http://www.le.ac.uk/hi/bon/ESFDB/>> accessed June 2002, datasets rjb/boislielle, rjb/forbon,

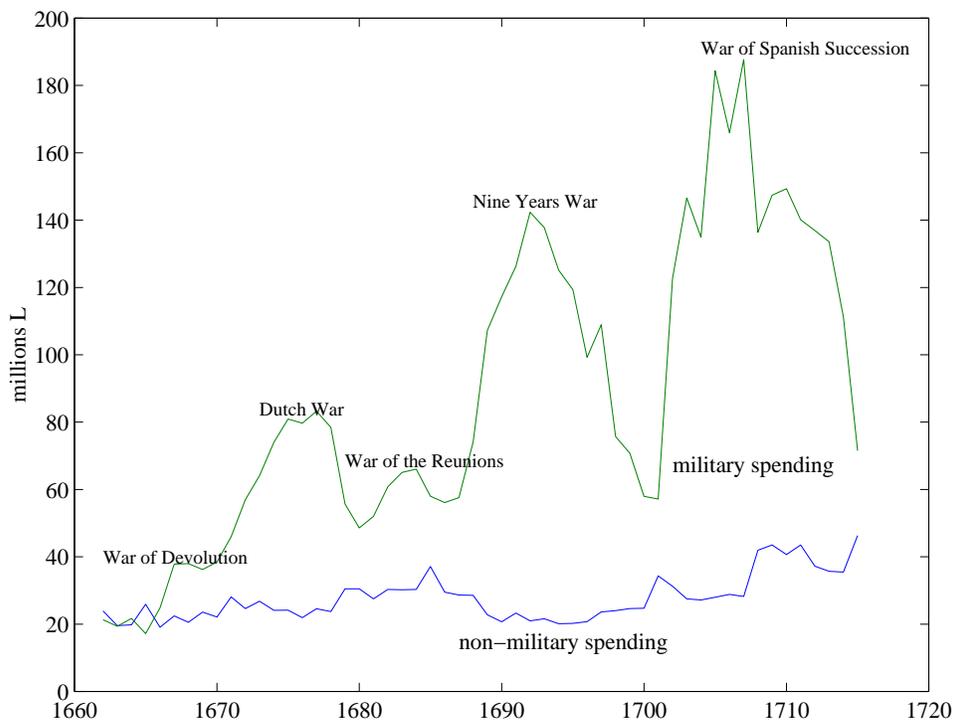


Figure 1: Military and non-military spending in France, 1662–1715 (debt service excluded).

comes from wars. Peacetime expenditures (standing army and non-war related expenditures, mostly labor costs of providing justice, police, etc) are stable, and small compared to wartime expenditures. The main wars of Louis XIV are easily spotted on the graph: the conflicts appear to become both longer and more costly over time, culminating in the War of Spanish Succession.

Figure 2 shows the evolution of the primary surplus (revenues less non-debt spending), while Figure 3 compares revenues with spending inclusive of debt service. The French government raised taxes to some extent in wartime (notably introducing an income tax at a critical moment in the last war of Louis XIV’s reign, in 1710). It also resorted to a lot of borrowing.

2.2 Taxes

Fiscal revenues consisted of a mixture of direct (income or wealth) taxes, indirect (consumption) taxes, and feudal dues arising from the royal demesne. The assessment and collection of these revenues was decentralized. For direct taxes, a global amount was set by the government, and then broken down into assessments for each province, where local authorities would proceed with the next level of assessment, and so on to the local level.

rjb/frmalet). Roughly, I use Mallet’s numbers until 1695 and then Forbonnais’s numbers, complemented with Boislisle’s numbers.

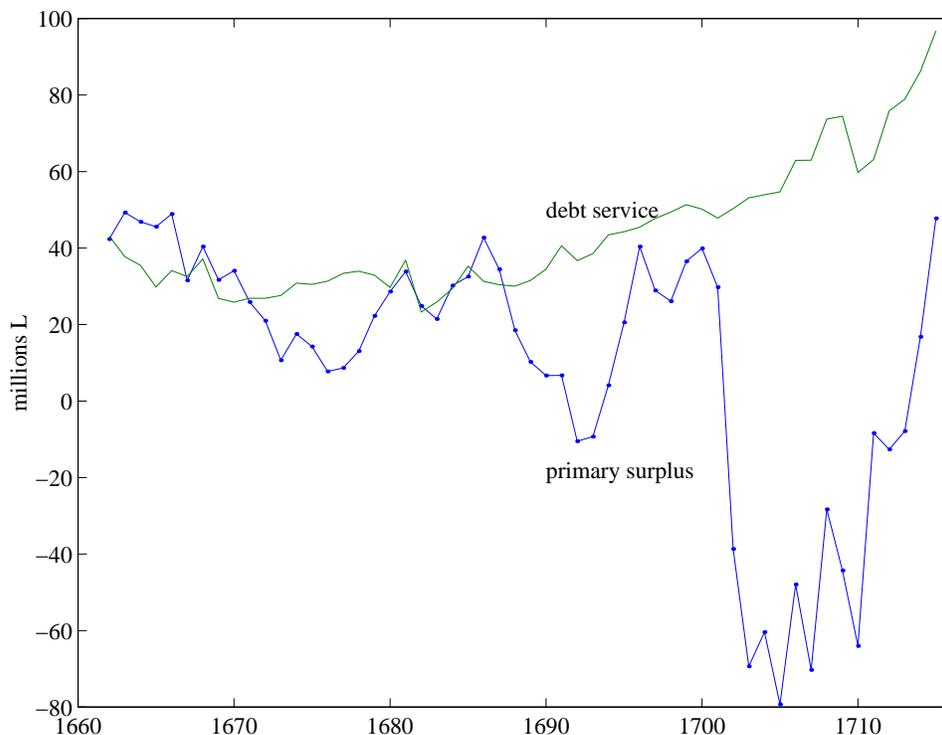


Figure 2: Primary surplus and debt service (interest payment) in France, 1662–1715.

For indirect taxes, collection was carried out by tax farmers on behalf of the government. The procedure was much like the one in place since Medieval times for running the royal mints. The right to collect a given tax was auctioned to the highest bidder. The bidder offered a fixed annual payment to the king for the duration of the lease. Meanwhile, he took upon himself to collect the tax, hiring all the necessary employees. Any shortfall in revenues from the promised sum was made up by the entrepreneur; conversely, any revenue collected above and beyond the price of the lease was retained as profit by the entrepreneur. In the 1680s, most farming contracts were consolidated into a single 6-year contract called the “united” or “general farms.” But new taxes were later created and usually farmed out separately.

Government monopolies, such as salt (which was part of the general farms) and recently introduced tobacco, were also farmed out in the same fashion. Indeed, the ability to create monopolies was one of the king’s resources; one of the more outlandish examples being the exclusive right to sell snow and ice in the district of Paris, sold for 10,000L per year in 1701 (de Forbonnais 1758, 4:193).

Table 1 presents fiscal revenues in selected peacetime years.

Spending is decentralized as well to various treasurers. Each tax had an associated bureaucracy of collectors and treasurers, either government employees or officers (direct taxes) or employees of the tax farmer. The treasurers spent some of the monies they collected, upon presentation of payment orders emanating from the government, and turned

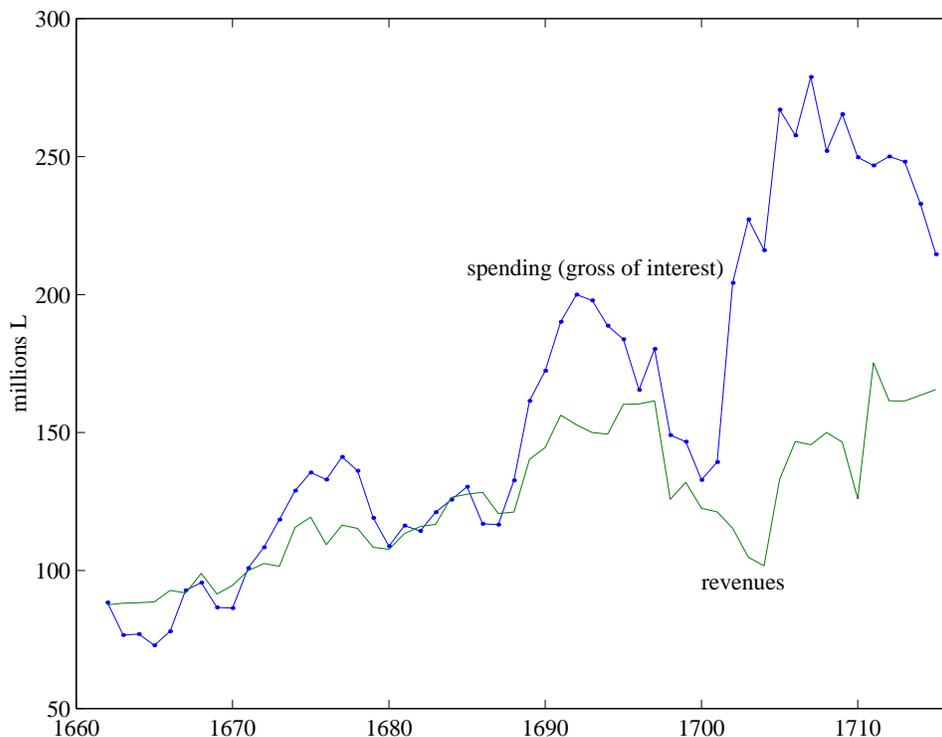


Figure 3: Revenues and spending, 1662–1715.

over the remainder, if any, to the royal treasury in Paris.

2.3 Borrowing

Government borrowing at the time took several forms, depending on the maturity.

Given the decentralized nature of tax collecting and disbursement, payments often took the form of payment orders issued by the Treasury to treasurers: these orders would then be taken by the payees to the treasurers in order to collect cash. The orders were often made payable a year or more in the future, and were taken at a discount by the payee. The anticipatory notes allowed the government to borrow against specific future revenues. At other times, it seems the government or its treasurers issued pure IOUs in exchange for goods and services, particularly in wartime.

Long-term borrowing took two forms. The first was in annuities (*rentes*), which were either life annuities (payment contingent upon the life of a particular individual) or perpetual annuities. Usually, annuities were assigned on a specific tax revenue, and the interest was paid by the tax collector either directly to the creditor or to a centralized paying office located in Paris. In this sense, the debt was called “funded.” The annuity contract was a common instrument between private parties as well, and was medieval in origin. As a result of the Church’s strictures against loans, annuities always carried a repayment option: the creditor could never demand repayment of the original capital, but the debtor had the

	1683	1700	1715
<i>indirect taxes</i>			
united farms	62.8	58.6	47.0
other farms	2.2	8.0	12.9
<i>direct taxes</i>			
taille and misc.	47.7	41.6	51.8
capitation	—	—	25.8
dixième	—	—	24.0
<i>royal demesne</i>			
woods, incidental		3.4	3.9
Total	116.0	112.1	165.6
livre index	1.05	1.08	1.00

Table 1: Revenues of the French state. The livre index measures the silver content of the unit of account (1 in 1715). Sources: Mallet (1789), Boislisle (1874–97), de Forbonnais (1758, 5:212).

option to extinguish the debt by repaying the capital in full.

The other form of long-term borrowing was through the sale of offices. An officer was someone who held a government position not on commission or at the king’s leave, but as of right, and enjoyed various privileges attached to the position (in particular the collection of fees related to his activities). Offices were sold, and the king paid interest on the original sale price, which was called the wages of the office (*gages*). A wage increase was really a forced loan, requiring the officer to put up the additional capital. Officers could not be removed except for misconduct; however, the office itself could be abolished, as long as the king repaid the original sum. Thus, offices as a form of debt also carried the same repayment option as annuities. Creation of offices was a feature of wartime, and the War of Spanish Succession gave rise to extraordinary ingenuity in the invention of new offices. From 1689 to 1712 over 3,000 offices were created to supervise the markets of Paris in the minutest details, including “inspectors-gourmets of wines”, inspectors of pig’s tongues, and distinct officers in charge of respectively loading, unloading, and rolling barrels (Panckouke 1784–85, 2:49).

Offices and annuities (which I will generically call bonds, and whose owners I will call bondholders) could be transferred or sold, but with fairly high transaction costs. Both were considered forms of real estate, and could be mortgaged. In the late 17th century the French government, like others in Europe, had begun experimenting with life annuities, tontines, and lottery loans, but on a limited basis, and had not yet issued bearer bonds. Even the short-term debt described above was registered in the sense that the payee’s name was on the instrument, and could be transferred only by endorsement.

A final form of borrowing combined tax creation and lending. The procedure consisted in creating a new tax for some limited time and immediately farming its collection in exchange for a single, lump-sum payment representing the tax’s net present value.

2.4 Money

Money at the time is a system that involved two separate elements. The first was a set of standardized objects produced by government-operated factories (called “mints”), which people exchanged against goods and services. They were called coins, and were made of

metals like gold and silver. The second element was a unit of account, called the *livre* (abbreviated L in this paper). Numbers such as prices and monetary obligations were expressed in the unit of account. The king regulated the relation between the two elements, coins on one hand, unit of account on the other. He did so by naming two vectors. One assigned a number of units of account to each coin. The other set the price at which the mint was obligated to provide each coin in exchange for quantities of gold or silver (either in the form of foreign or domestic coins, or in the form of bullion or wrought metal). These vectors could change.

For a given coin, there are two numbers set by the king: its “face value” and the number of such coin that will be paid out for an amount of metal. Knowing the metal content of a coin, one can compute an index of the numbers of units of account per weight of metal, which is called mint equivalent (ME). Likewise, one can express the second number as a mint price (MP), also in units of account per weight of metal.⁴ I will track changes in the vectors assigned by the king to the main silver coin using the ME and MP .

The meaning of a face value X assigned to a coin was that the coin was legal tender for any debt or in any purchase up to the amount X livres. If X changed, the coin could discharge a greater or smaller debt. Sometimes X was set to 0, and the coin was demonetized.

It was always the case that $MP \leq ME$, the difference $1 - MP/ME$ being called the seigniorage rate which the king charged to convert metal into legal tender. The ME of silver had been constant since 1641, and in 1679 MP had been set equal to ME . However, from 1689 to 1726, the ME of silver changed 64 times, 8 times in the year 1720 alone (see Table 5). It remained unchanged from 1726 to 1795.

One reason for changing the parameters of the monetary system was to engage in a monetary “reform,” to induce or coerce individuals into submitting to the seigniorage tax, which was usually increased at the same time. This was done by announcing the demonetization of an existing coin, and its replacement with a new coin of higher face value. Owners of the older coin who needed legal tender had to turn it in exchange for new coins, and thereby submit to seigniorage rates that ranged from 6 to 25%. This method was used in 1689, 1693, 1701, 1704, and 1709.

2.5 France in 1715

In 1715, Louis XIV dies after a reign of 72 years. The War of Spanish Succession ended with a draw, but it had proven very costly for France. At his death, Louis XIV left debts of 2800mL livres of which 1068mL were in perpetual annuities (bonds with coupon payments that go on forever), 830mL in sold offices (the “wages” paid to the officer being the interest on the price of the office), and 920mL in floating debt (various notes and bills whose final payment had not been settled, some of which bore interest in the meantime). The interest payments amounted to 45mL for the annuities and 41.5mL for the offices. With revenues at 166mL and spending at 118mL, the primary surplus was only 48mL, to service at least

⁴The weight of metal used in this paper is the marc, or half pound (244.7g) of standard silver (22/24 fine).

86.5mL in debt service, without even taking care of the floating debt which would add some 40mL at a 4% interest.

The debt was large, no matter by what measure. The interest alone amounted to two or three times the primary surplus. The face value was about the same as France's output at the time.⁵ Britain's debt burden at the time was lower, both on the government's finances and on the country's resources. In 1715 the primary surplus was £2.5m, against a debt charge of £3.2m. Total debt of around £38m in 1716 compared to output of around £60m (Mitchell 1988, 575, 578, 600).⁶

At Louis XIV's death his great-grandson and successor Louis XV was five years old, and a regency was installed, with the late king's nephew, the duke of Orléans, as regent. It was during this regency that Law's System would unfold.⁷ Before this took place, however, the regent's government took a number of measures to address the fiscal situation.

Government policy prior to Law, 1715–18

One of the first measures was monetary reform of the livre on December 23, 1715, followed by another reform on May 31, 1718. The two reforms cumulatively increased the *ME* of the livre from 28 to 60, diminishing nominal expenses (such as debt service) but many revenues as well, at least in the short to medium term. The main advantage, in the short-term, was to force coin holders to submit to a seigniorage rate of 20% in 1715, 33% in 1718. The devaluation of December 1715 brought in 62.8mL in 1716 and 12.7mL in 1717, while that of May 1718 brought in 29.9mL over one year.⁸

The Regent's government, headed by the duke of Noailles, carried out partial defaults and reductions in October 1715 (on perpetual bonds), January 1716 (on wages of offices), April 1716 (on the floating debt), and in June 1717 (on the perpetual bonds). As a result it cut 7mL from the debt service and brought the debt down to 2bn. Moreover, the floating debt was shrunk from over 900mL to 200mL through a variety of more or less forcible means, and converted into bearer notes called *billets d'État* bearing 4% and with no definite redemption date or assigned backing. These notes traded at a 37% discount soon after their issue began, in mid-1716 (Dutot 1935, 2:241). Although there was still some 240mL in unfunded arrears and floating debt, debt service was now at 92.5mL. A special levy on "profiteers" was assessed through an ad-hoc court, mostly payable in government debt (see White 2001). The wartime levy on incomes was ended in August 1717 because of political

⁵Riley and McCusker (1983, 281, Chart 1) give a population of 21.5m in 1700 and 130L per capita output in 1700, corresponding to a total 2800mL for output.

⁶£60m for national income (Brewer 1989, 41); £55m in 1688 for national income ((Mitchell 1988, 821, citing Lindert and Williamson)); I have computed GDP of £65m in 1700, £73m in 1725 using Crafts (1985) for growth rates and starting from nominal amounts in 1831 from Deane and Cole (1967, 166).

⁷Throughout this paper, the phrase "the king" will refer to the Crown or its government, rather than literally to the 10-year old whose face appeared on the coins of the realm.

⁸Bibliothèque nationale manuscripts (hereafter BN), Fr. 11159, fol. 287 and Joly de Fleury 566, fol. 199.

Date	Perpetual		Offices		Unfunded		Total		Revenues	Surplus	Livre index
	capital	interest	capital	interest	capital	interest	capital	interest			
1700	460.0	24.0	487.4	24.1			947.4	48.1	122.6	39.9	1.60
1707	642.7	35.7							145.6	-70.3	1.60
Feb 1708	672.7	37.7			482.8				150.0	-28.3	1.51
1710	757.6	42.2							126.0	-64.0	1.25
Oct 1710	757.6	37.9									1.25
Sep 1713	885.0	44.0							161.5	-7.8	1.25
Oct 1713	750.0	30.0									1.25
Sep 1715	1068.6	45.2	830.0	41.5	918.9		2817.5	86.7	165.6	47.7	1.78
Dec 1715	1044.1	42.0					2793.0	83.5			1.25
Jan 1716			830.0	39.5			2793.0	81.5	163.9	87.1	1.25
Jun 1717	933.6	41.3	830.0	39.5	558.1	13.0	2321.7	93.7	169.4	93.5	1.25
May 1720	1600.0	48.0	370.3	10.6	0.0	0.0	1970.3	58.6			0.60
Oct 1724	1800.0	51.5	741.4	35.2			2541.4	86.7	185.4	67.5	1.20
Nov 1726	1800.0	49.0	741.4	35.2			2541.4	84.2	199.4	92.1	1.00

Table 2: The debt in France, 1700–26. Sources: BN Fr. 7740, fol. 39, 43; Vührer (1886, 1:129–30, 139); Clamageran (1867–76, 3:45–46, 107–114); de Forbonnais (1758, 4:307); Marion (1914, 1:63–69, 121, 149); Etat général des dettes; Riley (1987). *: imputed from the interest payment, assuming the same average rate as in 1717. The livre index measures the silver content of the unit of account (1 in 1726).

pressures, resulting in a loss of 25mL in revenues (BN Fr 7766, fol. 250–55), but collection of indirect taxes improved by 5mL. Spending cuts, particularly in the military, brought the primary surplus to 93.5mL. By 1718, after the second devaluation, French finances were not too far from balance, although 40mL remained in unpaid arrears.

The Regent’s cabinet was fairly successful at using the most traditional methods of French public finances, of which they were not proud: monetary manipulations, disguised or overt defaults, arbitrary fines levied through rigged courts. They put an end to the emergency, but left the State militarily diminished and unable to face an eventual conflict. The European political situation, however, was still unsettled. The War of Spanish Succession had ended in 1714 without a peace treaty between the principal antagonists, Spain and Austria, leaving those powers unhappy with and uncommitted to the settlement which had been imposed on them. In 1717, Spain retook some of the Italian possessions it had lost or ceded. The Regent was allied with Britain and wanted to force Spain to accept a compromise, but this could require another war. It is no surprise, then, that the Regent’s mind was open to someone who would propose a radically new and rational way to manage public finances based on credit.

2.6 Law’s System: an overview

John Law’s origins and early career as son of a Scottish goldsmith and man-about-town in London is recounted in Murphy (1997). He fled England after killing a man in duel in 1695 and spent the next twenty years moving around Europe, writing on economics and proposing to various sovereigns a plan to found a Bank, more or less influenced by the Bank of England (founded in 1694). He came to France in early 1715 and submitted his proposals to the government, emphasizing the help that it might receive from his proposed State bank. He ultimately convinced the Regent, but opposition in the cabinet forced him to settle for a smaller and purely private Bank. Law’s beginnings were modest, but progressively the various companies he created merged into a gigantic conglomerate that took over most of the fiscal activities of the French state.

Law’s experiment in public finance lasted from the creation of his General Bank in May 1716 to his escape from France in December 1720. Whether or not he was following a coherent plan inspired by his theoretical writings, or whether he was improvising as he went along, his scheme became known as a “System.”⁹ There are four stages in the history of the System. The first stage, from 1716 to 1718, established a privately owned bank that successfully issued bank notes. The second stage, from 1717 to 1719, saw the parallel formation of a trading company, whose shares were publicly traded, and whose purpose shifted from colonial development and overseas trading to management of public funds. At the same time, Law’s influence on the Regent and government grows. In the third stage, from 1719 to 1720, the bank and the company merged, Law became finance minister, the company reimbursed the whole national debt, and its notes became the sole currency. The

⁹The phrase “le nouveau Système des finances” appears in a defense of his policies, written or inspired by him, and published in newspapers in February 1720 (Law 1934, 3:98).

final stage, the year 1720, is the period of collapse, followed by a complex cleaning-up operation. My presentation will follow these four stages.

3 Law's System (1): the Bank

3.1 The General Bank, May 1716

The first step was the creation of the General Bank in May 1716. Law had initially proposed a 100%-reserve public bank that would handle the government's financial transactions, but the plan was rejected in October 1715. The Regent, sympathetic to Law, allowed him to set up a purely private bank. The Bank's capital was raised by an IPO: 1200 shares were offered at 5,000L each, payable mostly in billets d'État at face value (which stood at a 60% market discount to their face value at the time) and the rest in cash; Law himself bought a quarter of the shares (Law 1934, 3:245), and the king owned 380 shares (*Gazette d'Amsterdam* 1718, n. 30).¹⁰ Moreover, only 1/4 of the purchase price was required immediately, the rest payable at some future date. Thus, it took only 690L in cash to initially buy a share. The Bank's assets consisted initially of 375,000L in cash and 1.125mL in billets d'État, the interest on which was used by the Bank as working capital (which only amounted to 45,000L per year). It seems that the remainder of the subscription price was ultimately paid by shareholders.¹¹

The Bank was structured similarly to a modern limited liability company. A general assembly was to be held twice a year with dividend distribution. Shareholders voted in proportion to their shareholdings, management was responsible to them, etc.

The Bank's main activities were to discount bills, sell foreign exchange, take deposits and manage current accounts (charging a fee of 0.025% on transfers between accounts and on cash payment orders), and issue notes payable in specific silver coins (écus) on demand to the bearer. It was not allowed to engage in trade or to borrow.

3.2 The Bank notes

Getting the notes to circulate, and not return constantly to the Bank for redemption, was critical to the Bank's profitability. The Regent and several influential and wealthy backers seemed to have played a role in this, by depositing large sums at the very early stages; so the first note issues were made against deposits, not discounting, and the depositors were willing to hold the notes they received and not redeem them.

More importantly, various measures were taken by the government to enhance the attractiveness of the notes. A decree of Oct. 7, 1716 ordered that the various tax collectors

¹⁰The share of billets in the purchase price was not specified by the letters patent creating the bank. Murphy (1997, 158) states 75% billets and 25% cash; Dutot states all billets; an undated manuscript source (BN NAF 22245, fol. 293) indicates 1/16 only in cash.

¹¹Murphy (1997, 158) says it was not, but the declaration of Dec. 4, 1718 which nationalized the Bank states (art. 2) that the 6mL in billets d'État had been invested in shares of the Company of the West, and the Bank's account of 1723 lists dividend payments on 12,000 such shares (Harsin 1928, 309). Hence the subscriptions must have been paid in full.

redeem the bank notes into cash on demand. The government was implicitly undertaking to accept these notes at face value from the tax collectors. This enrolled the vast network of hundreds of tax collectors and tax accountants throughout France into unpaid branches of the General Bank, and also made the notes close to legal tender for taxes. On April 10, 1717, a decree made the bank notes explicit legal tender in the payment of taxes by individuals. On Sept. 12, the government's tax accountants and cashiers were ordered to keep accounts and make receipts and payments in notes.

The notes, denominated in écus, provided protection against a particular type of monetary manipulation, namely devaluation of the silver coinage. It worked as follows.

The bank issued notes in denominations of 10 écus, 100 écus and 1,000 écus. The écu was the standard silver coin, roughly the size of a thaler or Spanish dollar. In 1718, 8 écus were minted out of a marc of standard silver, and the face value of each écu was 5L. A 100 écus note was therefore a claim to 100/8 marcs of coined silver, and had a legal tender value of 500L. The bank notes had the following promise written on it: "the Bank promises to pay on sight to the bearer 100 écus of the weight and fineness of this day" (Lafaurie 1981, 68). In other words, the bank notes were claims to a determinate number of coins of a determinate type.

When new silver écus were issued in June 1718 of lighter weight (10 to a marc) and higher face value (6L), the old écus were given a new legal tender value of 6L until August 1 and 0 afterward. The new mint price was set at 40 per marc. Hence, after demonetization, the old écu would fetch 5L at the mint. The holder of 100 écus had 500L in coins before May 1718, but suddenly found himself owning a pile of silver which was temporarily worth 600L, but would soon have no legal tender value, and which would only purchase 500L in new legal tender at the mints.

A decree soon clarified that, since the old écus were circulating at 6L like the new ones, the existing 100 écus notes of the Bank would be taken at 600L by tax collectors and at the royal mints ("les billets de la Banque seront pris en paiement et acquittés [...] sur le pied de 6 livres l'écu").¹² The holder of a 100 écus note, then, saw his holdings in units of account increased from 500L to 600L, and his note was legal tender for taxes at 600L, or convertible at the mints or the tax collectors' offices into 600L of the new legal tender. He was thus clearly better off than the holder of coins. This essentially waived part of the seigniorage tax for all holders of notes, and was a subsidy, in the form of a tax credit.¹³ It made the note an attractive way to hold money balances, given the recurrent monetary reforms.

¹²Arrêt du Conseil (hereafter AC) Jun. 1, 1718. The notes were taken at 600L in payment of taxes, and redeemed in silver at the same rate. No time limit was set in the decree. The notes issued after June 1718 were claims to 100 new écus, or 10 marcs of coined silver, and were also legal tender for 600L. But since the old notes and the new notes were claims to different quantities of metal, they were considered different.

¹³There was also a provision that allowed one to bring a marc of old écus and 16L in billets d'État, and receive 56L in new écus; this allowed individuals to pay most of the seigniorage tax in the form of billets d'État. In the event, the demonetization of the old écu was postponed to November 1, and in the meantime, on September 20 the mint's price for the old coins was raised to 6L, thus reducing the seigniorage tax to the same level as on note-holders, whose advantage was therefore short-lived.

3.3 The Bank's "nationalization" in December 1718

The result was that the Bank was able to issue a fairly large amount of notes, 40-50mL per year on average, while maintaining a reasonable specie reserve (about 50%); when the Bank was converted to a Royal Bank in December 1718, it had 39.5mL in circulation. The notes circulated at par and were trusted. The Bank's total dividend payments (3 half-yearly payments from 1716 to 1718) amounted to 615L, a respectable 15% rate of return on the cash price of the initial shares, although not as high as one would expect given the note circulation. If it held 50% of assets in specie and the rest in bills yielding 4 to 6% (the discount rate it charged), the income should have been about 1,000L per share annually.

The Bank's success was visible in other ways. It succeeded in lowering the commercial paper rate in Paris, because the Bank successfully discounted at rates from 4 to 6%. It provided valuable foreign exchange services to the government, and to private clients as well. By late 1718, the Regent was convinced that the Bank was a profitable enterprise, and accepted Law's suggestion, already made in May, to nationalize it.¹⁴ The Regent, on behalf of the king, bought out all the existing shareholders in cash at the face value of the shares (5,000L).¹⁵ The operation was made public by a declaration of Dec. 4, 1718. The Bank would henceforth be managed by Law on behalf of the king, and all profits turned over to the Royal Treasury.

For a shareholder who was bought out in December 1718 by the King, the rate of return on his investment over 18 months was an annualized 64%, a very good deal indeed. This nationalization had two consequences: it gave the king a functioning printing press for the first time,¹⁶ and it shows the gains to be made by investing early in a company launched by Law.

4 Law's System (2): The Company

Meanwhile, Law went to work setting up a trading company, the Company of the West (*Compagnie d'Occident*).

The Company's initial business was to develop Louisiana. This was a common arrangement by which European rulers had developed their colonies in the Americas and elsewhere: the rights to develop the colony were granted to a private entrepreneur or a company, who was given monopoly rights to ensure profitability. The ruler generally profited by receiving as payment from the entrepreneur, and eventually by increasing his tax base as the colony prospered. Also, since the early 17th century, it was thought that long-distance trade such

¹⁴The rumor that the shareholders would be bought out by the king was circulating in March 1718 (*Gazette d'Amsterdam* 1718, n. 28).

¹⁵Law himself bought out the shareholders using "my own funds or my credit" (Law 1934, 3:246) and was later reimbursed by the Regent.

¹⁶The earlier instruments issued in France with the name of "billets," such as the *billets de monnoye* and *billets d'État*, were interest-bearing, registered bonds with no convertibility and no redemption date, rather than non-interest bearing bearer demand notes.

as that with India and the Far-East could only be carried out by large companies with monopoly rights, on the model of the Dutch and English Indies Companies.

The colony of Louisiana consisted in the watershed of the Mississippi river, or 41% of the lower 48. It had been French for over forty years but no one had made much money from it, and by 1717 its population of colonists was about 500. The colony's previous proprietor returned it to the king in payment of taxes in 1716, but strongly suggested that its development be entrusted to a company with a financial structure similar to Law's Bank. Projects for a small-scale company were being drawn in early 1717 when Law took them over, made them far more ambitious and secured the government's approval in August 1717 (Giraud 1966, 3:3-27).

Louisiana was ceded to the Company as a fief in perpetuity;¹⁷ moreover, the Company had a 25-year monopoly on trading with the colony,¹⁸ as well as on the profitable beaver fur trade in Canada. The Company was allowed to raise a private army, to enter into treaties with the Native Americans, and to call on the government for military assistance against other European powers. At the expiration of the monopoly, it would retain ownership of the colony but it would have to sell any forts and military equipment to the king.

4.1 The IPO

As in the Bank's IPO shares were issued, this time wholly payable in billets d'État. The IPO began on September 14, 1717 and 29mL had been subscribed within two weeks, but of that amount 13.3mL were bought by Law himself (Murphy 1997, 171).¹⁹ After that, subscriptions were very slow, and dragged into 1718. The total number of shares was set in December 1717 at 100mL in face value. In June 1718 measures were taken up to speed up payment, notably by introducing a down-payment system (a subscriber paid 20% of the price to secure an option on a share, with the rest payable within five months, else he forfeited the down-payment). The *Gazette d'Amsterdam* reported that all shares had been committed by July 16, but the subscription did not formally close until all shares were paid in, on Dec 31, 1718; of the 100mL sold, 40% was owned by the King, using spare billets d'État that had been printed but not spent.

4.2 The Company's resources

For a holder of a billet d'État, subscribing to the IPO meant converting a 4% bond into a share in a Company whose main assets were the same bond and Louisiana. From the point

¹⁷The company was technically the vassal of the king for Louisiana, and its only obligation was homage to the king and a fee of 30 marcs of gold (7.3kg) at the beginning of each new reign.

¹⁸The monopoly was extended to 50 years in August 1719 and became perpetual in July 1720, but was rescinded in 1730 when the Company returned the colony to the king.

¹⁹This amounts to 26,600 shares. However, in 1724, Law stated that his initial stake amounted to 12,000 shares and was later increased to 20,000, or 10% of the IPO (Law 1934, 3:246); he may have been speculating, or else buying for other parties.

of view of the government, the debt was still the same, and it had given away an existing asset that, to be sure, had proven so far about worthless. There seemed to be only upside potential for the subscriber, and it is a little hard to see why the government went along, unless the idea (explicitly negated in the terms of the Company's charter) was ultimately to substitute the returns on Louisiana for the interest on the bonds. This would be the idea behind the System, but it was not officially the initial idea behind the Company.

Consistent with the notion that the underlying debt remained intact and merely changed hands, the Company had an arrangement with the government to exchange the billets d'État it received during the subscription for perpetual annuity contracts between itself and the King, with interest accruing from January 1717. These annuities would provide a working capital of 4mL per year. The Company's first dividend was not payable until July 1718. Thus the 4mL was available to the Company for about 18 months before a payment was due to the shareholders.

In practice, the subscription was slow, and the first annuity contract was not signed until February 1718. Furthermore, the tax on whose income the annuities were assigned was a sort of stamp tax (*contrôle des actes*), which was farmed out; but the farm's revenue of 2mL per year was already encumbered with other obligations. The only payment from that farm in 1717 was 250,000L, on direct order of the Regent. In 1718, The regent added the tobacco farm and the postal service farm as guarantees for the annuities due to the Company for 1mL each, and the tobacco farmers lent 1mL to pay for the interest of the year 1717 on behalf of the stamp tax farm. Nevertheless, the prospects for 1718 were uncertain. Should the subscription be filled, the Company would expect to receive in 1718 4mL for the previous year and 4mL for the current year, when the three farms together were yielding at most 6mL per year (Giraud 1966, 3:39, 44–48; BN Joly de Fleury 566, fol. 254-61). This financial uncertainty probably accounts for the slow take-up of the IPO.

The Company nevertheless immediately began its activities. As Giraud (1966) documents, it inherited some assets from the previous owner of the Louisiana concession, including one ship. Law hired competent and knowledgeable people as directors and they proceeded to purchase, lease and build new ships, so that by December 1718 it had a dozen ships at its disposal and had already made several voyages to Louisiana.

4.3 Mergers and acquisitions

From its creation, Law's Company grew by a series of mergers and acquisitions, and extended its activities from trade to tax collection:

- Aug. 1, 1718: the Company purchased the right to run the tobacco monopoly for 4.02mL per year.
- Dec. 4, 1718: it bought the Company of the Senegal for 1.6mL cash.
- May 1719: the Company bought the Company of the Indies and the Company of China for its net worth (to be assessed; it turned out to be 1.5mL, Haudrère 1989, 102).

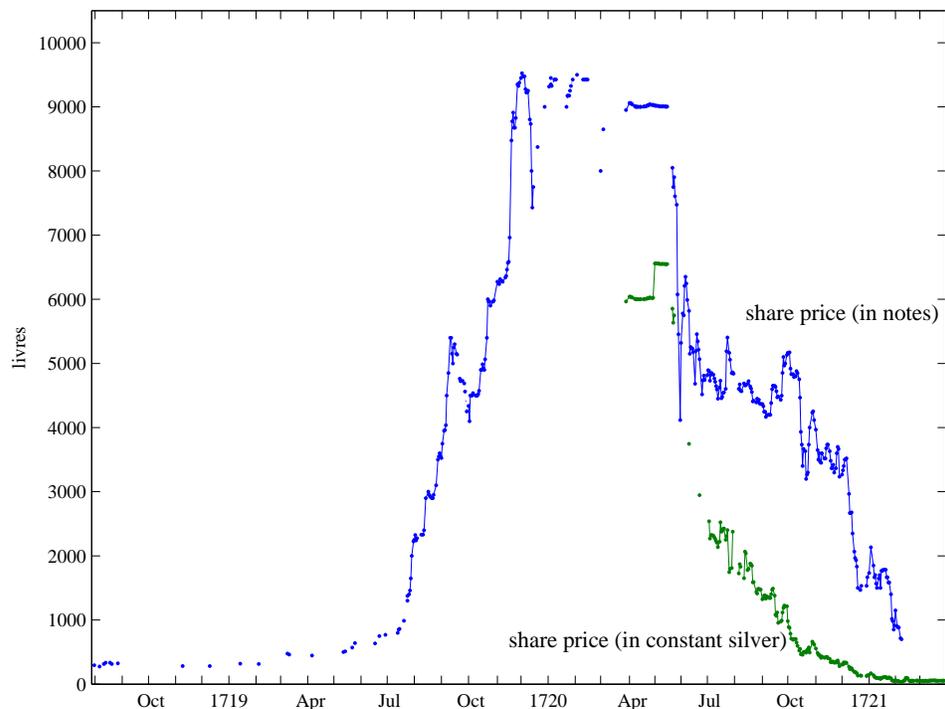


Figure 4: Prices of shares in the *Compagnie des Indes*. From June 1720 to Feb. 1721, the series is also shown converted into silver coin at 60L/marc. Source: see Appendix.

- Jul 1719: it received the Company of Africa's privilege on trade with North Africa. The price was 68,000L plus the value of assets (which turned out to be 150,000L, Haudrère 1989, 129).
- Jul. 25, 1719: it purchased the right to run the royal mints. The company paid a lump sum of 50mL to run the mints for nine years. (The sum was never paid in cash, instead the Company retired an equivalent amount of government bonds.)
- Aug. 27, 1719: it bought the right to run the *Fermes Générales* (General Farms), which collected most of the excise taxes in France and about 30% of government revenues. The lease was to run for 9 years, and be worth 52mL per year (instead of 48.5mL previously). The same day, its charter and privileges were extended for 50 years.²⁰

²⁰The General Farms were at the time under a lease begun in 1718. The King unilaterally broke the existing lease and transferred it to Law's Company. The previous holder was a syndicate led by the Paris brothers, which was authorized in September 1718 to finance itself through a share issue: the shares were sold in exchange for 100mL in 4% government bonds at face value. A 10% down-payment was required, with the remainder due by September 1719 (Dutot 2000, 80). It appears (Archives Nationales, hereafter AN, G/7/1176, letter of Paris to the Regent, Aug. 17, 1719) that the issue was nearly complete; its shares were traded on the market (prices for July and November 1719 in BN NAF 22245, 294–96; sixteen quotations from November 1718 to August 1719 in the *Gazette d'Amsterdam*), and the Musée Carnavalet in Paris has a copy of one dividend coupon (collection Fabre de Larche, GB 22). This company came to be known as the "Anti-System," although it was probably formed at Law's instigation (Lüthy 1959, 1:313–15, (Faure 1977,

- late Aug 1719: it bought out the officers in charge of collecting all direct taxes (recettes générales, about 55% of revenues).
- Feb 1720: it took over the Royal Bank.
- Sept. 1720: it bought out the Company of Santo Domingo and received the monopoly on the slave trade in Guinea.

The difficulties that the Company encountered in getting the King to pay interest on his debt explain the first takeover, that of the tobacco farm. Already in early 1718, the farmers had lent the king funds to pay the overdue interest for the previous year. Law proposed to take over the tobacco lease for 4.02mL, so as to almost exactly cancel the 4mL annual interest payment owed by the king. Law believed that he could run the monopoly better, expecting to generate 6 to 8mL per year. And, by running the farm himself, he was sure of being paid his interest. The same logic would be applied to the successive purchases of tax farms.

4.4 Financing the expansion

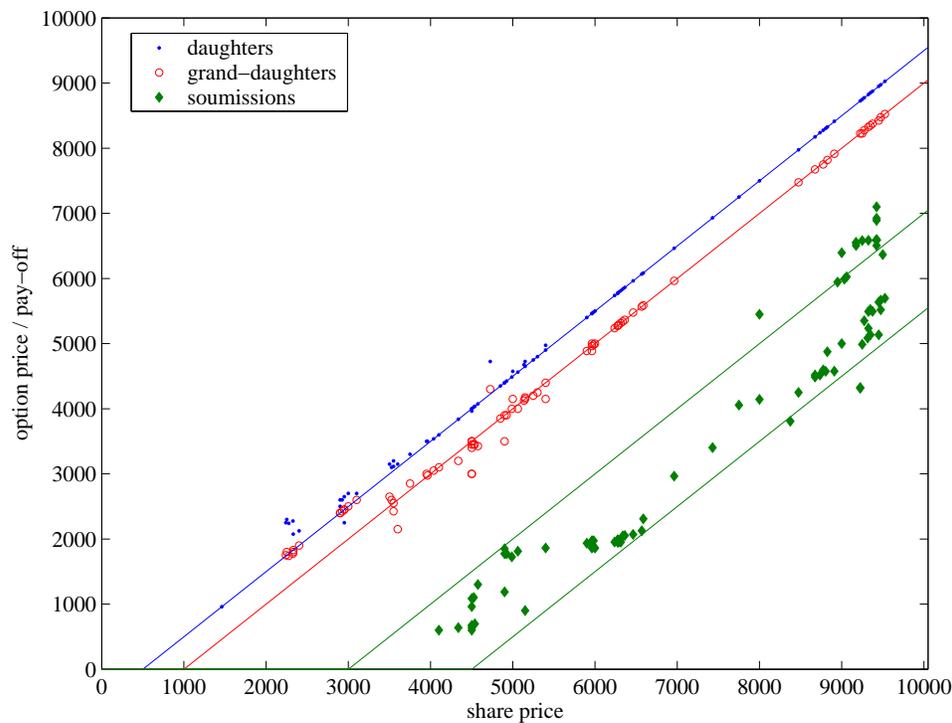


Figure 5: Prices of the daughters, granddaughters, and soumissions (construed as options) plotted against the price of the underlying share. The straight lines show the pay-off of each option. Source: Appendix.

151–53)). After the lease was broken, the shares became part of the public debt.

The Company purchased the tobacco farm with its billets d'État, but the later acquisitions were financed by successive issues of shares. Every time, the shares were payable in monthly installments. The successive offered prices were increasingly high, although each new share had equal standing with the older shares, and was in particular entitled to the same dividend.

Here is the list of successive share issues of the Company from its inception to the end of 1719:

1. June 1717-Dec 1718 (IPO): 200,000 shares at 500L each, payable in government bonds (billets d'État) at face value
2. June 1719: 50,000 at 550L each in cash, 50L down and the rest payable in 20 monthly installments
3. July 1719: 50,000 at 1,000L each in cash, payable in 20 monthly installments
4. Sep–Oct 1719: 300,000 at 5,000L each in cash, payable in 10 monthly installments (the last 9 changed to 3 quarterly payments)

The second and third issues took the form of a rights offering: a subscriber to the June issue had to own four original shares (which came to be known as the “mothers”, as opposed to the July shares known as “daughters”), and a subscriber to the July issue had to own four mothers and one daughter to purchase one “granddaughter.” This requirement helped turn the secondary market in the older shares into a frenzy. Law also demonstrated the profits to be made in a bull market by introducing Parisians to options, buying call options on shares of the Company in March–April 1719, and cashing in after the merger with the Indies Company had helped boost the price of his Company.

After making a down-payment, a subscriber received a certificate that entitled him to a share upon full payment of all the installments. By missing an installment he forfeited his share, and (in some cases) all previous payments made. This feature, noted by Cochrane (2001), made the certificates into options on shares rather than shares, with a strike price paid over time (when the payments were refundable, the option was a standard European one). This feature also characterized the fourth issue, generally called “soumissions.”

Figure 5 shows the prices of the second, third and fourth issues, plotted against the price of the underlying share, that is, of the first issue. The pay-off from the options is also plotted: since they had different strike prices, the 45-degree lines do not coincide.²¹ As the Figure shows, the price of the options tended to coincide with the pay-off as the share price rose, particularly for the first two issues. The pattern is less clear for the last and largest issue, perhaps due to changing beliefs about the future behavior of the share price. The option feature of the certificates proved crucial in late 1719, as I will indicate.

²¹The successive strike prices are 500L for the second issue or daughters, 1000L for the third issue or granddaughters, 4500L for the soumissions before the first payment was due in January 1720, and 3000L after January. Interpreting the prices recorded in the contemporary sources is difficult; see the Appendix for the details.

The billets d'État received with the first issue (100mL at face value, bearing 4%) were supposed to provide 4mL per year in cash-flow. But they were used to buy the tobacco monopoly in August 1718. The other source of financing for the Company's acquisitions was note issues by the Bank, which was managed by the same people (and eventually merged into the Company in February 1720). In December 1718, the General Bank's note issue had stood at 40mL; by July 1719, the Royal Bank's issue stood at 400mL, and reached 1bnL in January 1720. It appears that the Bank simply lent notes to the Company in exchange for IOUs (*récépissés*) signed by the treasurer of the Company (see Harsin 1928, 310).

Figure 4 shows the price of shares in the Company.²² It appears that the successive share issues were offered at close to market prices.

5 Law's System (3): the apex

Law's System reached its apex, and the price of the Company's share peaked, at the beginning of 1720. Two main elements crowned the system. The first was a virtual takeover of the French government, by which the Company substituted its liabilities (shares) for the whole national debt. The second was the substitution of the Company's other liabilities (notes) for the metallic currency. At the end of the operation, the Company, owned by the former creditors of the State, collected all taxes, owned or managed most overseas colonies, monopolized all overseas trade, and freely issued fiat money which was sole legal tender. Its CEO also became minister of finance on January 5, 1720.

5.1 Conversion of the national debt

The conversion of government debt into liabilities of the Company, which was decided jointly with the takeover of the Fermes Générales, began on Aug. 27, 1719.

Formally, the conversion took place as follows. The Company offered the government a perpetual loan of 1200mL (raised on Sept. 17 and Oct. 10 to 1600mL) at 3%.²³ Between the government and the Company, the loan took the form of a perpetual annuity at 3% owed by the king to the Company, assigned on the revenues of the General Farms. The annual 36mL payment (raised to 48mL) would in practice be deducted from the annual lease payment of 52mL that the Company owed for collecting the taxes of the General Farms.

The government was to use the 1600mL to buy out the funded government debt (that is, the existing stock of perpetual annuities) and miscellaneous other debts, listed in Table 3.²⁴

²²The prices plotted here differ from what is found in the literature, partly because of new data, partly because of differences in interpreting known data. See the Appendix for details.

²³Of this sum, 100mL corresponded to the Company's original asset, the billets d'État, on which it agreed to reduce the interest from 4% to 3% (AC of Sept. 17). This 3mL annuity remained as the Company's main asset after the collapse of the System, and it used it in 1723 to buy the tobacco monopoly in perpetuity.

²⁴The debts listed in the AC of Aug. 27 include: all perpetual annuities; the shares in the General Farms company, which were originally issued in exchange for perpetual annuities; the *billets de la caisse commune*, short-term notes bearing 4% issued by the Receveurs généraux, the billets d'État, and all offices

	capital	interest
<i>reimbursements ordered Aug 31 1719:</i>		
rentes on the Hôtel de Ville	961,731,525	38,469,261
offices (<i>charges</i>) eliminated*	254,377,341	16,958,490
notes of the <i>caisse commune</i>	33,730,409	1,349,216
billets de l'Etat	250,000,000	10,000,000
actions of the Fermes générales†	[100,000,000]	—
total	1,499,839,275	66,776,967
<i>other reimbursements ordered to Jul 1720:</i>		
other rentes	2,933,258	117,330
<i>augmentations de gages</i>	200,000,000	11,939,366
unpaid arrears (interest-bearing)	36,427,796	1,633,000
unpaid arrears (non interest-bearing)	237,919,732	9,516,790**
total	1,977,120,061	89,983,453

Table 3: Reimbursement of debts from 1715 to 1720. Notes: * only 160mL were liquidated by Sep. 1, 1720. †: these amounts are probably already included in the total of rentes. **: assuming a 4% rate of interest. Source: Etat général des dettes.

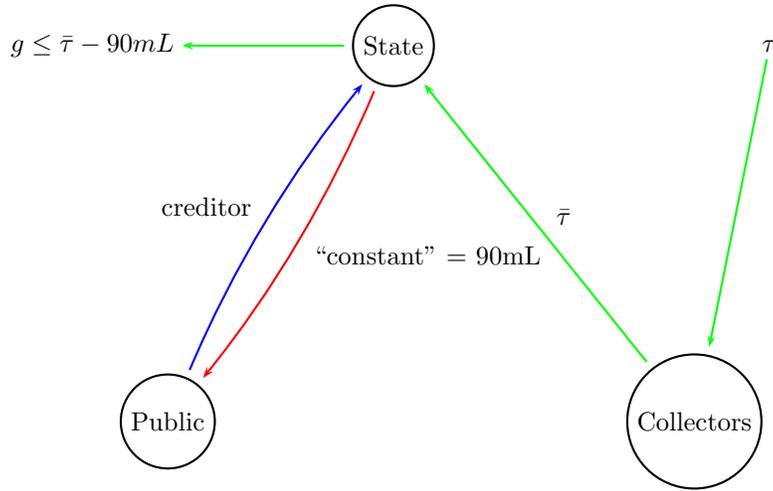
This buy-out was compulsory, but perfectly legal. Perpetual annuities and offices, by their legal nature, included a call option: the creditor could never demand repayment of the capital, but the debtor could reimburse at any time.²⁵ Bondholders would receive drafts from the Royal Treasury on the Company in the amount of their holdings, payable by the Company's treasurer in specie or bank notes at the bondholder's option.

How did the company finance this gigantic loan? It did not have on hand such a vast amount of cash, greater than the money stock. To raise the funds, it was initially authorized to borrow the same amount (1200mL) from the public by selling 3% bonds. But at some point the Company changed its financing strategy and turned to equity. On August 26, before the repayment of the debt was announced, the Company's share stood at 3600L. By September 11, it had reached an all-time high of 5400L. That day, the Company asked the government permission to raise 500mL by selling shares at 5000L in cash. The success of the share issue led to two other share issues of the same size and at the same price on September 26 and on October 2, thus bringing the total sum raised through equity issue to 1500mL and covering the Company's loan to the king. Moreover, shares ceased to be sold for cash; instead, only drafts issued by the Treasury to bondholders and other government bearer debt were accepted. In the end, the Company never issued the 3% bonds.²⁶

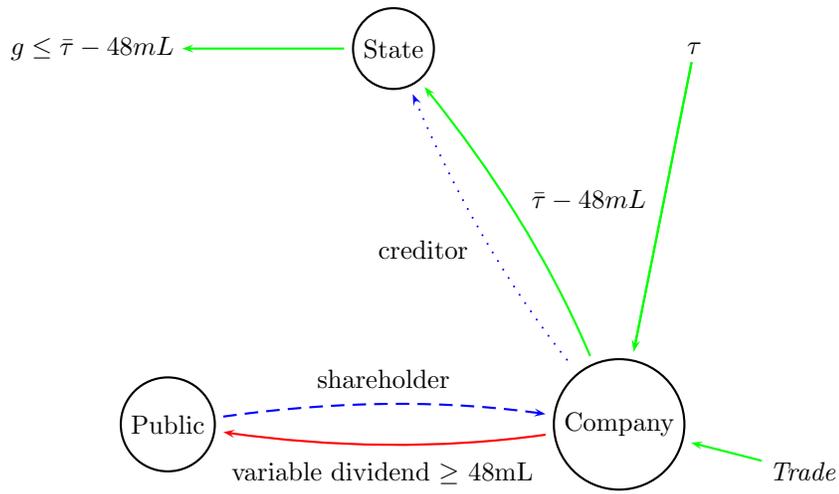
and "charges" which had been abolished since 1711 or would be abolished, and whose reimbursement was not yet funded.

²⁵The king's debt to the Company created by the operation, as well as the bonds to be issued by the Company to raise funds, could not be called for at least 25 years.

²⁶There is some debate over what was offered to the public initially, a debate that matters for the interpretation of Law's intentions. The text of the AC of Aug. 27 authorized the company to sell either *actions rentières* to the bearer or perpetual annuity contracts at 3%. The AC of Aug. 31, announcing the reimbursement of the public debt, speaks of *actions* and *actions rentières* equivalently. Faure (1977) has read both *actions* and *actions rentières* to mean annuity-like bearer securities, or bonds, emphasizing the



Before



After

Figure 6: French public finances before and after the System.

In other words, since government bonds were accepted in payment of the shares, the operation was simply a gigantic swap of government bonds, bearing on average 4.5%, for Company equity. The company's profits came from the 3% interest it was owed by the government, plus any profits on its commercial and tax-farming activities.

The end result of the process was that the company collected about 90% of taxes in France, passed on a fixed nominal amount to the government, and distributed the rest as dividends to its shareholders. Figure 6 illustrates the System. Prior to the System, taxes τ were collected by various tax collectors and a fixed sum $\bar{\tau}$ was passed on to the State. The State was in turn creditor for an annual payment of roughly 90mL, which I label as “constant” between quotation marks because of the government's unreliability; what is left is spent on government purchases g . In the System, the Company has consolidated all tax collection, and has also inserted itself between the State and its creditors. The Company now owes a variable amount no less than 48mL to its shareholders, and the State has more to spend on g .

This doubling of the Company's equity did affect the price of the original shares. From their peak of 5400L on September 11, it fell to 4100L by October 3. On that day, the Company announced it was willing to buy back any its shares at the price of 4500L. The market responded immediately and the price rose above 4500L within two days, and remained clear above that floor for the rest of the year. Dutot (2000, 168) reports that the Company did not actually purchase any shares under that program. The AC of Oct. 12, 1719 also denied rumors that further issues were planned, and promised not to issue more shares.

5.2 Money: paper competes with metal

Over the same period of time, the Royal Bank continued to be managed by Law on behalf of the Treasury. Little is known about its management during this period, until it was outright merged with the Company in February 1720. It is likely that the Bank ceased to be a classic private bank and just became a tool in the hands of Law. Under what conditions did it issue notes is not clear: I suspect that it was freely lending to the Company.²⁷

rentière aspect, and argued that the share issues of September and October were not part of the original plan. For him, the Aug. 27–31 decrees represent a conversion of government bonds into Company bonds at a lower interest (a “wise” plan), while the September share issues represent a radical shift to a “mad” plan. Murphy (1997, 200) emphasizes the *action* aspect and reads both terms to mean shares; hence, for Murphy, there is no change in policy, just imprecise wording. However, article 12 of the AC of Aug. 31 prohibits the Company from amortizing the *actions rentières* for 25 years, a clause that is understandable for bonds, but makes little sense for shares. Moreover, the Company later issued *actions rentières* (on Feb. 23, 1720), which were bearer bonds paying a fixed interest but carrying no voting rights (see the Appendix for details). There is no reason to think that the same term could mean shares in August 1719 and bonds in February 1720. The ambiguity stems from the use of the term *action* for a bond; the choice of words may be due to the fact that bearer bonds were unknown at the time, and needed to be distinguished from ordinary annuity contracts. In the end, I side with Faure in distinguishing two plans, one based on bonds and never carried out, the other on shares.

²⁷The bank's account drawn up in 1723 has an item of 1,857,588,347L “paid to the cashier of the Indies Company”! (Harsin 1928, 310).

The notes issued by the Royal Bank became increasingly prominent, and quickly changed from being the liabilities of a private bank, claims denominated in fixed amounts of silver, to the status of sole legal tender, disconnected from any standard. This process was entirely consistent with Law's stated belief that metallic money was inferior and wasteful, and would better be replaced by paper money or by a highly liquid, interest-bearing security.

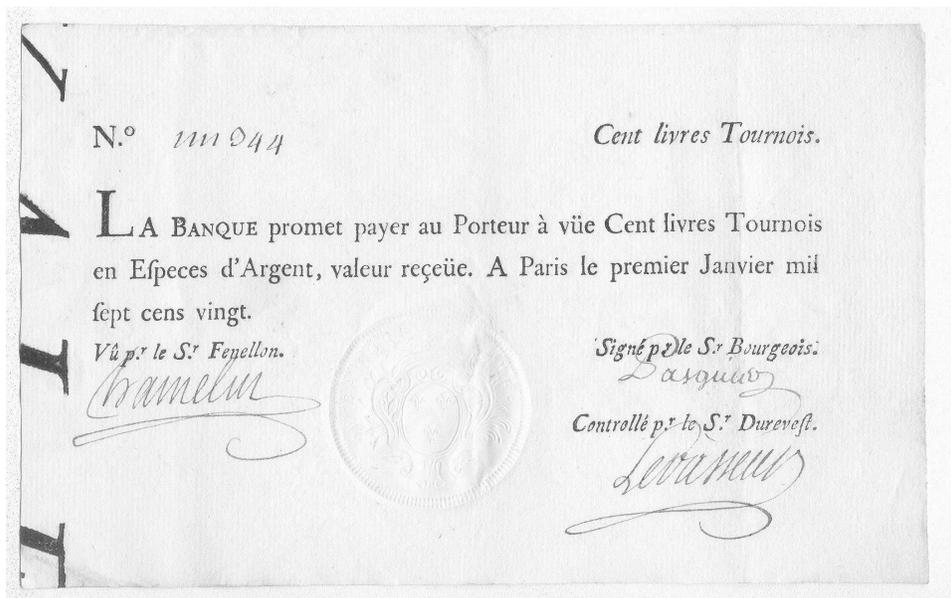


Figure 7: A 100L note of the Royal Bank issued Jan 1, 1720.

Denomination

A first step was taken on Jan 5, 1719, when new types of notes were issued, which were not denominated in specific coins, but rather in units of account, in sizes of 10L, 100L and 1,000L.²⁸ The smallest notes of the General Bank had been 60L; the new 10L notes were in direct competition with silver coinage. The note stated: “The Bank promises to pay on demand to the bearer 100 livres tournois in silver coins” without saying how many coins. (See Figure 7). Then, in April 1719, a decree explained that the new issue of écu-denominated notes had not been met by any demand, and that older écu-denominated notes were increasingly turned in to be converted into the new livre-denominated notes. It was therefore decided to abandon écu-based notes altogether and order the conversion of the remaining ones into livres-based notes. The Bank's liabilities were therefore only denominated in units of account, although still payable on demand in silver.

As we have seen, monetary reforms in which the face value of coins was increased benefited debtors who had coins. The holder of a note denominated in coins (as were the notes before 1719) benefited to the same extent. With notes denominated in units of account, the

²⁸Notes of 10,000L were authorized on Sept. 13, 1719.

benefit disappeared. But in the case of a monetary reform *decreasing* the value of coins, the holder of a note was protected against the loss in legal tender value. This was made clear by a decree of April 22, 1719 which stated that livres-denominated coins were not subject to changes in value in the case of a lowering of the value of coins. As if by coincidence, two weeks later a decrease in the value of gold coins was announced, from 36L to 35L; it was followed by further decreases from July to December, down to 32L. The silver coin was also decreased from 6L to 5.8L, then 5.6L, over the same period. At the same time, the king's tax collectors were advised that, in case of currency alteration, they would be held responsible for the capital loss on their specie holdings to the Treasury (a departure from usual practice).

Legal tender

The legal tender status of notes changed as well.

- On Dec. 27, 1718, transactions larger than 600L were to be made only in gold, or in bank notes in cities which had branch offices of the Bank.²⁹ The legal tender of silver coins was thus limited to 600L. Notes tendered in payment could not be refused, except if the local branch was not making payments in specie.
- From Jul. 25, 1719, creditors in towns with branch offices³⁰ could refuse gold and silver payments, and demand payment in notes instead. Gold and silver were thus losing their legal tender status.
- From Dec. 1, 1719, the Company itself would deal exclusively in notes, could demand payment in notes (in particular for all the taxes it was collecting), and would only pay out notes. Its payments to the king would also be made in notes.
- On Dec. 21, 1719 it was announced that no payments could be made in silver for more than 10L and in gold for more than 300L, effective immediately in Paris, from March 1 in cities with branch offices of the Bank, from April 1 everywhere else. All payments to the government made in cash were subject to a 5% surcharge. Bills of foreign exchange were made payable in notes.
- On Jan. 22, 1720 the seigniorage tax was set to 0%.
- On Jan. 28, 1720 notes were given legal tender throughout France, and it was announced that the seigniorage rate would go up to 10% (this increase was repeatedly postponed and then cancelled on Feb. 25).
- On Feb. 27, 1720 it was made illegal for anyone to own more than 500L in gold or silver coins, and no payment above 100L could be made other than in notes.
- On Apr. 1, 1720 all gold and silver clauses in contracts were voided.

²⁹Those were Paris, Lyon, La Rochelle, Tours, Orléans, Amiens.

³⁰At the same time, branch offices were established in all cities in which a mint was located, about twenty.

The growth of the outstanding paper money stock is shown in Table 4. Contemporary estimates of the gold and silver specie stock in the late 17th-early 18th century are around 1200mL.³¹ Interestingly, the decree of Dec. 1, 1719 argues that the authorized issues of 640mL would be sufficient for “circulation and all operations of commerce.” Within three months, the amount was tripled.

	notes issued less notes burned						value of estimated circulation		
	10,000L	1000L	100L	50L	10L	total	nominal	silver livres	
						(1)	(2)	(current) (3)	(60L/mc) (4)
30 Apr 1719	0.0	28.0	10.0	0.0	0.0	38.0			38.0
31 May 1719	0.0	96.0	13.0	0.0	0.9	109.9			109.9
31 Jul 1719	0.0	144.0	15.0	0.0	0.9	159.9			159.9
31 Aug 1719	0.0	334.4	45.0	0.0	1.2	380.6			380.6
30 Sep 1719	120.0	334.4	45.0	0.0	1.2	500.6			517.9
30 Nov 1719	240.0	334.4	45.0	0.0	1.2	620.6			642.0
31 Dec 1719	332.9	370.0	54.6	0.0	11.6	769.0			769.0
30 Jan 1720	358.6	379.9	57.2	0.0	14.4	810.1			810.1
29 Feb 1720	466.8	507.5	77.3	0.0	18.2	1069.7			1069.7
5 Mar 1720	458.6	530.9	82.2	0.0	18.2	1089.9			1089.9
31 Mar 1720	—	—	—	—	—	1261.5			841.0
30 Apr 1720	—	—	—	—	—	2054.0			1369.3
22 May 1720	—	—	—	—	—	2116.5			1539.3
31 May 1720	804.8	1158.5	239.4	0.0	32.5	2235.1			1625.5
30 Jun 1720	—	—	—	—	—	2359.0	2289.0	1636.6	1190.3
31 Jul 1720	—	—	—	—	—	2081.7	1873.4	1030.3	515.2
31 Aug 1720	538.9	1065.3	341.5	0.0	61.2	2006.8	1526.8	912.4	456.2
30 Sep 1720	529.4	1001.9	341.4	52.9	76.1	2001.7	1250.0	372.3	248.2
10 Oct 1720	533.0	1009.0	342.2	73.6	80.7	2038.4	1218.4	242.3	161.5
31 Oct 1720	524.1	987.8	342.0	131.6	83.6	2069.0	1128.2	236.0	157.4
27 Nov 1720	521.6	979.7	341.1	134.9	91.7	2069.1	973.0	120.4	80.3
8 Jan 1721	521.6	979.7	341.1	134.9	91.7	2069.1	673.8	58.2	46.6

Table 4: Outstanding stock of notes, by denomination, and estimated circulation (in mL). Column (1) sums the previous columns and consists of notes issued less notes burned. Column (2) adjusts for the fact that some notes had been retired but not burned. Column (3) converts into current silver livres at the market value of notes, while column (4) converts column (3) into constant silver livres of 1719, at 60L per marc of silver. Sources: see Appendix.

5.3 Money: paper replaces metal

The complete elimination of gold and silver was announced on March 11. After May 1, it would be illegal for anyone but the heavily regulated goldsmiths to own gold in coin or

³¹Dutot (2000, 5) estimates 600mL at 30.6L per marc in 1699, and 900–1000mL at 49.8 per marc in the 1730s; de Forbonnais (1758, 4:98) estimates 500mL in 1683 at 26.75L per marc; Law (1934, 3:201) estimates 600mL at 28L per marc in September 1715. Converted in silver marcs, these estimates are in the 19–21m marcs range, which would give 1200mL at 60L per marc (the standard from May 1718 to March 1720). The AC of Feb. 27, 1720 states that there was currently about 1200mL in specie in France, based on minting records.

bullion. Silver coin and bullion was also made illegal, from Jan. 1 1721, except in the form of the lower denominations of 1.5L and below. At the same time, a plan for revaluating the livre in terms of silver was announced, whereby the 1L coin was progressively lowered in value to 0.5L by January 1. All silver was to be carried to the mint, where it would be purchased with a 20% seigniorage rate. All gold was also to be sold to the mint, at a rapidly decreasing price, in exchange for notes.³² The Company would be the only one using gold and silver for foreign trade: import of gold and silver was made illegal. Silver would remain as mere subsidiary coinage, which would not even be convertible into notes (decree of April 6), although notes remained convertible into silver, albeit subject, presumably, to the 500L restriction.

The creation of a final silver coin was not without analogies with the earlier monetary reforms. The Company had a particular interest in the high seigniorage rate, since it was also running the mints, since July 25, 1719. In the original contract, the Company promised to pay 50mL (from October 1719 to December 1720) in exchange for the profits of running the mints for nine years. The king pledged to not raise coins or reduce their fineness at any time during those nine years; and, should he lower the coins, he promised to lower the mint price at the same time (leaving intact the seigniorage rate, which had stood at 20% for silver and gold since October 1718). Both promises were to be broken repeatedly, two days later in fact concerning gold (Dutot 107), but most strikingly in January 1720 when seigniorage was set to 0. The March 1720 reform was a compensation for this lost income.

Date	MP	ME	Date	MP	ME			
1 Sep 1715	28	28	6 Mar 1720	80	80	1 Dec 1720	63	75
23 Dec 1715	32	40	1 Apr 1720	70	90	23 Aug 1723	68	69
1 Feb 1716	32	40	1 May 1720	65	82.5	4 Feb 1724	60.5	63
1 Jan 1717	31.5	40	29 May 1720	82.5	82.5	27 Mar 1724	49	50
3 Mar 1718	36	40	1 Jul 1720	75	75	22 Sep 1724	39.2	40
31 May 1718	40	60	16 Jul 1720	67.5	67.5	30 Sep 1724	40.7	41.5
1 Oct 1718	48	60	31 Jul 1720	120	120	1 Jan 1726	35.6	36.3
28 Sep 1719	46.4	58	1 Sep 1720	105	105	1 Feb 1726	34	41.5
8 Dec 1719	56	60	16 Sep 1720	90	90	26 May 1726	44	49.8
23 Jan 1720	60	60	1 Oct 1720	78	90	15 Jun 1726	46.9	49.8

Table 5: Mint prices and mint equivalents of the silver coinage, in livres per marc of silver 11/12 fine. Sources: original decrees at <http://www.ordonnances.org/>.

5.4 Money and Prices

There are two ways to measure the depreciation of the paper currency, denominated in units of account. One is against its direct monetary competitor, namely silver coin. The other is through a broad price index. For the latter, we have Hamilton's 1936 price index, based on commodities purchased by hospitals in Paris, shown in Figure 9. For the former, we have foreign exchange data until September 1720, which can be converted into a price

³²Although official texts are not clear, it is likely that the mints, run by the Company, only paid out notes only since Dec. 1, 1719.

of paper livres for silver (ignoring many things like transaction costs). From June 1720 we have direct observations on the price of bank notes (by denomination) in Paris against coin, although one must keep in mind that “coin” means “current silver livres” whose silver content changed several times over the period. The result is shown in Figure 8.

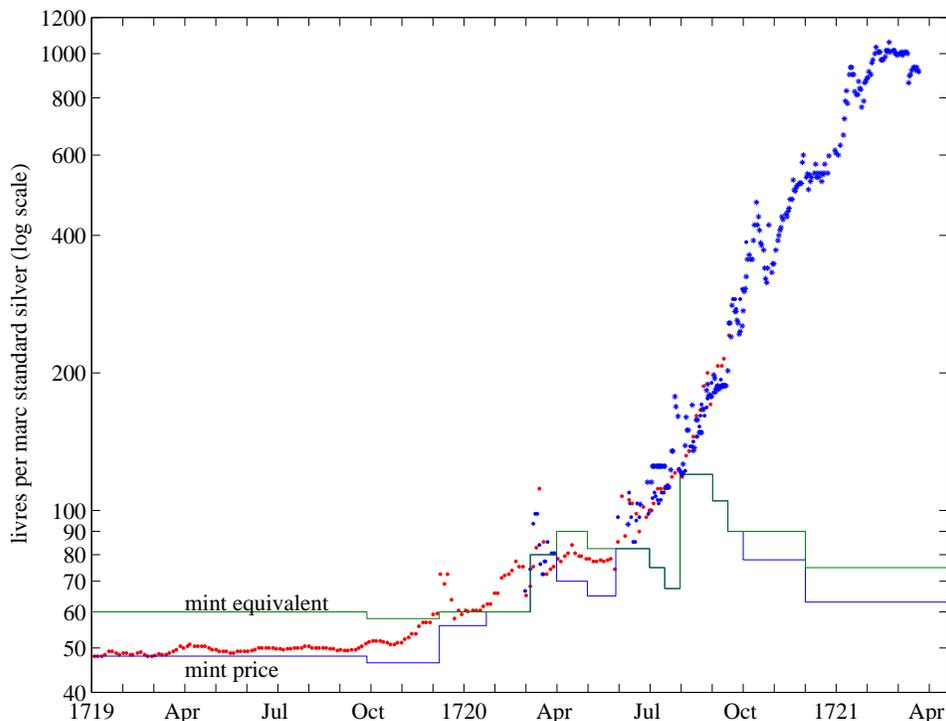


Figure 8: Indices of the bank-note price of a marc of standard silver. The dots are (transformations of) the price of French livres in foreign exchange markets, January 1719 to September 1720; the stars are based on the specie price of bank-notes, June 1720 to March 1721. The mint equivalents and mint prices for the French silver coinage are also shown. Source: *Course of the exchange* (ESFDB database), Appendix.

Several features are worth noting in Figure 8. First is the coherence of the foreign-exchange based series (until September 1720) and the bank-note based series (from June 1720). In the period for which the two overlap, they track each other closely.³³ A second point is that, until October 1719, the foreign exchange series remains close to the mint price, that is, the silver import point.³⁴ By late January 1720, the foreign exchange series rises

³³The foreign-exchange series is originally in the form of English pence sterling per “écu de change,” a fictitious unit corresponding to three livres (units of account). It is normalized so as to represent French livres per fixed quantity of silver, based on the official silver content of the English penny (62d per troy ounce of silver 92.5% fine). The bank-note series is originally in the form of livres of specie per 100L note. To plot the bank-note series on the same scale as the foreign-exchange series, the livres of specie are converted to their silver content as defined at each point in time by the laws.

³⁴If it were much lower, it would mean that French livres were overvalued in London, and that it would be profitable to sell bills of exchange at the prevailing price in London and ship silver to Paris and have it

above the mint equivalent. But, as noted above, from January 1720 on, bills of exchange in London on Paris were actually claims to bank notes rather than silver coins, since they were payable in notes. The discrepancy thus measures indirectly the degree to which bank notes are depreciating with respect to silver. In this light, the devaluations of March 1720 (25%), April 1720 (11%), and July 1720 (44%) appear as attempts to bring the silver livre back into line with the paper livre.

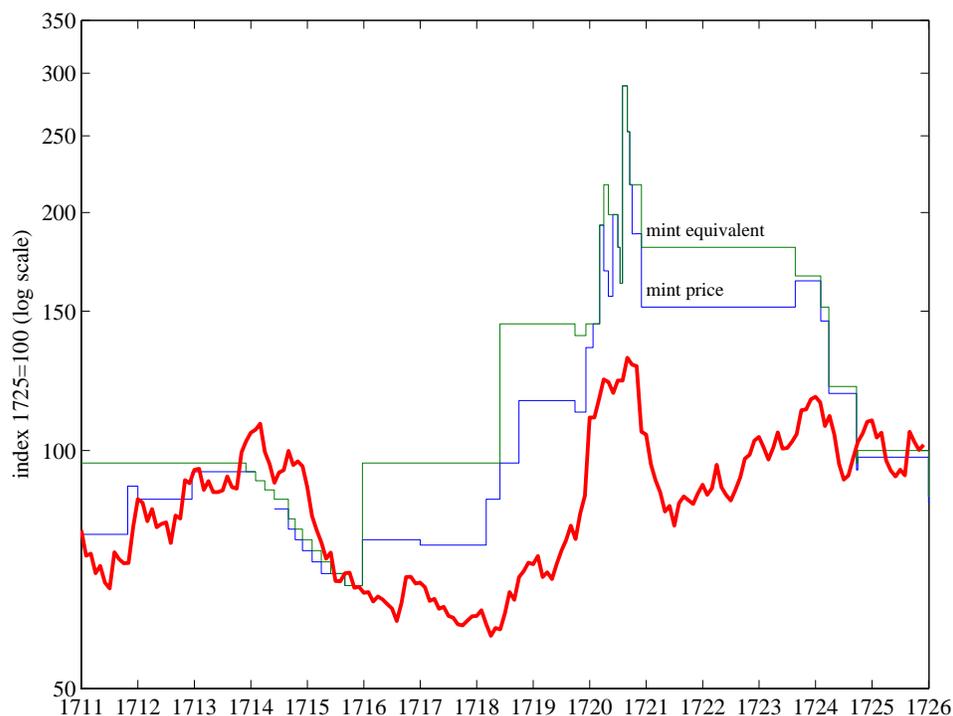


Figure 9: Commodity price index in Paris, monthly 1711–1726. The mint price and mint equivalent are also shown for reference. Source: Hamilton (1936).

Hamilton’s commodity price index presents a quite different picture when it is plotted against the parameters of the silver coinage (Figure 9). The price index measures movements in prices denominated in units of account per goods, and the mint equivalent and mint price lines are in units of account per silver. The price level and the silver content of the livre track each other quite well from 1711, when Hamilton’s series begin, to 1718 (all indices are normalized to coincide in the year 1725, at the end of the graph), suggesting a constant silver price of goods. The devaluation of 1718 does not have much of an immediate impact on goods prices, however; but by late 1719 goods prices seem to have caught up with silver. Indeed, the remarkable rise of the price level in January 1720 (+25% in one month) is what brings about the catch-up. Hamilton’s index continues to rise through 1720, but much more slowly, only 19% from January 1720 to the peak in August 1720. At the same time, the quantity of money in circulation multiplied by a factor of 2.6 (Table 4). This increase in

minted and redeem the bill in Paris.

paper money, which consisted overwhelmingly of large denominations, does not seem to show in overall prices, although Faure (1977) presents considerable but anecdotal evidence from throughout France of price increases, particularly in commodities markets, in the spring of 1720 (note that Hamilton’s data is drawn from hospital records). After the System, we can infer that the silver price of goods (the ratio of Hamilton’s index to the mint price) remains relatively low until the revaluations of 1724.

The two measures of the value of money (paper money against silver, and money against a commodity index) present different patterns. Figure 9 is not reminiscent of fiat money inflations of later periods, but Figure 8 is, and we do know that Law monitored the latter quite closely (Dutot 2000 uses foreign exchange throughout his book as an indicator of the state of affairs). It was no doubt a growing source of concern to him in the spring of 1720.

6 Law’s System (4): Collapse and Clean-up

6.1 Seeds of disaster (to May 1720)

It was a crucial aspect of Law’s scheme that the share price remain high. As long as the PE ratio was higher than the comparable ratio on government bonds (22 according to Table 3), the conversion of bonds into shares was worthwhile for the Company and the government. However, the call-option feature of the subscriptions meant that bondholders (who were obligated to accept repayment of the bonds but not necessarily in the form of shares) could back out if the price of shares fell too low for their liking and lead to the scheme’s unravelling.

Semester	Dividend	Date	Shares:		PD	Date
		Announced	number	price	ratio	Paid
1718:I	10	Aug 1717	—	(175)	8.8	Jul 1718
1718:II	10		200,000			Jan 1719
1719:I	10	27 Mar 1719(?)	200,000	460	23	Jun 1719
1719:II	10		200,000			Dec 1719
1720:I	60	26 Jul 1719	250,000	1960	32.7	—
1720:I	100	29 Dec 1719	600,000	9413	47.0	Jan-May 1720
1720:II	180	20 Jun 1720	200,000	5216	14.5	Aug-Nov 1720
1721:I+II	0	24 Mar 1723	56,000	1600		
1722:I+II	100	24 Mar 1723	56,000	1600	16	Apr-Dec 1723
1723:I	75	17 Dec 1723	56,000	1330	8.9	Jan 1724

Table 6: Semi-annual dividends announced and/or paid by the Compagnie des Indes, and number and price of shares at the time of announcement (for August 1717, cash value of the offering price). Source: Appendix.

There is later evidence that the former bondholders were not all in a hurry to convert their bonds into shares (Lüthy 1:320): on January 12 they were given a deadline of April 1 to receive their reimbursement, and on February 6 a new deadline of July 1 after which the interest on their bonds would be reduced to 2%. Since it appeared that some bondholders preferred to keep a fixed income, the Company was authorized to issue up to 500mL in 2% bonds (called, confusingly, *actions rentières* or “annuity shares”) in denominations of 1000L

and 10,000L, and bondholders were given the option to exchange their government bonds for either shares or company bonds.

Law used a variety of means to shore up the price of shares. By the fall of 1719, the Company was giving out low-interest loans against shares as collateral. We saw it intervening directly in the market in October, a first hint of the debt monetization that was to come. The share price doubled and peaked at 9525L on December 2, then started sliding again; this was attributed at the time to speculators facing their first due payment on the subscriptions of September 1719, and selling shares to meet it. The Company delayed the opening of its office to receive the payments on the subscription several times, and opened it on Dec. 11, when the price was 8805L. By December 15, the price had fallen to 7750L. It rose again to 9000L by December 28, perhaps through covert intervention of the Company. On Dec. 30, 1719, the Company formally opened a window where shares and subscriptions could be bought and sold for prices posted each day. The office functioned with some interruptions until mid-February (Faure 1977, 340), during which time the Company bought 800mL worth of shares, or about 17% of its capitalization, with a corresponding addition to the money supply.³⁵

Dealing with the growing money stock

Law now needed to deal with shares and notes in order to manage the growing money supply. Between late February and early March 1720, his policies were marked by inconsistencies and sudden reversals.

At first, Law tried to curb the growth in the money supply. On February 22, after a general assembly of shareholders, the Bank was formally merged with the Company, limits were placed on further issue of bank notes, and the Company was prohibited from lending to the King; in return, however, the Company bought back from the King his 100,000 shares at 9000L each, payable 1/3 during 1720 and the rest over the course of 10 years. Also, the price support policy was officially halted. The effect on prices was immediate: from the support price of 9425L the market price of shares fell to 8000L by March 1, while the subscriptions fell from 6600L to 5450L (Dutot 2000, 225).

Law quickly reversed course on the price of shares and, on March 5, opened another office for the buying and selling of shares at a fixed price of 9000L. At the same time, the outstanding subscriptions lost their option and were all converted into shares at a 2:3 ratio, while reimbursements of the public debt continued to be made, but in bank notes. From March to late May 1720, the company spent another 1213.5mL (Hautchamp 1743, 1:121) to buy 27% of its stock, resulting in the increase in outstanding notes shown in Table 4.

The exchange rate between coin and note was also subject to reversals. On March 5, Law effectively devalued the metallic livre by 1/3, changing the face value of the recently issued silver coin from 1L to 1.5L. This was the first monetary manipulation since May 1718, and was accompanied by a pledge that “the bank note is a form of money that is not subject to

³⁵Hautchamp (1743, 1:109). The stock consisted at the time of 300,000 original shares, which the Company was buying at 9425L, and up to 300,000 subscriptions, valued at 6600L: a total capitalization of 4.8bnL.

any variation.”

Then, within days, Law reversed course and set forth the plan for the full replacement of metal by paper described earlier. The plan included a gradual appreciation of the livre relative to silver, above and beyond its previous level, since the 1-livre piece was scheduled to be fall back from 1.5L to 0.5L by January 1721. Figure 8 suggests that the devaluation of March 5, 1720 was merely ratifying the fall in the market exchange rate of the French livre (which meant the Bank’s notes) relative to other metal-based currencies. If so, this represented a powerful warning sign of inflation, which Law somehow expected to contain by his demonetization plan. Indeed, he expected to engineer a serious deflation.

The devaluation of May 21, 1720

Law presumably realized the process by which shares were being replaced by legal tender notes. On May 21, an arrêt was published that represented a major change in the System. The preamble, drafted by Law himself³⁶ recites the achievements of the System, but attributes to “ill-disposed individuals” attempts to undermine it, and presents the devaluation of March 5 as a means supporting the credit of the System by depreciating the coinage, and the plan of March 11 as a means of restoring the proper foreign exchange rates. Such measures, he wrote, would necessarily induce a deflation in the prices of all goods and assets, and consequently a similar deflation was necessary for the System’s liabilities. Thus, abandoning the tenet of constancy of the paper money affirmed weeks earlier, Law devalued both the shares and the notes by roughly equal amounts, in monthly stages, from 9000L to 5000L for the shares, and the shares down to a half of their face value by December 1. To alleviate the burden on small noteholders, the notes remained legal tender at their original face value in payment of taxes for the rest of the year 1720.

The Bank started paying its notes on demand in specie at the new parity, but within days public outrage against the measures was growing; on May 27 the devaluation of May 21 was rescinded, and a few days later the planned demonetization of March 11 was halted, and the freedom to hold and use specie returned. On May 28 Law was fired and placed under house arrest, but within days he was freed and resumed his seat at the cabinet. Probably the Regent understood that no one but him could save the System.

6.2 Saving the System (May–November 1720)

Law never gave up hope, and from his recall on June 1, he tried to save the System. The primary goals were to reduce the quantity of notes in circulation and to save the Company (and Bank) from bankruptcy. To this end, a series of measures aimed to withdraw notes from circulation and convert them into other, mostly non-demand liabilities of the Bank or the government: (1) life or perpetual annuities, (2) bank accounts, and (3) a new subscription of Company shares (see Fig. 10 for a schematic representation of these conversion operations). These three means were outlined in an Edict of July 1720 which reaffirmed and extended

³⁶A draft in his own hand is in AN G/7/1628-1629.

the Company's privileges. The bonds were expected to soak up 1000mL, the bank accounts 600mL, and the new shares 600mL. The thrust of the measures was to retire the high-denomination notes (1,000 and 10,000L), which represented 88% of the total issued by late May.

Bonds and bank accounts

The Company had already started issuing bonds in February 1720, and it began an issue of life annuities in May 1720, which sold out by late June. These liabilities of the Company only amounted to 150mL. In June, the government put on sale traditional perpetual annuities at 2.5%, for a face value of 1000mL, effectively reversing the conversion of the debt and renationalizing it. Former bondholders who still had their bonds or their liquidation receipts had priority to purchase the new bonds, which could otherwise be bought with notes. The notes retired were to be burned publicly.³⁷

One second outlet for the notes is of interest. The "bank accounts" (*comptes en banque*) created on July 13 were proposed to Law by private bankers (according to du Hautchamp), and modelled on the bank accounts of the public banks of Amsterdam and Hamburg, which served to settle large transactions. Law gave his Bank's accounts a monopoly as means to settle all transactions greater than 500L, wholesale trade, bills of exchange, and they could only be purchased by the deposit of high denomination notes.

Both outlets, bonds and bank accounts, were slow to take notes out of circulation. By July 19, only 159mL of the government's perpetual annuities had been subscribed (Faure 1977, 471). As for bank accounts, within three weeks of the opening of the accounts, only 100mL of notes had been withdrawn in this manner; the final figure would be 239mL.

New share issues

The third way to retire notes was to convert them into shares. The first attempt was at a capital call of 3000L per share announced on June 3. Those who made the payment would receive a dividend of 360L per share; those who didn't would only receive a fixed coupon of 200L. Since the number of shares was set at 200,000, this capital call could be expected to soak up 600mL in notes. It was clearly not successful, since on June 20 shareholders were authorized to pay in with shares instead of notes, each old share taken at a face value of 6000L: the operation simply amounted to a two-for-three reverse share split, except that the promised dividend increase (from 600L for the three old shares to 720L for the two new ones) was more difficult to justify in the absence of any cash receipts. Furthermore, with the renationalization of the debt, the Company's loan to the government was partially cancelled (1000mL in bonds were issued), and the corresponding interest of 30mL, a substantial fraction of the Company's income, owed by the king could not be counted on to support the promised dividends.

³⁷In August 1720, the king created a further 8mL (later reduced to 6mL) in perpetual annuities at 2%, and 4mL in life annuities at 4%, with the explicit goal of exchanging them for high-denomination notes.

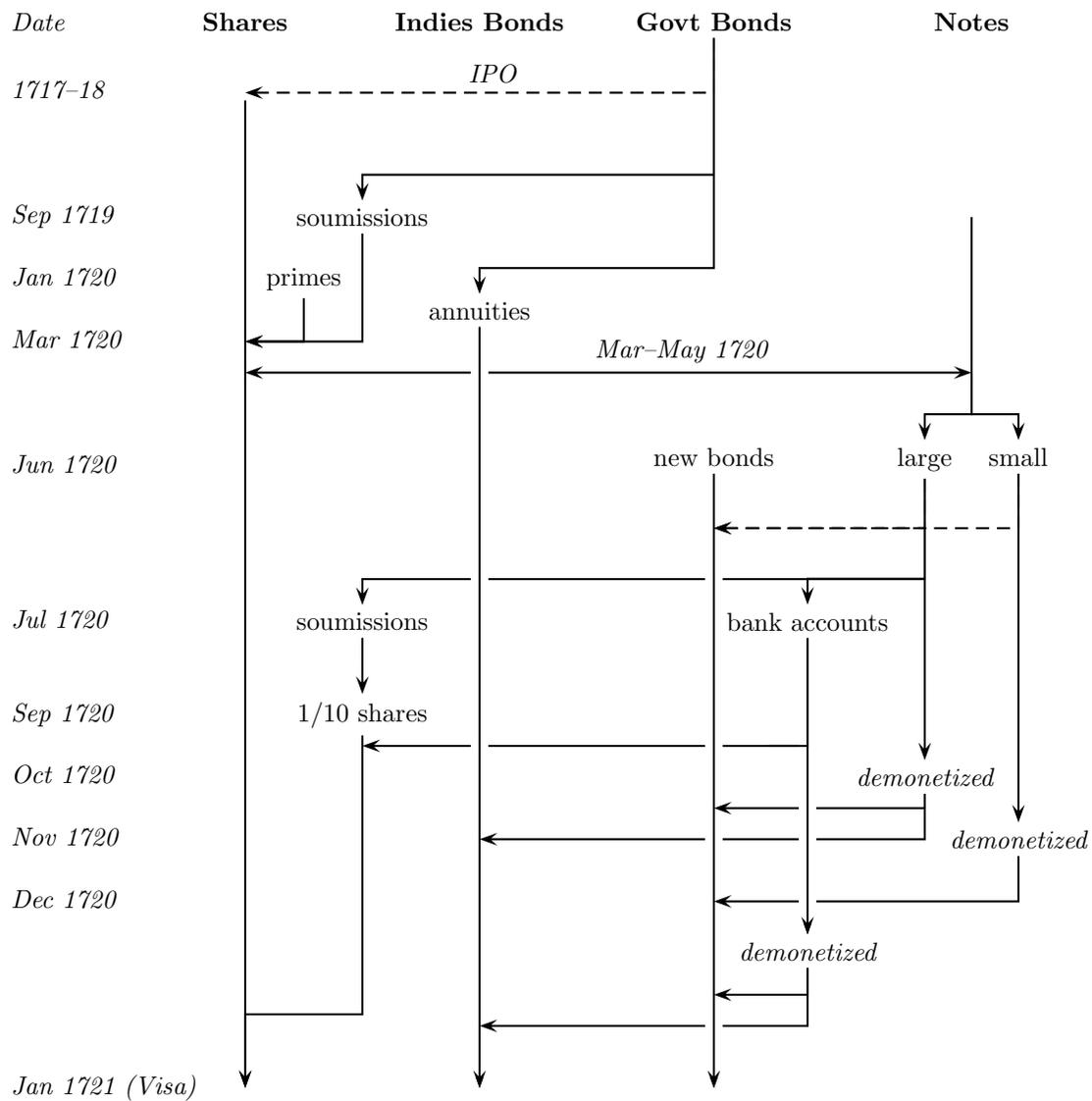


Figure 10: Conversion operations between the various instruments of the System.

A second attempt at retiring notes with a new issue of shares was made on July 31 and August 14, again in the form of subscriptions: the price was 9000L, with 1000L down-payment in notes and the rest due over the course of six months. This appeared to have some success, and 70,000 subscriptions were sold. On September 15, however, the subscription scheme was altered: the subscriptions, on which only one payment had been made, were made convertible each into a tenth of share; this conversion was made mandatory on November 1.

The bank could redeem or buy notes directly in exchange for coin. It did not do much redeeming. The Bank's window, closed during the events of late May, reopened on June 12 but only to convert large denominations into small denominations, while some local officials in Paris converted small denominations into silver on a very limited basis. On July 9 the Bank it started to redeem small amounts of notes in coin, but the ensuing melees led to an indefinite suspension on July 17 (Faure 1977, 477-89). After the end of May, the Bank's notes were in effect inconvertible. There are indications, however, that the Bank bought notes on the open market, in other words at a discount over face value (Faure 1977, 501; see Figure 12 for the market value of notes).

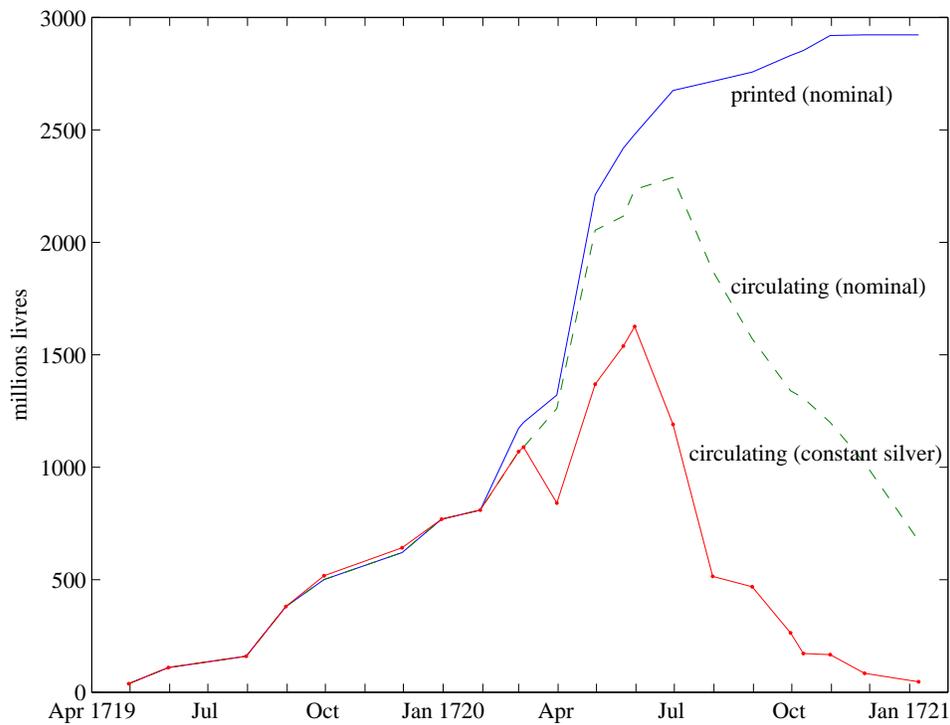


Figure 11: Net issue of notes, actual circulation (nominal and constant silver value). Source: Table 4.

The note is abandoned

After a very sharp devaluation of the silver currency failed to bring the notes more than briefly back to par in early August, Law decided to jettison the note altogether. On August 15, the government announced its plans concerning their ultimate fate. The demonetization of high-denomination notes was announced for October 1, and that of low-denomination notes for May 1, 1721.³⁸ The freedom to denominate contracts in gold and silver above 1000L was restored. Until October 1, the notes were still legal tender for debts and taxes (a decree of September 15 limited the validity of both high and low denominations to 50% of any payment except for existing debts). After October 1, the high denominations could only purchase government bonds, bank accounts, or company shares. During the month of October an additional outlet for notes was provided at the mints, where they were taken along with old coins in exchange for new coins.

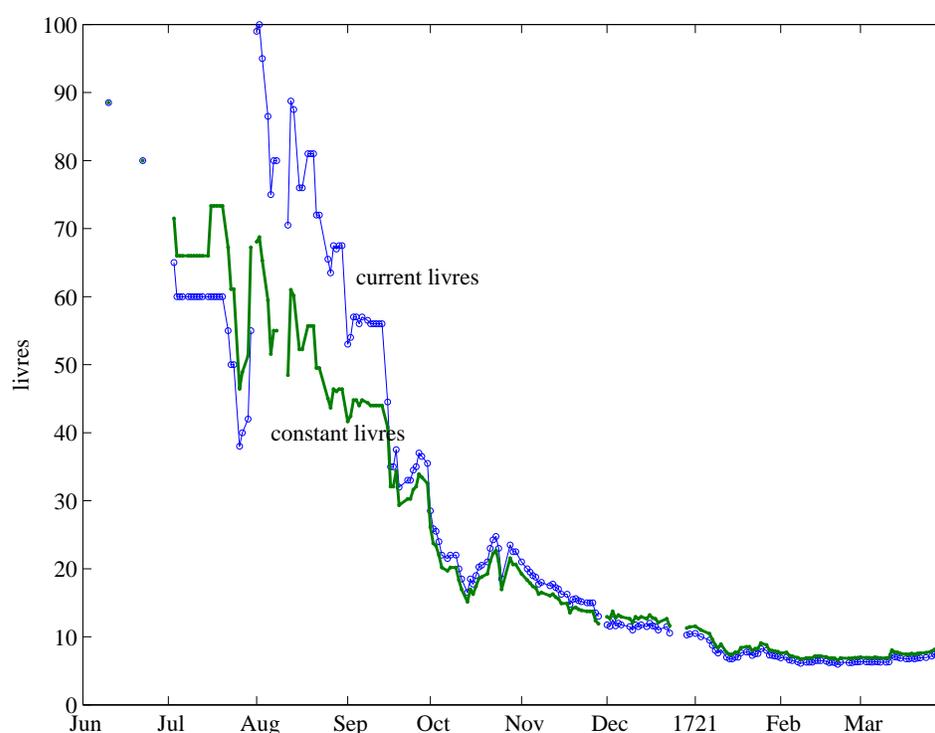


Figure 12: Price of 100L note in current silver livres and in constant silver livres of June 1720 (82.5L / marc). Source: Appendix.

The bank note continued to depreciate, and the demonetization was brought forward. On October 10, the government reckoned that about 700mL in notes had been retired and burned, and another 730mL retired but not yet burned,³⁹ leaving an outstanding stock of

³⁸The issue of low-denomination notes continued until October; 10% of the notes converted in bonds or bank accounts were returned to the owner in the form of low-denomination notes.

³⁹The arrêt of October 10 also mentions 90mL converted for specie by the Bank, but Dutot omits it.

1169mL, and it considered that there were enough options available for their conversion to bring forward their demonetization to November 1 for all payments. The Company retained the ability to make their payments for debt service, wages, and dividends, in notes until January 1. The notes remained accepted at face value to purchase the government annuities of June and August 1720.

The bank accounts had been intended to survive the notes. On September 15, Law tried to recreate elements of the System, with the bank account in the role of the note. He created a dual unit of account, one based on the metallic currency, the other on the bank account. The nominal value of bank accounts was reduced by a factor of 4, and the ability to buy them with notes apparently ended. But at the same time, he made it possible to convert shares into bank account balances at a rate of 2000L per share, just as the shares and notes had been convertible into each other in March. This created a nominal exchange rate between bank accounts (which were called *nouvelles écritures*; Dutot 2000, 362) and paper currency of 4:1. On October 22, the aggregate amount of bank accounts was limited to 100mL (presumably in bank-account units). They remained the official means of payment for the large transactions detailed above, and foreign exchange was quoted in terms of bank account balances. The dual-unit system was abandoned on December 26, when the bank accounts were overnight demonetized, converted back to paper-currency units (i.e., multiplied by 4), and made exchangeable into government bonds. The bank accounts never proved successful. A total of 407mL (in paper-currency units) had been created, consistent with the 100mL limit; but of those, only 239mL had actually been issued, and 51mL were held by the Royal Treasury or the Company, so that only 188mL were in fact held by the public (Paris-Duverney 1740, 2:258).

7 The Aftermath

Law left France in early December 1720. Cleaning up the System took several years. The immediate problem was what to do with the wreckage of the System, namely, the various instruments and securities (company shares, bank notes, bank accounts, government bonds of 1720, company bonds, receipts from various treasurers). All instruments were submitted to a liquidation called the “Visa,” managed by seasoned financiers and former rivals of Law, the Paris brothers.⁴⁰

The result of the Visa was a newly recreated national debt, in the form of perpetual and life annuities. The Indies Company was put in receivership in April 1721 and emerged again in April 1723; it continued as a trading company until 1769. I review the Visa itself and the ensuing fate of the Company.⁴¹

⁴⁰The four Paris brothers, former wartime suppliers turned financiers, had been involved in the management of government finances in the 1716–18 period, among other things reforming accounting and tax collection practices. In 1718 they organized at Law’s behest the short-lived publicly-held General Farms, and later fell out with him. They remained in power from 1721 until May 1726. There exists no serious study of their career and policies.

⁴¹We have little information on the accounts of the System and the Visa. What we have comes mostly

7.1 The Visa of 1721

After Law left France, individuals were still able to purchase government bonds with the instruments of the System, until Jan 6, 1721, when the government froze such conversions. Over the following two years, the government carried out itself the conversion of the System's liabilities into bonds, through an operation called the 'Visa.'

The government ordered all the System's instruments to be submitted to an agency created for that purpose. The owners were required to list the instruments in their possession and explain how they had acquired them. Anything not submitted to the Visa became worthless. This first step was completed by August 1721.

The second step was to convert these claims into public debt, "based on the realm's abilities and on the rules of fairness": that is, (a) to reduce the aggregate amount, and (b) to treat the individual claims based on the information submitted. For the aggregate amount, the government announced that it would accept a total debt capital of 1631mL, and an annual interest payment of 40mL. To solve the allocation problem across individuals, the government announced a matrix: the rows were the instruments, the columns were the manner in which they had been acquired (from a reimbursement, from a sale of real estate or personal estate, etc); the entries in the matrix were the coefficient by which the nominal amount was to be reduced.⁴² The coefficient ranged from 100% (government bonds traced to a reimbursement) to 5% (any security submitted without explanation).

Applying the matrix to all the claims took over a year, employed thousands of employees, and cost 9mL (Dutot 1935, 2:266). The regulations governing their activities are intricate and detailed (Hautchamp 1739). Fraud and corruption inevitably occurred, but was harshly repressed. The work was completed in September 1722. Claimants were given certificates of liquidation, which they could then convert into government bonds, either perpetual or life annuities. For the purpose of redeeming the certificates, a total of 1700mL in capital, 47mL in perpetual annuities, were created from 1720 to January 1724, slightly more than initially promised.⁴³

from a controversy in the 1730s. In 1738 Dutot published his *Réflexions politiques . . .*, which contained in passing a criticism of the Visa; this book prompted one of the Paris brothers, Paris-Duverney to reply in 1740 with an *Examen du livre intitulé Réflexions politiques . . .*; Dutot wrote a rejoinder but died before publishing it; Harsin published it in 1935. The archives of the Visa were publicly burned in 1722, those of the System were burned in 1727 (a 250-page manuscript inventory of the latter exists in AN V/7/235).

⁴²To check on the statements made by owners concerning the origin of their securities, the government ordered notaries to submit all documents relating to reimbursement and other financial transaction since September 1719. The information collected was then solemnly burned in September 1722 to protect "le secret des familles."

⁴³A few other outlets were also provided for these certificates, such as the purchase of some offices that were recreated, the payment of tax arrears, or the purchase of new coins, since the monetary reform of September 1720 continued until 1724.

What became of the notes?

Notes were either converted into other instruments (either bank accounts or bonds) or redeemed before the Visa, submitted to the Visa, or neither. Some of the notes converted or redeemed were burned (in particular all those converted into bank accounts), others weren't. Table 7 collects existing information.

(1) total notes printed	2822.3
(2) burned Jun - Nov 1720	752.6
<i>of which:</i>	
(2a) bank accounts submitted to Visa	148.6
(2b) bank accounts not submitted to Visa	38.8
(2c) bank accounts redeemed by Company	51.9
(2d) other	513.4
(3) not burned (1–2)	2069.7
<i>of which:</i>	
(3a) notes submitted to Visa Jan 1721	645.4
(3b) notes not submitted to Visa	28.4
(3c) other (=3–3a–3b)	1395.9
(4) (2c+2d+3c)	1961.1
(5) Bonds submitted to the Visa	1417.2
Unaccounted for (4–5)	544.0
Total submitted to Visa (2a+3a+5)	2211.2

Table 7: Accounting for the notes of the Bank. Sources: Calculations based on Pâris-Duverney (1740) and Dutot (1935).

As Table 7 shows, most of the notes converted or redeemed into something other than bank accounts (line 4) can be accounted for with the various government and Company bonds which were themselves submitted to the Visa (line 5), but this leaves a remainder of 544mL in notes not converted into bonds. There are two possibilities.

Some of the remainder probably consists in shares issued after June 1720 to reduce the circulation of notes. We know that up to 70,000 subscriptions were issued in July 1720, which accounts for 70mL, and which were converted into shares in Sept. 1720 at a rate of 1/8 share per subscription. Also, up to 500,000 tenths of shares were issued at 800L each in September 1720, which would potentially account for up to 400mL. But we do not have any information on the number of tenths of shares actually issued: we only know that there were about 200,000 shares in July 1720, that a maximum number of 250,000 was set in September 1720, and that only half that amount was submitted to the Visa in January 1721. We can only say that between 70mL and 470mL of the remainder could have been converted into shares.

Another part of this remainder consists of notes exchanged for specie between June and October 1720. Recall that Law had proceeded to buy back the metallic stock from March to May 1720; Faure (1977, 378, 385) finds at least 221mL in notes issued for coins at 82.5L per marc. After the July 31 devaluation, the same coins could buy back at par 320mL in notes at par, or 550mL at market value. Marais (1863–68, 1:372) says that the Bank was buying notes with specie on the market at a 25% discount over face value, and Dutot (2000, 323, 383) complains that 51mL in specie held by the mints in late August were all spent to

exchange the notes of well-connected owners, although he does not say at what price. Also, in September 1720 new gold and silver coins were issued, which could be purchased with up to 1/3 of the price in small denomination notes.

In summary, one can say that of the 2800mL of notes issued, 2200mL ended up in the Visa liquidation and became government bonds, and of the remaining 600mL some was redeemed in coin at varying rates, and the rest converted into shares of the Company.

The 2211.2mL of the bottom line of Table 7 submitted to the Visa were reduced in face value to 1700mL, a 23.5% average reduction, but with much variation across individuals. The authors of the Visa (Paris-Duverney 1740) insist that their goal was to bring back the debt to a sustainable level while maintaining fairness, by which they meant a bias for small holders. No claim of 500L or less was reduced: these small claims represent half of the individuals and 40% of the sums involved. This means that the remaining 60% of the sums were reduced by 39% on average. The cash value of the liquidation certificates issued by the Visa was around 25% of face value on the open market in 1722 (Dutot 1935, 2:279). This means that the average holder of a note ultimately got about 20% of face value in March 1722, which was the market value as of early November 1720.

A supplementary tax on excessive profits from trading in the System was levied on about two hundred individuals and reduced the debt by another 190mL. The rest, about 1500mL, was converted into life annuities at 4% and perpetual annuities at 2%, the bulk of the latter still in existence in 1789 (Marion 1914, 1:474).

7.2 Government finances during and after 1720

Table 8 summarizes what indications I have found about French finances from 1715 to 1726.⁴⁴ The numbers are very approximative because, in contrast with numbers for the period up to 1715, they come mostly from summary planning budgets rather than ex-post accounts. For the year 1720 we do not have even such a summary document; and in 1721 the government had so little information that it used as a basis a plan made for 1717. The numbers I have put in Table 8 would correspond to mid-1720, under the System.⁴⁵

The Table shows clearly the general pattern of public finances during that period. In 1715, the debt burden is large. In 1716, exceptional seigniorage revenues allow the gov-

⁴⁴For revenues and expenditures: BN Fr. 7766, fol. 250-55; BN, Joly de Fleury 566, fol. 254-81; BN, NAF 22245, fol. 365; Affaires Étrangères, M & D France 1258, fol. 150-1, 200-4. For direct taxes: Clamageran 3:198, 226-32, AN K885, 1, p. 40, AN K886, no 13. For indirect taxes: AN K885, 1, p. 51, 59, 2, p. 58; AN G/7/1176; Dutot (1935, 2:214-19); BN, NAF 5010. The negative number for seigniorage in 1724 reflects the cost to the government of capital losses on coins held by tax collectors during the revaluations of the coinage in that year (BN, NAF 22245, fol. 365).

⁴⁵BN, Joly de Fleury 566, fol 277. For 1720 I have done as follows. I have interpolated civil spending from 1718 and 1721. I assumed 14mL for the navy (compared to 12mL in 1721); expenditures for the army were 74mL in 1720 (BN Joly de Fleury 566, fol. 278). I put debt service at 36mL, the debt to the Company. I assumed that direct revenues, miscellaneous revenues, and revenues from the post farm were unchanged from 1719; revenues from the general farms were 27.4mL (BN NAF 5010) net of the 36mL payment to the Company. I have set seigniorage revenues from the mints at 0, although from September 1720 on they were positive.

	1715	1716	1717	1718	1719	1720	1721	1722	1723	1724	1725
direct	101.7	100.4	75.3	63.8	58.8	58.8	66.9	78.7	87.7	88.6	80.9
indirect	59.9	60.1	59.8	59.7	67.0	66.8	76.7	90.9	103.1	108.6	104.0
misc	3.9	3.9	3.9	2.7	2.9	2.9	3.6	3.9	4.1	4.4	6.2
seigniorage	0.0	75.5	12.7	17.9	12.0	0.0	24.0	20.0	0.0	-33.5	0.0
total revenues	165.6	239.9	151.6	144.1	140.8	128.6	171.3	193.5	195.0	168.0	191.1
military	71.5	50.7	50.7	45.8		88.0	76.4			66.3	61.0
civil	46.3	26.1	25.2	36.6		35.0	34.1			41.0	40.6
total non-debt spending	117.8	76.8	75.9	82.3		123.0	110.4			107.3	101.6
primary surplus	47.8	163.1	75.7	61.8		5.6	60.8			60.7	89.5
debt service	86.7		93.7			58.6				86.7	
livre index	28	40	40	60	60	82.5	75	75	75	40	41.5

Table 8: Government finances, 1715–26. Sources: see text.

ernment to deal with the most pressing debts, but in 1717 political pressures force the government to rescind wartime direct taxes. In 1718 it had to resort to seigniorage again, and it was still some ways from balance. More cuts in expenditures were planned for 1719, and indirect tax collection was starting to improve. The System was accompanied by a number of tax cuts and an amnesty for overdue taxes, leading to a fall in revenues. Spending had surged, meanwhile, because of the war with Spain in 1719. After the end of the System, revenues increased, at first because of seigniorage, then because of increases in regular tax revenues. This eventually allowed the government to reach balance by 1725 or 1726.

The primary deficit at the peak of the System was over 50mL, which is as large as it was during the War of Spanish Succession. Law’s management of the traditional components of government finances, cutting taxes in time of high expenditure, was good policy (and highly unusual for France), but might seem less than prudent when undertaken at the same time as his other radical reforms.⁴⁶ It can be argued that the high level of spending in 1719 and 1720 was exceptional and temporary, and that revenues would soon improve as they did. It is true that the improvement in revenues came in part from reversals of Law’s tax cuts in 1722 and further tax increases. In part they came from improved tax collection in the early 1720s, which accrued to the government because the indirect taxes were not farmed but managed on the government’s account (*en régie*). The same improvements would have accrued to the Company and its shareholders, not to the government, at least for the remainder of the lease on the farms (until 1724).

Faure (1977) castigated Law’s “good fairy policy.” If the deficit in 1719 (the war year) was twice that of 1720, we can figure that about 150mL in deficits were financed by money creation during the System.

⁴⁶Law (1934, 3:38–76) intended to completely do away with existing taxes and replace them with a single tax on land, an idea that would find partial implementation in 1791.

7.3 The Indies Company

The Indies company survived the collapse of the System. The government decided on January 1721 to hold it accountable for the bank notes; the shareholders strenuously objected that the bank had been merged with the company against the latter's will and had always been a tool of government policy. The government progressively relented; and gave the company the means to continue as a viable commercial enterprise, by absolving it of the System and giving it new monopolies.⁴⁷

The shares in the Indies Company were submitted to the Visa. The number of shares was 600,000 as of March 12, 1720, reduced to 200,000 by June 3 as a result of the Company's repurchase program and of the king's gift of the 100,000 he owned to the Company as part of the rescue effort in early June (Dutot 2000, 251, 260). These were converted into new shares at a 2:3 ratio over the summer, leaving 133,000 new shares. An unknown number of these failed to submit to the "second stamp" of October 1720 (see Appendix). In 1721, only 125,000 shares were presented to the Visa, and they were reduced to 55,735.

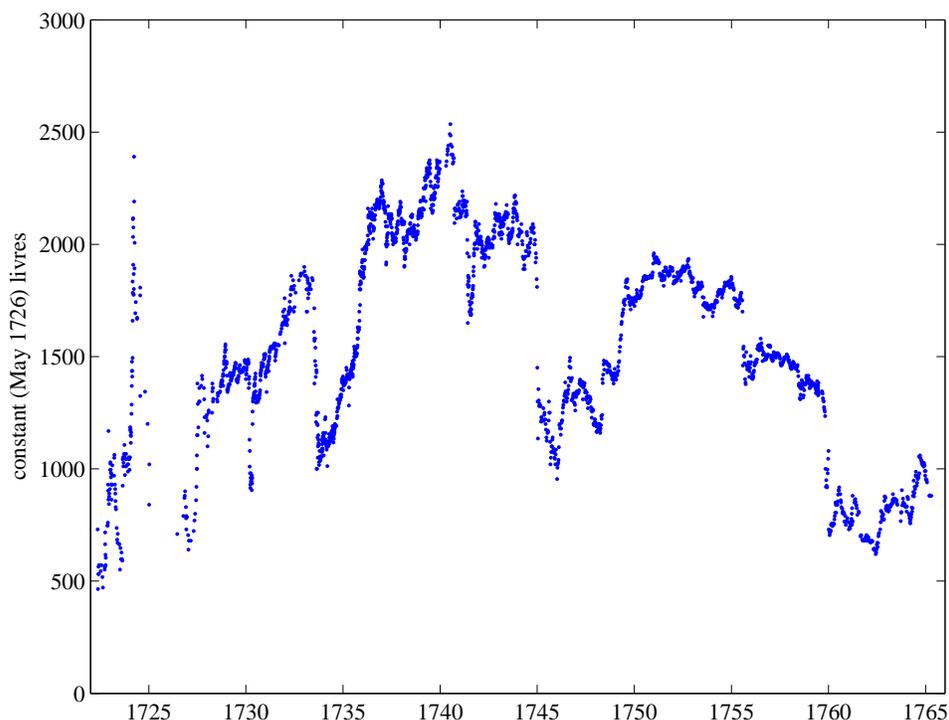


Figure 13: Price of the Indies Company share, 1722–65 (weekly observations from 1733). Source: *Gazette d'Amsterdam, Affiches de Paris*.

Next, the Company was disentangled from the System. This involved some accounting exercises between Company and government. The government had converted the Company's

⁴⁷The Company was lucky to count among its principal shareholders a royal prince, the duke of Bourbon, who would succeed the duke of Orléans as prime minister after the latter's death in December 1723.

liabilities into its own bonds, making the Company a debtor of the government. The debt was settled partly by offsetting it against the Company’s conversion of government debt in 1719–20,⁴⁸ partly by an write-off of 583mL. The Company emerged from receivership in March 1723, and in June 1725 a series of edicts absolved it from any further liability for the System, and confirmed its remaining privileges.

The market value of shares fluctuated quite after March 1723, but it averaged about 1200L for the rest of the year. Assuming that the average share was cut in half by the Visa, and taking into account changes in the unit of account and the reverse share split of June 1720, this value of the Indies share in 1723 corresponds to the market price of mid-October 1720 (about 720L), or of January 1719 (about 320L).

<i>monopoly</i>	<i>acquired</i>	<i>lost</i>
Louisiana	Aug 1717	Jan 1731
Canadian beaver	Aug 1717	Feb 1763
tobacco	Aug 1718	Jul 1721
Senegal trade	Dec 1718	Feb 1763
India and China trade	May 1719	Aug 1769
North African trade	Jul 1719	Nov 1730
mints	Jul 1719	Jan 1721
General Farms	Aug 1719	Jan 1721
Recettes G ^{ales}	Aug 1719	Jan 1721
Haiti slave trade	Sep 1720	Jul 1725
Guinea trade	Sep 1720	Jul 1767
domaine d’Occident	Mar 1723	1725
coffee distribution	Aug 1723	1727
tobacco monopoly	Sep 1723	Jul 1747*

Table 9: Privileges and monopolies of the Indies Company. *: exchanged for a perpetual annuity of 9mL. Sources: Morellet (1769), Haudrère (1989).

At the same time, the Company was placed under tighter government supervision, with the finance minister sitting on the board, and made to focus on its “core competencies.” It lost the lease on the General Farms and the mints, and the collection of the direct taxes, in January 1721, and the lease on tobacco in July 1721. It initially retained all its trading monopolies, but shed them one after the other as they proved unprofitable or unenforceable, retaining only the monopoly on Canadian furs, the slave trade in Guinea and Senegal, and the trade with India and China (see Table 9). The Company continued to operate until the treaty of Paris of 1763 deprived France of its possessions in Canada and India, and the company of its commercial viability. The Company was liquidated in 1770 and its shares converted into government bonds (Velde and Weir 1992).

The Company share was traded on the market from the end of the Visa in 1722, and quotations were reported in newspapers through the 18th century. As Figure 13 shows, the price was quite volatile, both at high frequencies and at low frequencies. The main

⁴⁸The Edict of June 1725 mentions *assignations sur le trésor royal acquittées par [la Compagnie] en 1719 et 1720*, which Giraud (1966, 3:70) interprets as the liquidation certificates converted into shares or notes by the Company.

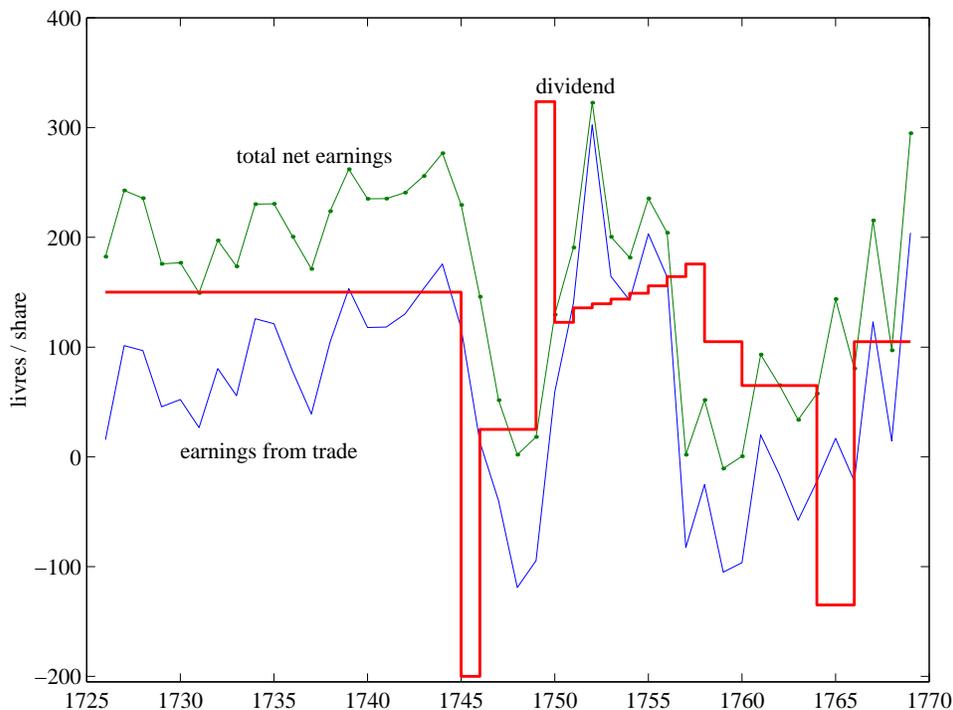


Figure 14: Commercial earnings (profits on sales of merchandise less shipping costs), net total earnings after interest, and dividend of the Indies Company (inclusive of the 1745 loan).

disruptions are wars: Polish succession in 1733, Austrian succession in the 1740s, and the Seven Years War in the 1750s. The Company was obligated to pay a fixed dividend, initially 150L per year, backed by the commercial profits, and by the tobacco monopoly which the king ceded in 1723 in payment of his debt of 100mL (representing the original billets d'État brought by the subscribers of 1717–18). A first crisis brought about a suspension in the payment of dividends in January 1745; the dividends of 1744 and 1745 were not paid in cash; instead, the Company took the coupons (wroth 300L) along with a 200L cash payment, and issued in exchange a 5%-bearing bond, which it endeavored to reimburse over 15 years. When dividend payments resumed, they were set at 80L. A second crisis at the end of the Seven Years War brought about in 1764 a capital call on shareholders in order to maintain the same dividend, and an end to the repurchase of the 1745 bonds.

Figure 14 plots the actual dividend payments, with capital calls counted as negative dividends. It also plots the commercial earnings on a per-share basis, and the total net earnings after interest payments.⁴⁹ The bulk of commercial revenues (90%) came from

⁴⁹Commercial earnings are calculated as the net revenue from sales of imported merchandise less shipping costs (construction, maintenance and fitting of ships, provisions, wages of embarked personnel). Total earnings adds revenues from the tobacco monopoly and deducts interest payments on annuities and on the 1745 loan. Repayments on the 1745 loan are not deducted, as they are counted as (delayed) dividend payments. I haven't yet found data on other expenditures such as personnel and fixed investment in France and the colonies, so the net earnings figure are an upper bound.

trade beyond Cape Hope. Commercial earnings averaged 2.6mL from 1725 to 1769 (64L per share), while total net earnings averaged 7.8mL (162L).

8 Six Short Questions about John Law

8.1 What did Law think he was doing?

Although, as Murphy (1997) emphasizes, Law was both a policymaker and a theorist, there remains a disconnect between the two aspects of his life. His writings on economics in general and schemes for banks in particular cease in 1715, shortly before his last pleas were successful; and we have little direct testimony on what he thought he was doing when he created the System, aside from a few apologetic pieces anonymously published in 1720, and a lengthy self-justification sent to the duke of Orléans in 1723 (Law 1934, 3:98–190).

Law entered economics by way of adding to an existing literature on land banks. The idea of replacing commodity money with a substitute had been around for decades, and in England in particular a stream of proposals had been published since 1650, all centered on the idea of a land bank. His first essay, published by Murphy in 1994, belonged to that tradition, and his magnum opus, *Money and Trade* (1705) was an attempt to provide deeper theoretical underpinnings for the proposal he would continue to put forth until 1710 or so. The goal is essentially to replace commodity money with an alternative that better fulfills the functions of money. Law emphasizes particularly stability and liquidity among the desirable properties of money; the former leads him away from silver, whose value fluctuates over the long term as demonstrated by the Price Revolution, and the latter toward financial securities that he sees traded on the London market. He does not address in his writings the fact that shares can be considerably more unstable in value than silver; in fact, this tension is at the root of his fateful decision to fix the price of shares in term of notes in March 1720.

Money and Trade, however, places another consideration at the center of his proposal, namely the elasticity of currency. Law wants to put under-utilized resources to work by providing a source of loans to entrepreneurs, thereby stimulating employment, output, and ultimately the demand for money, in a manner compatible with stable prices. He also sees a lowering of interest rates as a desirable consequence of expanding the money supply. This explains his insistence on achieving an interest rate of 2%, as indicated by the return on the Indies shares, which justified in his opinion both the high valuation of the shares which he sustained, and the massive debt conversion that he engineered.

Law's writings, however, are close to silent on the centerpiece of the System, the debt conversion and the takeover of all tax collection. No such idea appears in any of his pre-1715 writings, and he makes only vague hints at grandiose projects in his correspondence with the Regent in late 1715. A few apologetic writings dating from March and May 1720 are known, as well as some writings from 1723–24 to the Regent and to his successor as French prime minister, but they shed little light on the rationale for the System.

At one level, it seemed natural for the government to enjoy the benefits of lower interest rates that his Bank had seemingly brought about. In this sense, the debt conversion scheme is a forerunner of the perfectly orthodox policies followed by Britain later in the 18th century,

of calling outstanding bonds at their face value and replacing them with less expensive debt once market rates had fallen low enough.

Another idea (Law 1934, 3:88–89) is that government debt crowds out productive investment, and converting it into the equity of a trading firm allows to channel savings into wealth-creating activities. But by stating that the Company could someday earn greater returns than the 5% previously enjoyed by bondholders, he flatly contradicts his stated goal of 2% dividends.

Another explanation given by Law (1934, 3:188) in 1723 is political: he would have left the Bank and the Company as they were in mid-1719, had it not been for the shaky state of government finances. But, mindful of the difficulties he had met in 1718 in being paid his interest by the king, he felt that his companies would inevitably be raided by the government; lowering the interest on the debt, and thereby bringing the budget into balance, was a way to prevent it.

His takeover of debt collection can be motivated as a tactical move, intended to put out of business the class of financiers who had long profited from the government's poor handling of its finances and its inability to borrow from a capital market. Law's System, as a by-product, had imported into France the active securities markets that Amsterdam and London already had. In the new rationalized system of public finances, the financiers were deprived of their function as lenders, and likewise as tax collectors.

Lüthy (1959, 1:314–5) suggests another tactical reason for the takeover of the Farms: as a consequence of the 1717 decree requiring tax collectors to accept the Bank's notes as legal tender for taxes, they were holding large amounts of notes, and this put them in a position to run the bank at any time. Law's buy-out was necessary in order to ward off this threat from his enemies.

Finally, Law (1934, 3:80, 87, 108, 156) repeatedly argued that centralizing all fiscal functions in a single entity gave the proper incentives to everyone, by aligning the King's interests with those of his creditors. The Bank, merged with the Company, was now a resource that was vital to the government, and he could not afford to default on his commitments to the Bank, and in particular manipulate the currency (see Greif et al. 1994 for a similar argument about the Bank of England). The Company was an single independent entity, controlled in principle by its shareholders and not by the King (notwithstanding the fact that the King was its largest, albeit not majority, shareholder), and in a monopoly position vis-a-vis an otherwise sovereign and unaccountable monarch. This was in some ways an extension of the old principle behind government borrowing from tax collectors (who held tax revenues as collateral for their loans), but also a radical experiment in quasi-democratic control of the crucial element of the State, its ability to collect revenues and borrow.

8.2 Was the System a bubble?

This is an age-old question, one that has been asked in one form or another since 1720. During the year 1718, the price of a share in the Company of the West stood around 250L. After the Company's restructuring in 1722, the share price was about the same, adjusting for share splits and changes in the units of account. In-between, the price peaked at 10,000L

in January 1720 (see Figure 4). Can a 40-fold rise and fall in the price of an asset be justified on the basis of reasonable beliefs about prospective returns on this asset?

Expected earnings

Law's companies paid dividends twice a year, and dividends were announced in advance (see Table 6). The dividend announced on Dec. 29, 1719, at the peak of the System, is of particular significance. Could the dividend of 200L per share announced by Law justify the market's price of shares at 9000L?

Writing in 1723, Law (1934, 3:212–13) counted that he needed revenues of 80mL to pay the 200L dividend to 400,000 shares, omitting 100,000 shares held by the Company as collateral for loans, and a like amount owned by the King (which were ultimately given for free to the Company in June 1720). He presented some estimates of likely earnings to the general assembly, and Dutot presented slightly lower estimates (see Table 10). I now evaluate those estimates.

<i>Source</i>	<i>Law (1)</i>	<i>Law (2)</i>	<i>Dutot</i>	<i>revised</i>
King's debt	48	48	48	48
General Farms	12	8	15	10
Recettes G ^{ales}	1	1	1.5	1
Mints	12	10	4	0
Tobacco	6	5	2	10
Trade	12	8	10	6.5
Total	91	80	80.5	75.5

Table 10: Expected revenues from the Company's activities as of Dec. 1719. Law's first evaluation was presented in December 1719 to the shareholders; his second evaluation was made in May 1723. Source: Harsin (1928, 174), and see text.

The minting profit was obviously a one-time gain, which Law could not expect to make on a continuous basis, especially given his plan to replace gold and silver with paper money.

Trade was overestimated, as the information presented above on the Indies company after 1720 indicates. The average dividend paid per share, inclusive of repurchases of shares in 1730–33, is 117L (at 60L/marc) or 6.5mL in aggregate, in 1719 livres.

The most difficult piece to estimate is the profit on the general farms. The price of Law's lease was 52mL, which was an increase over the previous lease of 1718 (48mL). Dutot (1935, 2:214) states that the revenues during the lease year 1720 were 90.4mL, but he does not take into account the fact that the livre was on average at 80/marc during that period: at 60L/marc, this would amount to 67.6mL, or a 15.6mL profit; which is the profit claimed by the Company after the fact, in April 1721 (Giraud 1966, 3:80). There is evidence that profits would have increased over the next few years. The Farms were managed directly by the government for the next few years, and, according to White (2001), the receipts rose from 61mL in 1721 to 91.5mL in 1725 in that period. That would have yielded an average profit of 22.8mL, but these would not have lasted. During the Carlier lease which followed (1726–32), the average profit was 4.9mL (5.9mL in 1719 livres), but over a lease price of 80mL. That is, the government ratcheted up the lease price when the lease came up for

renewal. The experience of the 18th century suggests that the government might leave in the 5–15mL range as profit to the Farms, or roughly 10% of gross receipts (Marion 1914, 1:145–46). Of course, had Law’s System continued in place, the government’s power and incentives in its bargaining with the Company would have been quite different, knowing in particular that part of the profit it was leaving to the Company would have been paid to former bondholders.

There is better information on the tobacco monopoly: Table 11 reports information on lease prices paid by successive farmers and, when known, the farmers’ profits. The average revenue from 1724 to 1789 was about 25mL (at 60L/marc), from which a lease price must be deducted to obtain the Company’s expected profits. In 1719, the Company paid 3mL per year, but, as with the General Farms, the difficulty is in estimating what lease prices would be negotiated in the future. Table 10 assumes a fairly generous 10mL average profit.

Year	Lease	Profit	Year	Lease	Profit
1698–1714	1.5	?	1730		7.0
1715–16	2.0	?	1731–32	7.5	4.5
1717	2.2	?	1733–38	7.8	6.5
1718–21	4.0	2.4	1739–44	8.0	10.5
1722	1.2	?	1745–50	8.0	13.3
1723	1.8	?	1751–56	13.0	12.1
1724		7.9	1757–62	15.0	8.7
1725		7.4	1763–68	22.2	?
1726		6.9	1769–74	23.1	0.9
1727		6.9	1775–80	24.1	2.3
1728		7.1	1781–86	26	?
1729		6.8	1786–89	27–31	?

Table 11: Total revenues of the tobacco monopoly, broken down into lease price and farmers’ profits, in current livres. Notes: the lease years run from October 1 to September 30. The Company owned the monopoly from 1724 to 1747, and did not farm it from 1724 to 1730, hence there is no lease price for those years. Sources: Dutot (1935, 2:222–26), Morellet (1769, 51), Marion (1923, 525), Clamageran (1867–76, 3:254, 402, 444), Matthews (1958, 129–30).

As Table 10 shows, it is not too difficult to come up with an estimate within 10% of Law’s projection,⁵⁰ and one can perhaps justify a 200L dividend in steady state, with the important caveat that, in steady state, Law could not expect to pay no dividends to the king’s shares, or to those shares held as collateral for loans. Paying dividend on those additional shares, based on the earnings estimate of Table 10, would bring the dividend down to 125L.

Even granting the 200L dividend, can one accept a valuation of 9000L per share, a P/E ratio of 45? Law clearly thought so, as he explicitly set a target interest rate of 2% for his System.

⁵⁰Harsin’s estimate of 99mL (cited in (Faure 1977, 304)) is perhaps overly generous.

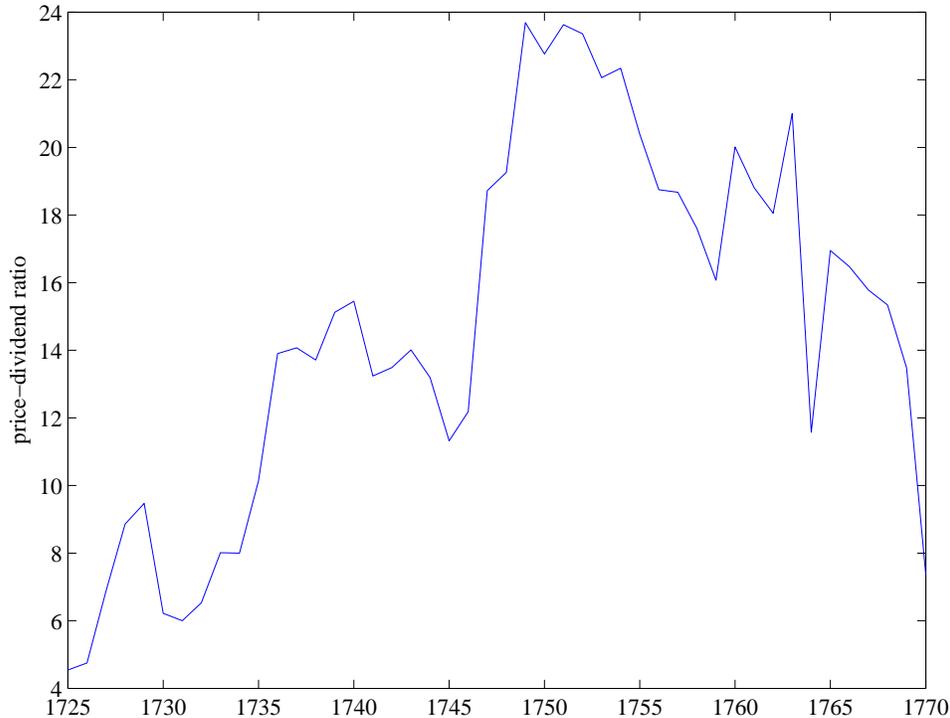


Figure 15: Price-dividend ratio on the Indies Company stock, 1723–69. Source: Morellet (1769).

Discount factor

As described above, there are several distinct components to the Company’s revenue stream. The trade component (6.5mL) can be evaluated by looking at the Indies Company as it survived after 1725. Its price was quoted on the market, and we see that the price-dividend ratio fluctuated widely between 4 and 24, and averaged about 15 (Figure 15). The fiscal component (tobacco, general farms, collection of direct taxes, amounting to 21mL) was probably subject to similar risks as the Indies trade, since (as shown in Figure 14) the main source of risk were foreign wars. Not much growth could be expected to boost the ratio, except perhaps in the tobacco monopoly, which shows 1.5% annual real revenues growth. Overall fiscal revenues grew by about 0.6% annually in real terms from 1726 to 1789, slightly above the estimated 0.5% GDP growth (Maddison 2001).

The largest component of revenues (almost two thirds) was the king’s debt. What was its market price at the time? Before the System, in 1718, the cash price of 4% debt in 1718 was 50% of face value (de Forbonnais 1758, 6:67; Law 1934, 3:199). After the Visa, the average market price of liquidation certificates, which were convertible into 2% debt, was 22% of face value (from prices reported in the *Gazette d’Amsterdam* from February 1722 to February 1724; see also (Dutot 1935, 1:343)). These figures suggest a PE ratio of 11 to 12.5. Of course, these valuations of French government debt come from a time when default risk was probably seen as fairly high. A market interest rate of 8% or 9% on French debt is about 5–6% higher than the rate on Dutch debt at the same time, or English debt around

1730. By the early 1730s, French 2% debt had risen to 40% of face value.

The back of the envelope

Annual revenues of 75.5mL and a factor of 15 yields a valuation of 1132mL, or a share price of 1875L, which is one fifth of the peak share price of 9500L, or overvaluation by a factor of 5. This isn't quite fair to Law, who would have argued that his System was bound to reduce interest rates on government debt, both by making the debt more secure and by lowering interest rates in an economy lacking in financial intermediation. He also argued that his System would boost economic growth, and these claims taken at face value all tend to raise the PE ratio. However, to justify the market valuation on the basis of 75mL in earnings would require, say, Dutch interest rates of 3% and a growth rate of 1.5%, which no European country enjoyed before the start of the industrial revolution. Assuming alone that Law's System would have brought interest rates to Dutch levels would leave overvalued by a factor of 2; this seems to me as far as one can go on behalf of Law. It seems difficult to avoid the conclusion that the Company was overvalued several times over.

A manipulated market

Overvaluation does not mean bubble or irrationality. It remains to note that the prices which we see rising in late 1719 are not "pure" market prices. Law had been influencing, if not manipulating, the price of his company's shares for a long time (Lüthy 1959, 1:310, 319). In May 1718, to spur the languishing IPO of the Company of the West, Law publicly announced his willingness to buy American call options on the shares. For a 2% price, a shareholder would be obligated to deliver the share at any time of Law's choosing within the following year, for a price of 70% of face value (*Gazette d'Amsterdam* 1718, n. 43); this at a time when the billets d'Etat traded at 65% of face value.

But it is in the late fall 1719 that the Company became an active participant: it lent 2500L against the security of a share (effectively putting a floor on the share price), then on October 5 it announced that it was ready to buy shares at 4500L (*Gazette d'Amsterdam* 1719, n. 83), intervened directly in the market (for example selling for 30mL of shares in one week in November to keep down the price); finally, in late December an office was set up to buy and sell shares at prices posted every day (Faure 1977, 307–308, 319, 340). The office operated intermittently until the price of shares was officially pegged at 9000L on March 5; and whenever it stopped its operations, the share prices faltered. From January 1720 at the latest, probably from November or December 1719, one cannot consider the "market" price to represent anything but Law's policies.

Price manipulation is not out of character for Law. His writings from during and after the System are replete with justifications of coercion in the better interest of people, such as the statement that "it was necessary to use authority and induce the people to contribute to their own welfare" and a commentary on John 5:6 to the effect that "some sick men refuse to heal" (Law 1934, 3:91, 170). Although he is commenting on the coercive measures taken in early 1720 against gold and silver, he probably saw price manipulation as a way of helping people help themselves in spite of themselves.

Ultimately, massive price manipulation, or price fixing, is what led to the expansion of note issue in 1720. Although Law was probably acting in good faith and out of confidence in his System's prospects, the rise of 1719 is nothing but the preview of the price-pegging of March 1720 and the subsequent monetization of the company's equity.

8.3 Did the System make sense?

On a conceptual level, Law's System involves a number of basic principles that are not absurd. His debt conversion scheme relies on the idea that all government liabilities are backed the same way, with future revenues that are either strictly fiscal (revenues from existing taxes) or quasi-fiscal (the ability to create monopolies). In fact, the French monarchy had a long history of raising funds by selling claims to these revenues. Furthermore, that backing is inherently stochastic. The debt conversion simply made explicit this stochastic nature, by converting existing claims on a constant component of these revenues into claims on the variable component. It also generalized an existing commitment device, whereby the tax collector serviced the debt. The novelty was to do so at once, with a single entity, and retroactively for the entire existing debt.

The other novelty of Law's scheme was the replacement of specie with paper. This was the more radical innovation, and one that stood in ill repute for much of subsequent time. By the 1930s, of course, increasing experience with fiat money and the notion that government policy (including monetary policy) could and should be used to stimulate the economy resulted in a rise in Law's reputation. History does not suggest, however, that the first large-scale experiment with paper-based fiat money was likely to succeed (see Sargent and Velde 2001 for earlier experiments with fiat money).

As noted earlier, the viability of the System depended in large part on the relations that would exist between the King and the Company. Greif et al. (1994) suggest arguments why placing a monopolist vis-a-vis a sovereign without commitment technology might be a good idea. The clean separation of the two actors did not obtain in practice, however: the King was a major shareholder, Law was both the king's minister and the Company's CEO, and ultimately the Company's powers and monopolies derived from the King's will.

Quantitatively, the crucial aspect of Law's System was the ability to justify a high enough share price to carry out the debt conversion on profitable terms. To offer the king better terms than he was paying on his debt, the PE ratio on the Company's shares had to be higher than 22. A dividend of 125L (based on the revenue estimate of Table 10) and Dutch-like interest rates of 3% could bring valuation to about 5000L, the price at which Law launched his debt conversion in September 1719. With the benefit of modern theory and experience, and with a good dose of optimism, it is possible to accept that the System could have worked.

8.4 Why did the System collapse?

The view that the System was driven by a stockmarket bubble takes care, in a slightly vacuous way, of explaining the price rise of 1719, and leads into a search for an explanation

of the crash itself. There are naturally the usual conspiracies of powerful vested interests threatened by Law's reforms, which Law himself, Dutot, and Murphy blame generally. Haudrère (1989, 1:78) claims that disappointing results in Louisiana were not known until the second half of 1720 and that profit-taking was to blame for the downward pressure on share prices. Law (1934, 3:110) himself, in March 1720, rails against people who try to cash in on the high prices, without understanding that the shares are assets to be held for their income like real estate: "men must put themselves in the same frame of mind with respect to the shares as to their other assets; it seems that they have a hard time doing so on their own."

In my view, the rise itself was the result of covert and later overt price support, carried out in part to entice the bondholders to submit willingly to the debt conversion. The massive conversion of shares into notes in the first half of 1720 can be seen as profit taking, or simply as the result of an asset being pegged at too high a value. The collapse was stanchied by Law's ability to print notes and at the same time create demand for them with the demonetization of gold and silver. But, aside from the openly coercive nature of the procedure, the exchange rates were soon indicating that this would not be sufficient to prevent inflation. Once Law started backtracking, in May 1720, no orderly retreat was possible.

It is harder to understand why Law insisted on pegging the shares so high. Lüthy (1959, 319 n40) argues that early insiders had an interest in keeping share prices up until they could reap their profits. Whether this was enough of a consideration to move Law in such a dangerous direction is questionable. It seems more likely that he miscalculated the price of shares (or, equivalently, the long-term interest rate) at which he thought the System was sustainable.

8.5 Was the System a default or a swindle?

Whatever Law's original intentions (and there is no evidence that he originally intended to default on the debt), the debt conversion into a more or less compulsory monetization into notes that were ultimately not convertible into silver.⁵¹ The point of the Visa was to reverse this monetization by another forced conversion of notes into bonds. The reduction from 2800mL in notes, or 2200mL in claims submitted, to 1500mL in bonds, is called by Marion (1914, 1:112) "yet another default, following the reductions of 1713 and 1715, the first visa [of 1716], the conversions of 1720, preceding the new violations of public faith by Fleury, Terray, and many others, and perpetuating a tradition disastrous for creditors and which would continue throughout the Old Regime."

Yet a large part of this mass of notes was issued in exchange for shares, themselves exchanged for bonds. The nominal amounts involved do not matter to the question: was it a default? Table 2 shows that the debt burden was roughly the same in 1724, after the System and the Visa, as it was in 1717 after the operations of the Noailles administration.

⁵¹Faure's book, titled "Law's bankruptcy," refers to the date of July 17, 1720, when the Bank suspended payment.

The debt was increased in the meantime (I estimated about 150mL), but not by a large amount. If default there was, it was on the order of 5 or 10%, which is modest by the standards of the Old Regime denounced by Marion. As for the Visa itself, it is hard to see the deployment of so much bureaucratic talent as a default.

Was Law a swindler? His Company was not an empty shell, but immediately and aggressively engaged in its trading and colonizing business, sending ships east and west, founding New Orleans (named after the Regent). His reforms in tax collection and fiscal administration were short-lived but Marion (1914, 1:105–07) recognizes their value. Most strikingly, while Law initially grew rich with his System (as was surely his plan), he invested his fortune (at least 9.5mL according to (Marion 1914, 1:99)) in French real estate, not a good move for someone planning a quick getaway.

8.6 What to make of the System?

This paper is about a single data point, a unique although hardly unknown experiment. No theory will be proved or disproved by it. It is also a large-scale and extremely complex experiment, involving aspects of finance, public finance, and macroeconomics, and carried out at the scale of a country. The System is of interest, beyond its picturesque details, either as an example or a point along a path of theory and experimentation. Law's interest in creating a fiat money that would serve as a tool for policy-making is almost anachronistic; indeed, his critical fortunes did not revive until the 1930s, when such a notion became orthodox. The other concept that emerges from the System, that of government equity, is not one that has been formally reprised yet; Law may turn out to have been even more of an anachronism than we think.

References

- Edmond-Jean-François Barbier. *Chronique de la Régence et du règne de Louis XV (1718–63)*. Charpentier, Paris, 1857.
- Arthur Michel de Boislisle. *Correspondance des contrôleurs généraux des finances avec les intendants des provinces, publiée par ordre du ministre des finances d'après les documents conservés aux Archives nationales*. Imprimerie nationale, Paris, 1874–97.
- Richard Bonney. France and the first European paper money experiment. *French History*, 15(3): 254–72, September 2001.
- John Brewer. *The Sinews of Power : War, Money, and the English State, 1688–1783*. Alfred A. Knopf, New York, 1989.
- Jean Buvat. *Journal de la Régence (1715–1723)*. H. Plon, Paris, 1865.
- Jean-Jules Clamageran. *Histoire de l'impôt en France*. Guillaumin et Cie, Paris, 1867–76.
- John H. Cochrane. Book review of 'Famous First Bubbles' by Peter M. Garber. *Journal of Political Economy*, 109(5):1150–54, October 2001.

- N. F. R. Crafts. *British Economic Growth During the Industrial Revolution*. Clarendon Press, Oxford, 1985.
- François Véron Duverger de Forbonnais. *Recherches et considérations sur les finances de France, depuis l'année 1595 jusqu'à l'année 1721*. s.n., Liege, 1758.
- Phyllis Deane and William A. Cole. *British Economic Growth, 1688–1959: Trends and Structure*. Cambridge University Press, London, 1967.
- Dutot. *Réflexions politiques sur les finances et le commerce*. E. Droz, Paris, 1935.
- Dutot. *Histoire du Système de John Law (1716–1720)*. Institut national d'études démographiques, Paris, 2000.
- Etat général des dettes. *Etat général des dettes de l'État à la mort du feu roy Louis XIV*. A.-U. Coustelier, Paris, 1720.
- Edgar Faure. *La Banqueroute de Law*. Gallimard, Paris, 1977.
- Peter M. Garber. Famous first bubbles. *Journal of Economic Perspectives*, 4(2):35–54, Spring 1990.
- Peter M. Garber. *Famous First Bubbles: The Fundamentals of Early Manias*. MIT Press, Cambridge, MA, 2000.
- Marcel Giraud. *Histoire de la Louisiane française*. Presses universitaires de France, Paris, 1966.
- Avner Greif, Paul Milgrom, and Barry R. Weingast. Coordination, commitment, and enforcement: The case of the merchant guild. *Journal of Political Economy*, 102(4):745–76, August 1994.
- Earl J. Hamilton. Prices and wages at Paris under John Law's System. *Quarterly Journal of Economics*, 51(1):42–70, November 1936.
- Paul Harsin. *Les doctrines monétaires et financières en France du XVIIe au XVIIIe siècle*. F. Alcan, Paris, 1928.
- Paul Harsin. *Crédit public et banque d'état en France du XVIIe au XVIIIe siècle*. E. Droz, Paris, 1933.
- Philippe Haudrère. *La Compagnie française des Indes au XVIIIème siècle (1719-1795)*. Librairie de l'Inde, Paris, 1989.
- Barthélémy Marmont du Hautchamp. *Histoire du Système des Finances sous la minorité de Louis XV*. P. de Hondt, La Haye, 1739.
- Barthélémy Marmont du Hautchamp. *Histoire générale et particulière du Visa*. F. H. Scheurleer, La Haye, 1743.
- Philip T. Hoffman, Gilles Postel-Vinay, and Jean-Laurent Rosenthal. *Priceless markets : the political economy of credit in Paris, 1660–1870*. University of Chicago Press, Chicago, 2000.
- Jean Lafaurie. *Les Assignats et les Papiers-monnaies émis par l'État au XVIII^e siècle*. Le Léopard d'Or, Paris, 1981.
- John Law. *Œuvres Complètes*. Librairie du recueil Sirey, Paris, 1934.

- Herbert Lüthy. *La Banque protestante en France de la révocation de l'Édit de Nantes à la Révolution*. S.E.V.P.E.N., Paris, 1959.
- Angus Maddison. *The World Economy: A Millennial Perspective*. Development Center of the OECD, Paris, 2001.
- Jean-Roland Mallet. *Comptes rendus de l'administration des finances du royaume de France*. Buisson, London, 1789.
- Matthieu Marais. *Journal et Mémoires*. Firmin Didot, Paris, 1863–68.
- Marcel Marion. *Histoire financière de la France* (vol. 1). Arthur Rousseau, Paris, 1914.
- Marcel Marion. *Dictionnaire des institutions de la France aux XVIIe et XVIIIe siècles*. A. Picard, Paris, 1923.
- George Tennyson Matthews. *The Royal General Farms in Eighteenth-Century France*. Columbia University Press, New York, 1958.
- Brian R. Mitchell. *British Historical Statistics*. Cambridge University Press, Cambridge, 1988.
- André Morellet. *Mémoire sur la situation actuelle de la Compagnie des Indes*. Desaint, Paris, 1769.
- Antoin E. Murphy. *John Law: Economic Theorist and Policy-Maker*. Clarendon Press, Oxford, 1997.
- Larry Neal. *The Rise of Financial Capitalism: International Capital Markets in the Age of Reason*. Cambridge University Press, Cambridge, 1990.
- Charles-Joseph Panckouke, editor. *Encyclopédie méthodique: Finances*. Panckouke, Paris, 1784–85.
- Joseph Pâris-Duverney. *Examen du livre intitulé Réflexions politiques sur les finances et le commerce*. V. & N. Prevôt, The Hague, 1740.
- James C. Riley. French finances, 1727–1768. *Journal of Modern History*, 59(2):209–243, June 1987.
- James C. Riley and John J. McCusker. Money supply, economic growth, and the quantity theory of money: France, 1650–1788. *Explorations in Economic History*, 2(3):274–93, July 1983.
- Thomas J. Sargent and François R. Velde. Macroeconomic features of the French Revolution. *Journal of Political Economy*, 103(3):474–518, June 1995.
- Joseph A. Schumpeter. *History of Economic Analysis*. Allen & Unwin, London, 1954.
- Christopher A. Sims. Fiscal consequences for Mexico of adopting the dollar. *Journal of Money, Credit, and Banking*, 33(2, Part 2):597–616, May 2001.
- Alphonse Vührer. *Histoire de la dette publique en France*. Berger-Levrault & Cie, Paris, 1886.
- Eugene N White. France's slow transition from privatized to government-administered tax collection: Tax farming in the eighteenth century. Department Working Paper 16, Rutgers University, 2001.

Abstract

This note is an appendix to a paper on John Law's System in 1720 France. It provides details on the instruments (shares, bonds, notes) generated by John Law's System between 1716 and 1720, and on their prices. Keywords: (JEL B31, E42, N13, N23).

Introduction

John Law's System (1716–20) consisted in a pair of privately owned companies, a bank, originally called the *Banque générale* and later the *Banque Royale*, and a trading company, the *Compagnie d'Occident* (Company of the West) later called the *Compagnie des Indes* (Indies Company). These entities issued an number of financial instruments, many of which were quoted on the Paris market. This appendix documents the various instruments. It is organized as follows. The first section briefly describes what is known of the market. The next sections describe the instruments, beginning with the shares (section 2), the notes of the Bank (section 3), and other instruments (section 4). Section 5 describes the fate of these instruments after the collapse of the System.

1 The Paris stock market

The Paris stock market at the time of John Law was less developed than those of Amsterdam or London. Brokering in currency, commodities and securities was first regulated in 1572, when offices of *courtiers* (later called *agents de change*) were created; but they did not have a monopoly on brokerage until 1705. At the time of John Law's System there were official brokers in Paris (numbering sixty), Lyon, Marseille and Bordeaux. Their fee was 1/4% on securities (bills, notes, cash) and 1/2% on commodities. They were allowed to conduct business at their homes, and had to keep records. They were prohibited from trading on their own account. The offices were replaced by commissions from August 1720 to February 1723 when the offices were restored; the regulations of 1723 would remain until the Revolution.

Money changers had met since the Middle Ages on the bridge called the Pont au Change. In the 17th century, they moved to the nearby Palais de Justice, in the cour de May. When the Bank was created an informal market appeared in front of its offices in the hôtel de Mesmes, rue Sainte-Avoie (now rue du Temple). The market followed the Bank when it moved to the hôtel de Beaufort, rue Quincampoix, by the fall of 1719. On October 26 the king posted a permanent guard of 15 men in the street to maintain order (Hautchamp 1739, 5:274); and a section of the street was closed off with gates at either end. The Bank and the Company moved to new offices in the hôtel de Nevers, rue Vivienne (presently part of the old Bibliothèque nationale), which Law had bought in May 1719 to locate the headquarters of the Indies Company; but the street market remained rue Quincampoix until it was shut down on March 22 (Buvat 1865, 2:39, 59, 97). By late May, when the Bank suspended payments, trading was taking place near its offices. On Jun. 1, 1720 the market was moved to the place Vendôme or place Louis-le-Grand (at the time a construction site) where traders set up tents (Barbier 1857, 1:38; Marais 1863–68, 1:273, 281). In August 1720, at the same time as offices were replaced by commissions, a formal market (*bourse*) was created and located in the gardens of the hôtel de Soissons, which had earlier housed a casino. One hundred and fifty enclosed stalls were rented to traders. A set of regulations was issued by the king, prescribing opening hours, etc. On October 25 the Bourse was abolished and trading prohibited except in the offices of the brokers (Marais 1863–68, 1:359, 472–73); the market in the hôtel de Soissons was shut down on October 29.

The market remained semi-clandestine and without official location. In February 1722 it was located rue Saint-Martin near the rue aux Ours, very close to its old location rue Quincampoix (Buvat 1865, 2:347). It was made official in September 1724 and permanently located next door to the Indies Company, rue Vivienne. The old galerie Mazarine was renovated and fitted at government expense; at the same time the *bourse* was officially created and placed under the supervision of the Paris police. This arrangement remained roughly unchanged until the Revolution.

1.1 The source for prices

In spite of the informal nature of the market at the time of Law’s System, prices were collected and distributed in the form of price lists or price courants (see McCusker 1975 for analogues in other European markets such as Hamburg, Amsterdam and London). Only a few examples have survived: one handwritten list for July 27, 1719, and fourteen pre-printed sheets with date and prices filled in by hand, issued by an official broker (*agent de change*) named Marine, located in the rue Quincampoix itself.¹ These price sheets, so far unnoticed, do not add many data points, but provide useful information, because they represent direct and contemporary testimony.

The only reasonably complete source for prices is a manuscript compilation dated 1724 by Giraudeau, the nephew of another broker, and first studied by Faure (1977, 204).² It consists of 25 tables of prices for various instruments (notes, shares, bonds) quoted between August 1719 and March 1721. The document was compiled a few years after the events, although based on notes taken during the events, and the numbers it contains appear reliable with some exceptions discussed below. The contemporary author Dutot relied on a very close but more extensive source, and his notations occasionally complete Giraudeau (Dutot 2000, XXXVIII, 338–39, 358–59).

Giraudeau’s manuscript contains price series for 23 different instruments (shares, fractions of shares, options on shares, bonds, bank accounts, and notes of various denominations). The nature of the objects, as well as the way in which their prices are reported, are explained in this appendix. They are presented in chronological order.³

¹Bibliothèque nationale NAF 22245, fol. 294–305; Bibliothèque de l’Institut (Chantilly), Ms. 1063, fol. 7–12. The dates are Nov. 4, Dec. 9, 1719; Dec. 6, 1720; Jan. 29, 30, 31, Feb. 4, 5, 8, 11, 15, 28, Mar. 17, and Apr. 4, 1721. Marine is listed as an *agent de change* from 1720 to 1749 in the *Almanach Royal*.

²See also (Murphy 1997, 367). The manuscript’s title page describes the author as *Giraudeau, neveu, négociant à Paris*; an *agent de change* by that name is listed in Paris from 1715 to 1728 in the *Almanach Royal*. A copy of the manuscript, from d’Argenson’s library, is in the Bibliothèque de l’Arsenal MS. 4061 (inscribed “pour M. Dubois”), another in the Bibliothèque nationale, MS. Fr 14092, a third in the Bibliothèque Mazarine, MS. 2821. The format and coverage is the same, but there are minor differences in quotes between the manuscripts. I used the BN manuscript as basis; when two manuscripts agreed against a third one I went with the majority.

³The price sheets mentioned above indicate that other instruments were quoted in 1719, mostly government bonds of various sorts. Pâris-Duverney (1740) and Dutot (1935) cite market prices for government bonds from the 1715–16 period. Some are interest-bearing notes from the time of Louis XIV (*billets de*

Finally, some indications of prices can be gleaned from contemporary sources such as diaries, but they are subject to great difficulties in interpretation, because of the variety of instruments and methods of expressing prices (see below).⁴ One source, however, has remained so far unexploited, and provides crucial elements. The *Gazette d'Amsterdam* was a bi-weekly round-up of news from all Europe, published in French in the Netherlands from 1691 to 1796. The dispatches from Paris occasionally mention market prices of government bonds. Starting in July 1718, soon after the first initial offering of shares closed, the *Gazette* reported prices, with increasing frequency as the price rose. A total of about thirty new observations can be gleaned between July 1718 and July 1719. The prices reported from August 1719 to February 1721 generally agree with those of Giraudeau.

2 Equity shares of the Indies Company

Shares in the Company of the West and its successor the Indies Company were sold in four successive issues between 1717 and 1719. Then, in the course of 1720, the shares were subjected to several capital calls; and finally, two other issues (one in the form of fractional shares) took place in the summer of 1720.

The issues typically took the form of a subscription in which a down-payment secured for the subscriber a certificate, on which further payments were required before a share could be issued. These certificates were traded distinctly from shares, and as the terms of issues varied, certificates of different vintages were priced differently.

I review the successive share issues, and the problems in interpreting the price quotations of shares and certificates. I then construct a single series of Indies shares price.

2.1 Mothers, daughters, granddaughters, soumissions (1718–19)

The original issue of shares in the Company of the West (renamed in June 1719 Indies Company) took place from September 1717 to July 1718. Two issues, in May and in July 1719, took the form of rights offers, that is, they were restricted to existing shareholders. For this reason the original shares came to be known as “mothers,” the shares of May 1719 as “daughters,” and those of July 1719 as “granddaughters.” The last issue of September–October 1719 was called *soumissions*.

In these issues, the subscriber made a down-payment at the time of subscription, and was obligated to make successive monthly payments in order to ultimately acquire the share. Until the final payment, he only held a subscription certificate (*soumission*). Each payment

Monnoye, Billets de l'Epargne, billets de la caisse commune, promesse des gabelles), others are perpetual annuities (*contrats sur la Ville, Contrats sur le contrôle des actes des notaires, rentes provinciales*). Shares, subscriptions for shares, and dividend coupons of the short-lived *Fermes Générales* company were also quoted. A copy of one dividend coupon is in the Musée Carnavalet, Paris, collection Fabre de Larche GB 22. All of these securities disappeared in the course of the debt redemption carried out by Law in late 1719.

⁴See for example Buvat (1865, 1:424, 436, 452, 453, 455, 457, 458, 462, 473, 477, 2:39).

was recorded on the certificate with the signature (visa) of an Indies Company official.⁵ Should the subscriber fail to make the required payments, the certificate became void; what became of the payments made? In the May 1719 issue (daughters), the initial 50L down-payment only was forfeited; in the September 1719 issue (soumissions), all payments made were forfeited.⁶

Here are the specifics for the original share issue and the three rights offers that followed.

Actions d’Occident (Mothers) The original issue (Edicts of Aug. 1717 and Dec. 1717) consisted of 200,000 shares (the number was set only in Dec. 1717) sold for 500L each, payable immediately in government bearer notes, the *billets d’État*. Subscription was open on Sep 14, 1717. An AC of Jun 28 1718 changed the terms: a down-payment of 100L in billets d’État only was required, with a final payment to be made on November 1 (extended by AC Sep. 22, 1718 to Jan. 1, 1719), failing which the down payment was forfeited. This is the first instance of an option-like instrument (Murphy 1997, 172). All shares were subscribed by July 16, 1718 (*Gazette d’Amsterdam* 1718, n. 60). Since the billets d’Etat were converted into rent contracts between the Company and the government, the amount of capital actually paid in can be tracked through these contracts: 24m on Feb 28, 1718, 26m on May 16, 30m on Jun 11, 75m on Sep 28, and 100m on Jan 16, 1719 (Giraud 1966, 3:37, 42, 49). The shares were issued to the bearer and had 10 semi-annual dividend coupons attached.⁷ The shares in the Company of the West carried voting rights (1 vote per 50 shares owned).

→ *actions d’occident* quoted from Aug. 9 to Dec. 15, 1719 in Giraudeau; some prices in the *Gazette d’Amsterdam* from Jul 31, 1718 to Aug 4, 1719.

Daughters The second issue (Edict of May 1719, AC Jun. 20, 1719), to finance the takeover of the old Indies Company, offered 50,000 shares identical to the existing shares, at a premium of 10% over the face value of 500L. Subscription was opened on Jun. 26, 1719

⁵The early payment clause appears in the edict of May 1719 for the daughters (art. 7) Dutot (2000, 132) indicates that the subscription certificates were signed (*visé*) each time a required payment was made.

⁶The Edict of May 1719 for the second issue stated that, in case payment deadlines were not met, the initial premium of 10% was forfeited (*faute par lesdits Actionnaires de remplir leurs soumissions dans les termes portez par le present Edit, ils perdront les dix pour cent excedens du capital qu’ils auront payez* Hautchamp 1739, 4:199), which means by implication that the other payments were not forfeited. The *Arrêt du Conseil* (hereafter AC) of July 27, 1719 for the third issue states only that the subscription certificates become null and void (*faute de faire les payemens dans lesdits mois indiquez, les certificats du caissier de ladite Compagnie, qui auront esté delivrez pour les nouvelles Actions ordonnées par le présent Arrest, deviendront nuls & de nul effet*, Hautchamp 1739, 4:224) and is silent on the payments made. The AC of Oct. 20, 1719 for the fourth issue says that the certificates become void and all payments previously made are forfeited to the Company (*faute par les porteurs des certificats de souscriptions de satisfaire aux payemens dans les termes portez cy-dessus, lesdits certificats demeureront nuls, et les sommes portées par iceux aqises au profit de la Compagnie* Dutot 2000, 132).

⁷The Musée Carnavalet in Paris has a copy of one share, numbered 4922 (Collection Fabre de Larche, GB20), with the 8th, 9th and 10th dividend coupon still attached. All shares were dated Sept. 19, 1717 (Giraud 1966, 3:41).

for twenty days, and was restricted to existing shareholders, each holder of 4 shares of the original issue (the “mothers”) being entitled to subscribe for 1 new share (the “daughter”). A subscriber made an immediate down payment of 50L in cash (coin or note) in exchange for which he received a certificate issued by the Company. The remaining 500L was payable in 20 consecutive monthly payments; early payment in full was possible, but no discount could be demanded for doing so. The AC of Jul. 27, 1719 allowed the first monthly payment to be made during the month of August, the AC of Aug. 12, 1719 extended the deadline to September 30.

→ *soumissions de mai* quoted from Aug. 1 to Dec. 15, 1719. Called *soumissions* in July and August 1719 (BN, NAF 22245, fol. 294; *Gazette d’Amsterdam* 1719, n. 66), *soumissions des premiers 25 millions visées* in November and December 1719 (BN, NAF 22245, fol. 296–97).

Granddaughters The third issue (AC Jul. 27, 1719) offered another 50,000 shares, for a price of 1000L each. Subscription was opened on Aug. 1, 1719, and was restricted to holders of original shares or new certificates. Subscribers needed 5 mothers or daughters for each “granddaughter” subscribed. The initial payment of 50L was made upon subscription, during the month of August, the remaining 19 payments of 50L each were to be made each of the following months. The AC of Aug. 12 extended the deadline for making the initial down-payment to Sept. 30.

→ *soumissions de juillet* quoted from Aug. 1 to Dec. 9, 1719. Called *nouvelles soumissions* in August 1719 (*Gazette d’Amsterdam*, 1719, n. 66), *nouvelles soumissions sur les 25 millions de monnoyes* in November and December 1719 (BN, NAF 22245, fol. 296–97).

Soumissions The fourth issue (AC Sep. 13, Sep. 28, Oct. 2, 1719) comprised a total of 300,000 new shares, doubling the number of shares. In contrast to the second and third issues, this was a public (unrestricted) offering. Acceptable tender for the shares was originally restricted to specie and bank-notes (Sept. 13), then extended to a variety of government bonds⁸ were accepted (Sept. 22). Subscription opened on Sep. 23. Then bank-notes were given a 10% premium (Sep. 25), and finally specie and bank-notes were excluded, and only government debt was accepted (Sep. 26). The shares were sold for 5000L. A subscriber received a subscription certificate (*soumission*) in exchange for a down payment of 500L, the remaining 9 equal installments to be made each following month. The terms were soon changed (AC Oct. 20, 1719): the remaining 9 installments were grouped into quarterly installments, the first to be made in December, the second in March 1720, the last in June 1720. Only after making the last payment would subscribers receive shares. Payments on the first installment began on Dec. 11.

⁸Namely, outstanding billets d’État, shares in the recently liquidated General Farms, notes of the *caisse commune*, and most importantly the receipts (*récépissés*) issued by the Treasury for the reimbursement of the public debt.

→ *soumissions sur les 150 millions* quoted from Oct. 2, 1719 to Feb. 29, 1720. Called *soumissions sur les derniers cent cinquante millions*) (see also BN, NAF 22245, fol. 296–97), *nouvelles soumissions* (*Gazette d'Amsterdam*).

2.2 Shares or options?

As Cochrane (2001) has noted, the certificates (*soumissions*) sold in the course of the second, third and fourth issues, were in fact options on (identical) shares, which complicates the interpretation of their prices.

Taking the terms of the offers literally, we can interpret the second and third issues as offering options on shares. The strike price was payable in installments over time: by virtue of the AC of Aug. 12, 1719, the payments for both daughters and granddaughters were scheduled concurrently in 19 payments from September 1719 to April 1721, but were twice as large (50L) for the granddaughters as they were for the daughters (25L), although the underlying security (the Indies share) was identical. A non-refundable 50L down-payment had been made at subscription for the daughters (late June to mid-July 1719), but that is a sunk cost from the perspective of the price quotations we have. The fact that the strike price was payable in installments seems irrelevant (aside from the time cost), since the payments were apparently refundable if the option was not ultimately exercised. In other words, both daughters and granddaughters were American call options with strike price of 500L (respectively 1000L) and an expiry of April 1721.

The fourth issue (*soumission*) was somewhat different because the payments were not refundable, and there was no explicit provision for early payment (see in particular the AC Oct. 20, 1719 in which payments are required to be made in certain months). It was therefore an European call option sold for 500L in September 1719, at a strike price of 4500L payable by thirds in December 1719, March and June 1720: with each payment, the strike price effectively went down by the size of the payment.

2.3 Interpreting the quotations: the mothers

Most quotations are expressed as percentages rather than as cash prices. To translate them into cash prices, we have to figure out whether they are gross or net percentages, and what is the base.

In Giraudeau's manuscript, a footnote to the table giving the prices of the mothers states that the prices are quoted as percentage premium, on the basis of a par value of 500L, to which was added the sum paid. A quotation of $x\%$ for a fully-paid share would therefore convert into a $x/100 * 500 + 500 = 5x + 500$ livres cash price. Previous writers who have tried to understand these quotations have used this formula (Dutot, Faure, Murphy). I believe this is incorrect, because all contemporary evidence indicates that the quotation is a *gross* percentage, and the cash price should be $5x$. Some of the evidence is cited by the same writers: Murphy (1997, 190) cites Law converting a quotation of 120 to 600L in June 1719, Faure (1977, 266n1) cites a contemporary letter which quotes shares at 900 and prices 20 shares at $90,000L = 20 * 900 * 5$. Another instance is the decision by the Bank on October 5

to support the share price by offering to buy shares from the public at 900. This decision is cited in Buvat (1865, 1:452), a diary, and in the *Gazette d'Amsterdam*, 1719, n. 83. Both sources translate this as 4500L in cash.⁹

The most convincing evidence is the prices found in the *Gazette d'Amsterdam* before August 1719. From July 1718 to February 1719, the share prices are quoted as percentage premium over the billets d'Etat, with which they were initially purchased. From March 1719, the *Gazette* rarely reports prices for the Billets d'Etat, and gives the cash price of the shares, but expressed as a percentage, sometimes net and indicated as loss or gain, sometimes gross: on March 10, "at 95 cash for 100"; on March 13, "at 89" on April 7, "at 8% loss against cash"; on May 25, "28% above par", on June 19, "at 127" (consistent with Law as quoted by Murphy 1997, 190). From that date, the price is always given by the *Gazette* as a number, continually rising to 450 by August 1. Thereafter the quotations in the *Gazette* continue, and correspond closely to Giraudeau's manuscript. To believe that Giraudeau's prices are net percentages, one would have to suppose that the *Gazette* changed its manner of reporting prices in June 1719, and that the price at that time doubled in a few weeks, an extraordinary event that would surely have been noted.

I conclude that the footnote in Giraudeau's manuscript is incorrect, and that the price of mothers should be interpreted as a gross percentage of the 500L par.

2.4 Interpreting the quotations: the soumissions

The fact that strike payments were staggered and non-refundable apparently led to two possible methods of quoting their price, depending on whether one included past payments or not. Both methods quote the price as x percent premium over the face value of shares, which is also the initial down-payment, of 500L. One method quotes the net percentage premium over the face value of 500L, exclusive of any payments made: the cash price is then $5x + q$, where q is the sum of all payments made including the initial down-payment ($q = 500$ until January 1720, $q = 2000$ from January to March).¹⁰ The other method is to quote a price inclusive of *all* payments made hitherto, as *gross* percentage of the initial down payment of 500L, in which case the cash price of the soumission is $5x$.

Although Giraudeau's manuscript indicates that he uses the exclusive method for the soumissions (as he claimed to do with the mothers) he clearly switches to the inclusive method after Jan. 5, because at that date, his series displays a jump in price from 947 on January 5 to 1420 on January 8, which I interpret as the result of switching from exclusive to inclusive ($400\% = 500 + 1500$). Dutot clearly quotes the soumissions exclusive of past

⁹Dutot (2000, 129) converts it to 5000L, but he is writing nearly 20 years after the facts and clearly relying on Giraudeau's manuscript.

¹⁰That percentages are *net*, not gross, is proven by a contemporary pamphlet titled *Tarif pour sçavoir la valeur des nouvelles souscriptions de la Compagnie des Indes, composé par le Sieur Perpoint* (Paris, 1719) which gives tables for converting quotations as percentages into cash prices based on the formula $5x + 500$; a sequel titled *Tarif du quatrième payement, pour sçavoir la valeur des nouvelles souscriptions de la Compagnie des Indes* (Paris, 1720; Bibliothèque nationale, V 49201) was published after the January 1720 payment and uses the formula $5x + 2000$.

payments (even after the January payment) since his prices for Mar. 31, Apr. 3 and Apr. 30 are 789, 805, 798, at a time when the Company was pegging the cash price of soumissions at $6000 = 800 * 5 + 2000$.¹¹

The manner of pricing of the September soumissions is important, because the quotations for the shares themselves (the mothers) as well as the daughters and granddaughters cease to be reported by Giraudeau after Dec. 15, 1719. This has led researchers to use the September soumissions' prices as a proxy for the share price for January and February 1720. Faure (1977, 272–75) and Murphy (1997, 208) have taken the price of the soumission and added all remaining due payments to represent the price of the underlying share.¹²

Recognizing the existence of these two forms of quotations also allows us to explain three abnormally low quotes in Giraudeau: January 11, 1720 (835.5), January 12 (949), and February 29 (765). Dutot (2000, 187, 204, 225, 232), who quotes in prices exclusive, reports monthly highs of 964 in January and 920 in February, roughly consistent (adding 400) with Giraudeau's highs of 1420 and 1319. But Dutot's monthly lows are 810 in January and 790 in February, which should correspond to 1210 and 1190 in Giraudeau (adding 400). If Giraudeau's three outliers are taken to be prices exclusive, as other evidence suggests they are,¹³ then Giraudeau's lows are 1190 and 1101, much closer to Dutot's lows.

Fig. 1 plots the gap between the price quotes of the mothers and the soumissions (for January and February 1720, it is the gap between the support prices reported in Faure 1977, 340).

2.5 Interpreting the quotations: the daughters and granddaughters

What of the daughters and granddaughters?

Giraudeau's manuscript refers the reader to the same footnote, indicating that the prices are exclusive. But there are some difficulties with the behavior of the prices of mothers,

¹¹There are examples of prices exclusive in contemporary letters and diaries, prices inclusive in announcements of the Company's price support in newspapers (Faure 1977, 340, 348–49). The price sheets use the exclusive method. From Sep. 18 to Dec. 30 1719, the *Gazette d'Amsterdam* consistently uses a third method, which appears to express the cash price plus the sum of all payments past and future (5000L), as percentage of the face value (500L). The official documents creating the *soumissions* are probably the source for this form of quotation, because they express the IPO price as "1000%". This third method simply adds 1000 to the exclusive price, or 900 to the inclusive price. The prices reported in the *Gazette*, after subtracting 1000, are indeed very close to Giraudeau's prices. Faure (1977, 266n1, 268n3) cites contemporary letters that follows the same method of quotation.

¹²Faure (1977, 275) interprets the price jump in Giraudeau's quotes as reflecting only the January payment, mistakenly assuming that prices before Jan. 5, 1720 were expressed until then as gross percentages. Murphy makes the same mistake, since he computes a proxy of the share price from Dec. 15 to Jan. 5 as $5x + 4500$.

¹³Murphy (1997, 216–7) discusses at length the drop in prices on January 11 and 12. Taken literally, Giraudeau's quotes imply a drop of 3000L, but the contemporary observation cited by Murphy indicates a drop of only 750L, confirming that the two quotes as prices exclusive. Regarding the February 29 quotation, (Buvat 1865, 2:39) says that prices rose to 720 then fell to 630 on the same day, and Balleroy (2:39) also has 630 for the same day; Faure (1977, 348) misreads Giraudeau's price as 965 instead of 765, but correctly interprets Buvat's price as exclusive.

daughters and granddaughters up to December 15, when they cease to be quoted. Fig. 2 plots the difference in price between mothers on one hand, daughters and granddaughters on the other. From early August to Sept. 19, the prices of mothers and daughters differed by a variable amount, rising to about 100 (or 500L). Then the mothers are not quoted until October 2, when their price becomes absolutely identical to that of the daughters. Meanwhile the price difference between daughters and granddaughters, previously around 200 (or 1000L), is almost always 100 (500L) after Oct. 30.

Faure (1977, 273) rationalized this by implicitly assuming that (a) the daughters and granddaughters are quoted like the shares as $y\%$ and $z\%$ net premium over par of 500L, and (b) the option value is zero, so that the price of a paid-up share $(1 + x/100) * 500$ should exactly equal that of a daughter plus the remaining payments $y/100 * 500 + 550$, or a granddaughter plus remaining payments $z/100 * 500 + 1000$, implying $x = y + 10 = z + 100$, or $x \simeq y \simeq z + 100$ (neglecting the difference of 10).

There are several problems with this interpretation. One is that it does not explain the prices before Oct. 1, 1719. The other is a discrepancy with contemporary evidence from the price sheets cited above (BN, NAF 22245, fol. 296–97). For November 4, 1719, Giraudeau gives 1255, 1255, and 1155 respectively for the mothers, daughters, and granddaughters, while the price list gives 1250 to 1260, 1150 to 1160, and 1050 for the *cent millions d'actions de la compagnie d'occident visees, soumissions des premiers 25 millions id. visees, and nouvelles soumissions des Indes sur les 25 millions de monnoyes* respectively.¹⁴ For December 9, Giraudeau gives 1850, 1850, and 1745 while the price list gives 1840 to 1850, 1740 to 1750, and 1640 to 1650.

To make sense of these observations, I use the following notation. The Giraudeau series are m , d and g for mothers, daughters, and granddaughters, the cash prices as M , D , and G , the payments already made on daughters and granddaughters are q_D and q_G , the strike prices (payments remaining) are s_D and s_G . By definition $q_D + s_D = 500$ while $q_G + s_G = 1000$ (the reasoning is the same if the strike price is taken to be 500 and 1000 respectively). Figure 2 indicates that, in December 1719, $m \simeq d$ and $g \simeq m - 100$. I start from the premise that daughters and granddaughters were options and mothers were the underlying instrument. Given that the strike price of both (500L and 1000L) were low compared to the price of the share at that date (around 9000L),¹⁵ I assume that the option value was close to 0 at that time, so the price of the option plus the strike price should be equal to the share price: $M = D + s_D = G + s_G$. We know (from above) that the share price is $M = 5m$. It follows that $D = 5d - s_D = 5d - 500 + q_D$ and $G = 5g + 500 - s_G = 5g - 500 + q_G$.

¹⁴I am not sure what to make of the word *visé*, which means signed or verified. The *Gazette d'Amsterdam* quotes prices for *actions non-visées* and *visées* between Sep. 4 and Sep. 15, 1719, and those prices correspond to those of mothers and daughters, respectively, for those dates in Giraudeau. On or about Nov. 13, Buvat (1865, 1:462) gives 1264 for the (*anciennes soumissions visées*) and 298 for the (*soumissions nouvelles*), compared to 1267.5 for the mothers and daughters and 309 for the soumissions in Giraudeau. Dutot (2000, 132) indicates that the subscription certificates were signed (*visé*) each time a required payment was made.

¹⁵Around Sept. 15, options were traded with strike prices at 8000L; by late November there were options with strike prices at 15,000L (*Gazette d'Amsterdam*, 1719, n. 76, 97).

Thus, Giraudeau's quotes (as of December 1719) are *gross* percentage premia over the par of 500, which are converted to cash prices by making them into net premia and adding the payments already made.

I can find no other way to account for the jump in October 1719, and for the discrepancy with the price sheets, than by supposing that the Giraudeau manuscript changes change the reporting of prices for daughters and granddaughters from net to gross percentage premia in late September, while the price sheets continued to report net percentages. Before October 1719 (and in the price sheets), the formula would then be $D = 5d + q_D$ and $G = 5g + q_G$, as the footnote claims. The change in the manner of reporting prices could be explained by the fact that September 30 was the deadline for making the first payments on daughters and granddaughters. That payment may have caused some confusion over the appropriate way to quote prices.

When were the options exercised? Prices for shares (mothers) and the first two series of options (daughters and granddaughters) cease to be recorded in Giraudeau's manuscript in mid-December 1719. Dutot (2000, , 187, 204, 225, 232) indicates that these three instruments continued to be quoted until April 1720. Dutot only provides highs and lows for each month from January to April. However, he lists a single price for mothers and daughters; moreover, the highs and lows he gives are exactly the same for mothers and daughters on one hand, and for the granddaughters on the other. We also know that all shares and soumissions were converted into a single new type of share in March 1720, and that, at that date, there is no mention of unexercised daughters or granddaughters. This suggests that all three had become perfect substitutes in January 1720, which can only be the case if the options had been exercised and converted into shares. It thus seems likely that the daughters and granddaughters, the options with the lowest strike prices, were all exercised by early January 1720, in time to collect the semi-annual dividend, to which only holders of shares were entitled. In fact, the Company announced in mid-December that anyone paying up in full his options would receive shares and collect all the dividends for 1718 as well as 1719, a total of 40L (*Gazette d'Amsterdam*, 1719, n. 103).¹⁶

2.6 Indies Company shares (from 1720)

With the AC Mar. 5, 1720, a policy of fixing the price of shares at 9000L was announced, and at the same time all existing options on shares were converted into shares, at a rate of 2 shares for 3 options, reflecting a value of 6000L assigned to the options. Since 3000L remained due on the 4th issues, this pricing makes sense. But it clearly could not have applied to daughters or granddaughters had they remained options.

From April 3, Giraudeau's manuscript reports prices for the new shares, called Indies shares to distinguish them from the Occident shares or mothers. They are quoted as per-

¹⁶Dutot (2000, 196) states that, as of February, the only shares were the mothers and daughters, the rest being soumissions, that is, options on shares. By implication, the granddaughters would still be options, and, in his calculations of the capitalization of the System, he treats them as if remaining payments had not yet been made; but, as noted, the prices he reports are the same for all three instruments, which does not seem consistent.

centage premium over par of 500L, but the price is clearly inclusive and the cash price is $5x$, because Giraudeau's quotes for April are between 1800 and 1812, at a time when the Company is pegging the price at 9000L. The other sources for prices of the shares in the January–February period are the support prices reported by Faure (1977, 340) and the monthly highs and lows reported in Dutot (2000, 187, 204, 225, 232). These also seem to be expressed in prices inclusive.

Action des Indes (AC Mar. 12, 1720) The original shares bearing the name of Compagnie d'Occident, were ordered to be replaced with new shares in a single format, bearing the new name , with six dividend coupons for the years 1720 to 1722; all shares were to be dated Jan. 1, 1720 (Dutot 2000, 251). Starting in April 1720, these shares are quoted as such (*action des Indes*) subject to further vicissitudes detailed below. They were replaced by new shares issued in June 1720 and those not exchanged became void on Sept 1, 1720.

→ actions des Indes quoted from Apr. 3 to May 24 as premium over the face value of 500L, from May 25 to Jul. 31 1720 in cash. Dutot (2000, 225) gives the price for March 1 and March 31.

2.7 Reverse splits and capital calls (1720)

From June to November 1720, a series of conversions and capital calls have created successive versions of the Indies Company share (Fig. 4).

On June 3, 1720, two actions were taken (Dutot 2000, 260). One was to reduce the number of shares officially to 200,000. The Company was authorized to destroy the shares that it had been buying since December 1719; the King, who had sold his 100,000 shares to the Company in February, agreed to write them off and not ask for the sale price.

At the same time, shareholders were offered the option to pay in 3000L per share, in six equal monthly cash (coin or note) payments (changed to three monthly payments, AC June 14), increasing the face value of the share from 9,000L to 12,000L. Shares that were not paid-in (*actions non remplies*) earned 200L per share annually (2.2%), the dividend set at the General Assembly of December 1719. Shares that were paid-in (*actions remplies*) would earn a dividend of 360L (or 3%), any additional profits would be distributed among the paid-in shares only. This was, in effect, making the *actions non-remplies* into bond-like instruments (the question of voting rights is not clear).

It was later decided (AC June 20, 1720) that, until July 15, the capital call could be paid with shares at a rate such that 3 old shares could be exchanged for 2 new shares; this changed the capital call into a 2-for-3 reverse share split.

New share certificates were issued in exchange for old shares, starting on July 15, with dividend coupons for 1721, 1722, and 1723. Holders of old shares were told to keep the dividend coupon for the second semester of 1720 in order to redeem it in the usual way during the rest of the year; the increase in dividend for that semester (20L per old share)

was paid out at the time of exchange.¹⁷

The conversion was later made mandatory (AC Oct. 3, 1720), and shares that were not converted before Oct. 31 would become Company bonds (*actions rentières*, see below) earning 2%. The Giraudeau manuscript stops quoting the *action des Indes* on July 31 and begins quoting the *action remplie* on Aug. 6. The actions remplies were given a face value of 8000L on Sept. 15, 1720.

Actions remplies/non-remplies (AC Jun. 3, 1720)

→ actions non-remplies quoted in Dutot (2000, 338–39, 358–59) from Sep. 2 to Oct. 31, 1720, in notes. Dutot (2000, 303) also gives an average price of 4671L for August.

→ actions remplies quoted from Aug. 6 to Nov. 26, 1720, in notes.

second timbre (second stamp, AC Oct. 24, 1720) In a measure ostensibly aimed at speculators, the government ordered that all shares be brought back to the Company, and the names of their owners registered. Those shares deemed to be owned by “good faith shareholders” would receive a second stamp (the first one having been imprinted at the time the share was issued) and be returned to their owners. Shares were received from Oct. 29 to Nov. 23, and they were returned starting Nov. 25 (Marais 1863–68, 1:490). Shares without a second stamp became void (AC Dec. 2, 1720).

→ “actions du second timbre” quoted from Nov. 27, 1720 to Mar. 31, 1721 (in notes until Feb. 10, 1721; in coin afterward).

troisième timbre (third stamp, AC Nov. 27, 1720) shareholders were required to subscribe a one-year loan of 150L per share, payable 2/3 in specie and 1/3 in bank notes (see below, *bulletin de 52 louis*). Each share received a third stamp to indicate that the owner had fulfilled the obligation. Shares without a third stamp were to become void after Dec. 20, but the deadline was extended twice and then cancelled on Feb. 9, 1721.

→ “actions du troisième timbre” quoted from Nov. 29, 1720 to Mar. 31, 1721 (in notes until Feb. 10, 1721; in coin afterward). The loan itself was also quoted (see below, *bulletin de 52 louis*).

In the summer of 1720, attempts were made to retire bank notes by issuing whole shares and fractional shares.

soumissions (AC Jul. 31 and Aug. 14, 1720) to retire high-denomination bank notes, the Company issued 70,000 new shares: subscribers could purchase them in 9 equal monthly payments of 1000L each, the first upon subscription. It seems that only the initial down-payment was ever collected, since the subscriptions (*soumissions*) were

¹⁷ *Gazette d'Amsterdam*, 1720, n. 59. The Musée Carnavalet in Paris has one example of the new shares, with its full complement of dividend coupons, numbered 147738 (Collection Fabre de Larche, GB15) and a copy of another numbered 160312 with only the dividends of 1723 (*ibid.*, GB14).

soon made convertible into fractional shares (see below) at a rate of 1000L worth of shares (or 1/8 share) each, for a maximum total of 8750 new shares (AC Sept. 15, 1720, conversion made mandatory Nov. 1, 1720).

→ *soumissions* quoted from Aug. 1 to Nov. 15, 1720; quoted as percentage premium/discount over par of 1000L (see Marais 1863–68, 1:387, who buys one for 1050F on August 15).

dixièmes d'action (AC Sept. 15, 1720) to retire small-denomination bank notes, the Company issued up to 500,000 tenths of shares. They could be purchased for 800L each in notes of 10L, 50L, or 100L, and received an annual dividend of 36L. Six dividend coupons were attached for the years 1721 to 1723.¹⁸ They could be converted into bank accounts. On Oct. 12 the Company decided to pay its dividend in the form of tenths of shares.

→ quoted from Oct. 10, 1720 to Mar. 31, 1721 (in notes until Feb. 10, 1721; in coin afterward).

2.8 Creating a single series of share prices

I use the following series to create a single series of the Indies Company share from Jul. 24, 1719 to Mar.31, 1721:

- *action d'Occident* from Jul. 24, 1719 to Dec. 15, 1719, using the formula $p = 5x$, with the price of *soumissions de Mai* as proxy¹⁹ between Sept. 15 and Sept. 30;
- *action d'Occident*, support price reported in Faure (1977, 340) from Jan. 2 to Feb. 15, 1720, using the formula $p = 5x$;
- *action des Indes* from Mar. 31 to May 24, using the formula $p = 5x$;
- *action des Indes* from May 25 to Jul. 31;
- *action remplie* from Aug. 6 to Nov. 11, using the formula $p = 2x/3$;
- *action du 2e timbre* from Nov. 29, 1720 to Feb. 7, 1721, using the formula $p = 2x/3$.

I make several corrections to the quotations in Giraudeau: the prices of January 11, January 12, and February 29 1720 are construed as prices exclusive as explained above. I also correct what seems to be a copying mistake for Nov. 27, 1719.²⁰

¹⁸The Musée Carnavalet in Paris has a copy of one example, numbered 19998 (Collection Fabre de Larche, GB18).

¹⁹There is a two-week gap in the mother series. Inspection of Fig. 3 suggests that the mother-daughter gap in the second half of September 1719 can be interpolated as constant at 100.

²⁰The price for the mothers and daughters is reported at 1670 in all three manuscripts, compared to 1765 on Nov. 25, 1865 on Nov. 28, and a price of 1770 for the granddaughters on Nov. 27. A price of 1870 would

The nominal series can be deflated by the price of a 100L billet from Jun. 10, 1720 to Feb. 7, 1721, and then spliced with the *action du 3e timbre* quoted in coin until March 31, 1721.

I prefer not to use the method of Faure and Murphy, which is to use the price of the soumission and add remaining payments due as a proxy for the share price in January and February 1720. When the soumission and share series overlap (October to December 1719), the procedure does not work very well; if it did, then the gap between the two series should be close to 900 (4500L = 900% of 500L), but Fig. 1 shows substantial fluctuations above and below 900.

2.9 Dividends

The edict of August 1717 creating the Company of the West specified (article 40) that the Company was obligated to pay 4% interest to the shareholders on their shares, accruing from Jan. 1, 1718, and payable every six months beginning in July 1718. This interest, 20L per year on shares of 500L face value, was financed by the interest on the billets d'Etat which shareholders had turned in to buy their shares. Article 43 makes a distinction between the payment of interest and the payment of profits (*repartitions*), the amount of which was to be decided every year in December by a General Assembly (article 42). This probably means that 10L was the minimum semi-annual dividend. The first dividend was paid in July 1718 (Giraud 1966, 3:52), the second in January 1719 (*Gazette d'Amsterdam*, 1719, n. 5). The accounts of the Bank (which owned 12,000 shares of the Company) record payments of 10L dividend per share for the second semester 1718 and the two semesters of 1719 (Harsin 1928, 308–09).²¹

Dutot (2000, 81–86) relates the first general assembly on March 27, 1719. The second assembly took place on Dec. 30, 1719 (Dutot 2000, 168; Murphy 1997, 191; Faure 1977, 202). It is well known that a dividend of 200L per share was announced at that assembly, but it is not clear for which semester. A report in the *Gazette d'Amsterdam*, 1720, n. 3, cites one of the directors of the Company as promising that dividend for the years 1718 and 1719, but this may be a garbled report. Reports of Company announcements in later issues indicate that the Company would pay an aggregate of 120mL in dividends to all shares (1720, n. 5) during the first half of 1720; and that it paid the 5th dividend from January to May (n. 16, 20, 26, 34, 38, 40, 42).

The Company paid the dividend for the 2nd semester 1720 starting in August 1720 (*Gazette d'Amsterdam*, n. 66). The Company was authorized to continue to pay its dividends

fit better with the prices before and after, and also fit the pattern that, in November and December, the price of granddaughters is almost always 100 less than that of mothers and daughters. The possibility of a copying mistake is suggested by the fact that the prices of the daughters for Nov. 28 and Nov. 29 are reported as 1665 and 1675 in the BN manuscript, 1865 and 1875 in the other two manuscripts. Another suspicious price is 1273 for granddaughters on November 14, identical to the price for mothers and daughters instead of the usual 100 difference.

²¹The inventory of the Company's archives (AN, V/7/235) mentions "un registre qui a servy pour le payement des quatre premiers dividendes des actions de la compagnie aux porteurs des souscriptions remplies."

for the year 1720 in banknotes at face value even after their demonetization (AC Oct. 10, 1720; see also AN, K885, 2, fol. 95, and Buvat 1865, 2:223). On Oct. 12 it resolved to make its current dividend payments in the form of tenths of shares (Dutot 2000, 349). Dividend payments stopped when the Company was put in receivership in April 1721 (see AN, G/7/1705 for a plan to continue payment in banknotes after that date).

The new shares issued in June 1720 in replacement of the old shares had dividend coupons starting with 1721 (example at the Musée Carnavalet, Paris, collection Fabre de Larche GB 15), and the dividend was set at 360L for the shares that had paid the capital call (actions remplies), 200L otherwise (actions non-remplies). Pâris-Duverney (1740, 2:78) states that the dividends of 1721 were never paid. The AC of Mar. 24, 1723 set the 1721 dividends to 0, and announced the dividends for 1722 and 1723 (Hautchamp 1743, 2:23, 50; Buvat 1865, 2:438).

2.10 Number of shares

The following table summarizes the information on the number of shares and subscriptions. It seems important to distinguish the two, although it is not clear when and to what extent subscriptions were converted into shares. I assume here that the daughters were all converted to shares by late September 1719, and all granddaughters by late October 1719. In many instances we don't have a precise number of shares or subscriptions, but a maximum authorized, and sometimes it is not known if the limit was reached (subscriptions of September 1719, of July 1720). The September 1719 soumissions were authorized up to 300,000 (with an extra 24,000 secretly authorized by the Regent in early October, Dutot 2000, 124), but we don't know how many were taken out. By March 1720, there were shares, soumissions of September 1719, and two series of primes (see below) issued in January and February 1720. All these instruments were converted into a total of 600,000 new shares: the 300,000 existing shares were converted into new shares one for one, the (unknown number of) soumissions 3 for 2, and the primes at various rates (see above). Law (1934, 3:271) claims that 300,000 primes were issued in January, which would have been converted into 35,000 shares in March. We don't know how many primes were issued in February. Neglecting the February primes (which had little success according to Lüthy (1959, 320) would lead to a total of 265,000 September soumissions issued. The AC of June 3, 1720, issued new shares with a maximum of 200,000. A new series of soumissions were issued in July 1720, but we don't know how many; but the AC of Sept. 15, 1720, which converted these soumissions into shares and authorized the issue of tenths of shares, put a maximum of 250,000 shares. The mandatory registration of shares in November 1720 (see "second timbre" above) probably reduced the number of shares. As of November 9 240,000 unconverted shares had been registered, yielding 160,000 shares (*Gazette d'Amsterdam*, n. 93). The AC of Nov. 27 authorizing the Company to issue a forced loan implicitly assumes 150,000 shares. The number of shares for January 1721 is the number submitted to the Visa. The final number for March 1723 is the number of shares that emerged from the Visa liquidation.

Date	Shares	Subscriptions
Sep. 1717	subscription opened	
Dec. 1718	200,000	
Jul. 1719	200,000	50,000
Aug. 1719	200,000	100,000
Sep. 1719	250,000	50,000
Oct. 1719	300,000	265,000
Mar. 1720	600,000	
Jun. 1720	200,000	
Jul. 1720	200,000	$\leq 70,000$
Sep. 1720	$\leq 250,000$	
Nov. 1720	150,000	
Jan. 1721	$\geq 125,000$	
Mar. 1723	56,000	

Table 12: Number of shares in the Company of the West/Indies Company, 1717–21.

3 Bank notes and bank accounts

The total note issues are pretty well known from surviving accounts (Harsin 1928, 305–07).

3.1 Notes of the Banque générale (1716–18)

The Banque générale issued two series of notes, both denominated in silver écus:

- *billets de 8 écus au marc* from June 1716 to March 1718, in denominations of 10, 40, 100, 400, and 1000 écus, each écu worth 6L.
- *billets de 10 écus au marc* from June to October 1718, in denominations of 10, 50, 100, and 500 écus, each écu worth 6L.

No note of the Banque générale has survived (Lafaurie 1981, 68), but their format of the first issues (8 écus per marc) is known from the letters patent of May 2, 1716 creating the Bank: *Mille écus d'espèces. La Banque promet payer au Porteur à veüe Mille Écus d'Espèces du poids & titre de ce jour valeur receüe à Paris le... de ... 171...*

3.2 Notes of the Banque royale (1718–21)

Issues of the Banque Royale were in principle authorized by Arrêts du Conseil (texts available at www.ordonnances.org). Dutot provides end-of-month numbers from November 1719 to November 1720 on notes of each denomination printed, held by the Bank, burned, and cancelled (Dutot 2000, 114, 127, 141, 171, 185, 201, 213, 225, 232, 237, 252, 270, 289, 305-9, 341, 347, 360, 372). He also gives dates and totals of notes burned (Dutot 2000, 269, 274, 277, 283, 287, 302, 346) pursuant to the AC of Jun. 11, 1720 and others.

To construct a table of notes by denominations, I proceed as follows. Up to November 1719, the total in circulation is assumed to be the total issues authorized. For Dec 1719, Dutot (2000, 171) gives a total of 769m made, and the breakdown by denomination is interpolated. From January to May 1720, the total in circulation is the total made as

reported by Dutot (2000, 185, 201, 213, 225, 232, 237). From June 1720, the total in circulation is the total made less the total burned, cancelled, or held at the Bank (Dutot 2000, 252, 269, 270, 274, 277, 283, 287, 289, 302, 305-9, 341, 346, 347, 360, 372). From June to October 1720 an adjustment is made for the notes retired but not held by the Bank or burned: we only know the total on October 10 of 820m (AC Oct. 10 1720, Dutot does not seem to accept the 90m in the bank's registers, so I have excluded it; see Murphy 1997, 298). From October 10 to Jan 8, 1721 the adjustment linearly brings the outstanding circulation to the figure of 673m notes held the public that one can infer from the Visa accounts (Pâris-Duverney (1740, 2:241-47). The adjustment is assumed to be a subtraction to high-denomination notes. Market value is computed by taking market prices for each denomination in Giraudeau. Silver value is obtained by adjusting the market value for changes in the silver coinage's mint equivalent relative to May-June 1720.

Starting in June 1720, Giraudeau provides prices of notes against specie, by denomination (see Fig. 5).²²

The high-denomination notes (1000L and 10,000L) and the small-denomination notes (10L and 100L) were treated differently starting in July 1720:

high-denomination notes convertible into bank accounts (Jul. 13, 1720); demonetization announced for Oct. 1, convertible until then into government bonds, bank accounts or *soumissions*, and after the deadline convertible only in Company bonds (*actions rentières*, see below) (Aug. 15, 1720), legal tender only up to 50% of existing debts (Sept. 15, 1720); deadline for conversion to Company bonds set to Nov. 30, later extended to Feb. 1, 1721. The notes could be exchanged for receipts from the directors of bank accounts and be treated like bank accounts.

→ 1000L: quoted for Jun. 10-11, Jun. 26-28, and from Aug. 29, 1720 to Mar. 31, 1721.

small-denomination notes demonetization announced for May 1, 1721 (Aug. 15, 1720); legal tender only up to 50% for payments greater than 20L, up to 100% for existing debts (Sept. 15, 1720); taken in payment of new coins up to 1/3 (Sept. 30, 1720; suspended Oct. 24); demonetization announced for Nov. 1 (Oct. 10, 1720), convertible into government bonds until Nov. 30 (deadline extended to Jan. 31, 1721), void after.

→ 100L: quoted for Jun. 10, from July 4 to July 15, and from Aug. 1, 1720 to Mar. 31, 1721.
 50L: quoted in Bibliothèque nationale, NAF 22245, f. 299-304, but not in Giraudeau.
 10L: quoted from Sep. 6, 1720 to Oct. 26, 1720 and Jan. 8 to Jan. 11, 1721.

coupe des billets Giraudeau's manuscript lists prices for *coupe des billets de banque de 10,000L en 1,000L* (Sep. 20, 1720 to Jan. 2, 1721) and *coupe des billets de banque de 1,000L en 100L* (Aug. 20, 1720 to Feb. 21, 1721). The price lists of January-February 1721 in Bibliothèque nationale, NAF 22245, fol. 299-304 also quote a *Coupe du Billet de 1000L en billets de 50L*. These are apparently the prices paid to exchange a 10,000L note (respectively 1,000L) into 1,000L notes (respectively 100L); see Marais (1863-68,

²²Dutot (2000, 309, 338-39, 358-59) also gives the price of gold bullion from Aug. 14 to Oct. 31, 1720.

1:387) who says that on August 15 *on perd 180fr. pour couper un billet de 1,000fr. en billets de 100fr, et 10fr*, and the *Gazette d'Amsterdam* (n. 68) reporting that on August 14, 1720 *on prenait 130 livres pour couper un billet de banque de 1000 livres en 10 portions*.

3.3 Comptes en Banque (1720–21)

An AC of Jul. 13, 1720 authorized the Company to create bank accounts, starting on July 20 in Paris, and August 20 elsewhere, to a maximum of 600mF. Balances in the bank accounts could be purchased with high-denomination notes. Any commercial bill over 500L, foreign exchange transaction, and sale of wholesale goods had to be settled with bank account transfers. An AC of Sep. 15, 1720 announced that the bank account balances were set at 1/4 of their original value, with however an option to convert them at their original value into certificates with which newly issued government bonds could be purchased until Oct. 31 (AC of Sep. 18, 1720). This option was made mandatory when the bank accounts were abolished on Dec. 26, 1720 and were made convertible into government bonds or Indies shares until March 1, after which they would become Company bonds (*actions rentières*, see below) (Dutot 2000, 277, 315, 349, 388). A total of 239.2mL in notes was converted into bank accounts (Dutot 1935, 201), although only 200.4mF in bank account balances were presented to the Visa (Paris-Duverney 2:262).

→ quoted from Aug. 16, 1720 to Jan. 25, 1721 against notes, Nov. 16, 1720 to Mar. 4, 1721 against coin (these two prices are called *reduit* and *non reduit* respectively in BN, NAF 22245, fol. 299–304) (Fig. 6 and 7).

4 Other Instruments

The Company issued various bonds and other liabilities over the course of 1720.

Primes These were call options on shares, written by the Company itself. There were two series, called respectively *primes premières* and *primes nouvelles*. The first were announced by a broadsheet²³ posted by the Company on Jan. 9, 1720: the Company sold for 1000L the right to buy from the Company a share for 10,000L, at any time in the 6 months from date of contract; if the option was not exercised the Company kept the 1000L premium. The options were sold by the Company from January 9 to February 9. From January 29 to February 9, the Company accepted soumissions at 6600L each in payment of primes.

²³See Law (1934, 3:269–71) for the motivation. The text of the announcement is quoted in Giraudeau's manuscript, fol. 8: *Le public est averty que la Comp. des Indes s'engage a fournir a la volonté du proteur dans le courant de six mois du jour de la datte de la police qui sera passée, des actions de lad. Comp. avec des repartitions, moyennant 11,000L pour chaque action dont 1000L seront payées comptant pour prime qui restera au proffit de lad. Comp. faite par le porteur de payer dans le courant des six mois les 10,000L restantes*.

→ *Primes premières*, quoted from Jan. 8 to May 17, 1720, as percentage premium over initial purchase price of 1000L (Fig. 8)

Primes nouvelles A new series of options was issued on February 29, sold for 5000L and giving the right to purchase a share at 5000L before the end of 1720 (*Gazette d'Amsterdam*, 1720, n. 20; Lüthy 1959, 320). How the premium of 5000L was paid is unclear: a note in Giraudeau says that they were purchased in *récépissés du Trésor Royal* at par or in bank notes at a 10% premium for the options (*a 10% de benefice aux primes*), but the report in the *Gazette d'Amsterdam*, which may be garbled, says that it was payable in the form of options of the January series (*comptant en Primes de la Compagnie*). An AC of Mar. 5, 1720 ordered the conversion of the options into shares at a rate of 1050L for the first series and 5000L for the second; they were later also made convertible into the Company's life annuities. Those not converted were voided after Sept. 30 (Dutot 2000, 208, 236, 260, 321).

→ *Primes nouvelles*, quoted from Feb. 26 to May 16, 1720, as percentage premium over initial purchase price of 5000L (Fig. 8).

Action rentière the Company was authorized by AC Feb. 23, 1720, art. 10, to issue *actions rentières*, preferred stock or bearer bonds earning 2% per year, accruing from Jan. 1 1720, for a maximum of 10mF in annuities, or capital of 500mF, for those former creditors of the government who preferred to hold bonds rather than shares. They could be real or personal property at the purchaser's option. They could be purchased with shares (valued at 10,000L each), soumissions (valued at 8,000L), primes at face value (i.e. 1000L) or *récépissés* (receipts) of the Trésor Royal at par. The AC of Mar. 5, 1720, art. 12, confirms that every share exchanged for an *action rentière* would be destroyed. The first ones were issued on April 9 (*Gazette d'Amsterdam*, 1720, n. 32). On May 31 the Regent ordered that actions rentières be issued in exchange for outstanding *récépissés* of the Trésor Royal and for bank notes (instead of shares, as was being done until May 22). In June 1720, an amount of 50mL in capital (1mL in interest) had been created (according to the AC Jun. 20, 1720). Interest on the first six months of 1720 was paid starting in August. After their demonetization in October 1720, high-denomination banknotes were to be brought in and converted into actions rentières before Nov. 30, deadline extended to Dec. 31 and again Feb. 1, 1721 (Nov. 8, Dec. 3, Dec. 29, 1720). Shares which had not been converted into actions remplies were to be deemed actions rentières after Oct. 31 (Oct.5, 1720). Bank accounts not converted into other instruments were to be converted into actions rentières after March 1, 1721 (Dec. 26, 1720).²⁴ During the Visa it was found that actions rentières

²⁴These actions rentières were first issued on November 19 (*Gazette d'Amsterdam*, n. 96). They were denominated in 10,000L and 1,000L (the latter called tenth of share and quoted in Bibliothèque nationale, NAF 22245, fol. 299–304, but not quoted separately in Giraudeau). The Musée Carnavalet in Paris has two examples of dividend coupons (Collection Fabre de Larche, GB16 and 17). Their exact nature is a little unclear: should they be treated as bonds or preferred stock? In the Visa, they were treated exactly as the Company's life annuities and the Banks's bank accounts, and converted into government bonds at the same

worth a total of 80.9mL were submitted (Paris-Duverney 2:141).

→ quoted from May 6, 1720 to Mar. 31, 1721, as percentage premium/discount until February, in coin afterward (Fig. 9).

Rente viagère By AC May 16, 1720 the Company was authorized to issue life annuities at 4% interest, to a maximum of 4mL in annuities, or a capital of 100mF. The annuities could be purchased with notes or with shares valued at 9000L each. The minimum capital was 2500L. By June 1720, it appears that almost all had been issued (AC of June. 20, 1720). A total capital of 92.8mL was presented at the Visa in 1721, and they were reduced at rates varying from 40% to 95% of their face value. They are distinct from the life annuities issued by the King in August 1720, but were included in the Visa and converted into government life annuities.

→ quoted from Jun. 1, 1720 to Jan. 16, 1721, as percentage premium (Fig. 10).

bulletins de 52 louis these were the bonds which each shareholder was required to purchase for 150L, 2/3 in silver specie (*louis d'argent* valued at 3L each) and 1/3 in bank notes (AC Nov. 27, 1720; see *troisième timbre* above). The bond was redeemable in coin at the rate of 3L per louis. The interest was 4%, and the face value of each bond was 156L, or 52 *louis d'argent*, hence the name of the bond. They were converted into 2% bonds by AC of Jul. 26, 1723.

→ quoted from Dec. 19, 1720 to Mar. 31, 1721, in coin.

billets de 36 louis (et demy) The AC of Jan. 9, 1721 authorized the Company to change the terms of the mandatory loan: since the notes were demonetized, the bond was sold for 105L in coin, at the rate of 3L per louis, or 35 louis. The bond was redeemable for 36.5 louis (an implied interest of 4.3%) one year after the date of issue (Jan. 10). They were converted into 2% bonds by AC of Jul. 26, 1723.²⁵

→ quoted from Jan. 14, 1721 to Mar. 31, 1721, in coin.

Two securities quoted in the Giraudeau manuscript are of interest because they were among those securities which, to the exclusion of cash and notes, were allowed in payment of the September soumissions (AC Sept. 26, 1719).

billets d'Etat A royal declaration of Dec. 7, 1715 authorized the issue of 200mL in *billets d'Etat* (amount increased to 250mL on Apr. 1, 1716). These bearer bonds, in denominations ranging from 30L to 10,000L, carried a 4% interest payable semi-annually, with interest accruing from Jan. 1, 1716. By August 1717, the 250mL had been printed and signed, and 180mL had been spent to repay outstanding debts (a total of 195mL

rates.

²⁵Giraudeau's manuscript incorrectly identifies this loan with one authorized by AC of Oct. 27 and Nov. 17, 1720, which failed completely, and was superseded by the mandatory loan of Nov. 27.

in debts was ultimately paid off, Forbonnais 5:312; see also BN, Fr 7759, part 2, fol. 26–72). The same month a variety of means to redeem the billets d’Etat were offered, including a monthly lottery, the sale of some royal forests, the sale of 1.2mL in life annuities, but most importantly the issue of shares on the Company of the West, and also payment of the profiteering taxes levied by the Chambre de Justice of 1716 (17,839,647L in billets d’Etat were collected in this fashion by Jan. 31, 1718; Marion 1914, 1:70, 464; Giraud 1966, 3:42n5). From May 1718, they were also accepted in payment of the seigniorage tax on the new coinage, as new coins could be purchased with 2/5 in billets: a total of 118,859,000L were redeemed in this fashion by May 31, 1719 (BN, Joly de Fleury 566, fol. 199). The redeemed billets were burned publicly, and a total of 107.8m had been burned by Sept. 4, 1719 (Buvat 1865, 1:427). The last remaining billets were included in the general reimbursement of the public debt of August 1719.

→ quoted from Aug. 1 to Dec. 5, 1719 as percentage of face value (Fig. 11). Some prices can be found for earlier dates.²⁶ Comparison with the prices in the *Gazette* suggest that the prices in Giraudeau’s manuscript for the month of August are percentage discounts.

récépissés du Trésor Royal These receipts were delivered by the Royal Treasury to bondholders who were reimbursed as a consequence of the AC of Aug. 27, 1719. They were accepted in payment of shares of the Indies Company, initially concurrently with cash, then exclusively. An AC of Oct. 5, 1719 made it possible to issue them them in denominations as small as 500L. By AC of Mar. 5, 1720 the reimbursement of the debt continued in the same form but the récépissés were henceforth redeemed in bank notes by the Indies Company instead of shares. A total of 9.65mL in récépissés submitted to the Visa. They are called *récépissés de M. Hallée* in the price sheets (Hallée was *garde du Trésor Royal*).

→ quoted from Dec. 15, 1719 to Mar. 23, 1720, as percentage premium or discount (Fig. 11).

²⁶In percentage discount over face value: April 1717, 65; Aug. 1717, 66 to 70; Oct. 1717, 64; Apr. 1718, 62 to 63; May 26, 66; May 27, 62; Ma 28, 60; June 1718, 52; July 30, 1718, 43; Aug. 6, 1718, 53.25; Nov. 10, 1718, 58.5; Dec. 12, 1718, 58.5; Jan. 16, 61; Feb. 6, 1719, 62; Feb. 27, 60; Mar. 10, 58; Mar. 13, 58.5; May 31, 57 (Lüthy 1959, 1:355–58; Dutot 2000, 41, 65; Buvat 1865, 1:398; *Gazette d’Amsterdam*, 1718, n. 45, 64, 92, 101; 1719, n. 7, 13, 22, 23, 65).

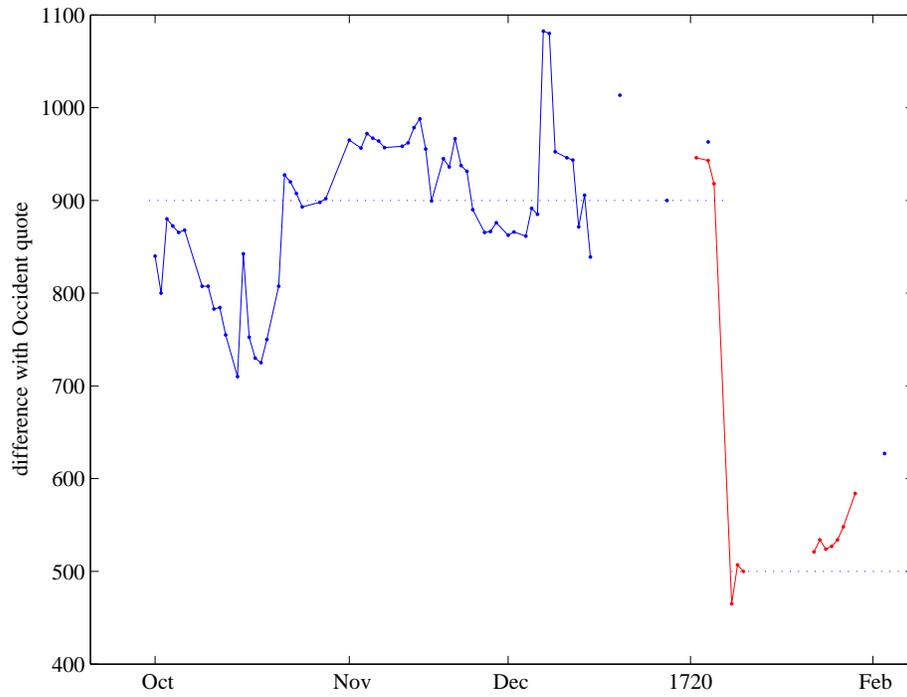


Figure 1: Difference between mothers and submissions, Aug. 1719–Feb. 1720.

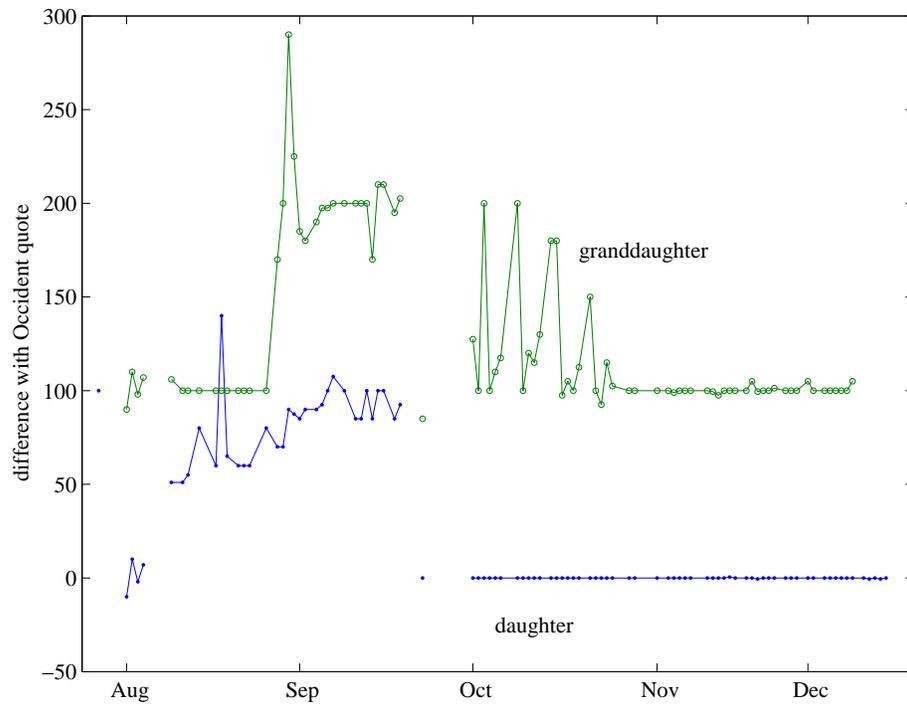


Figure 2: Difference between mothers and daughters (resp. granddaughters), Aug–Dec. 1719.

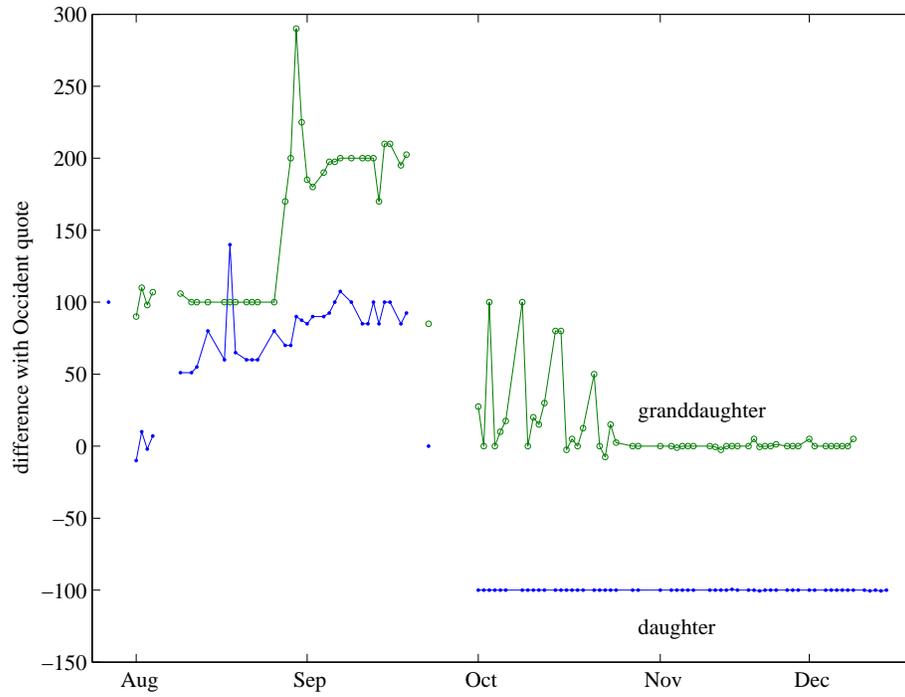


Figure 3: Difference between mothers and daughters (resp. granddaughters), Aug–Dec. 1719, with quotations corrected after Oct. 1 (see text).

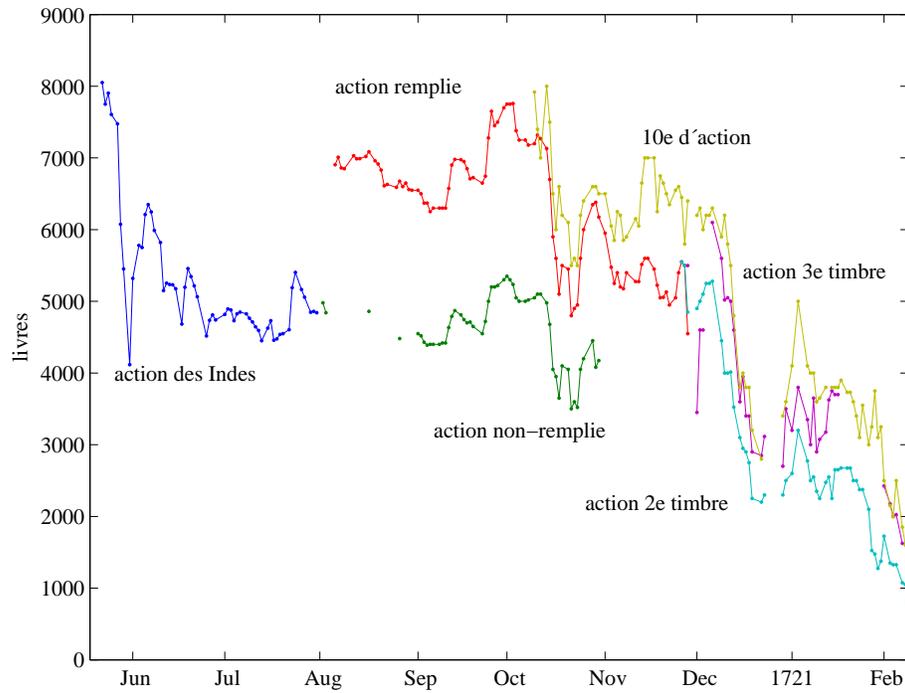


Figure 4: Prices of various shares, in notes (May 20, 1720–Feb. 9, 1721).

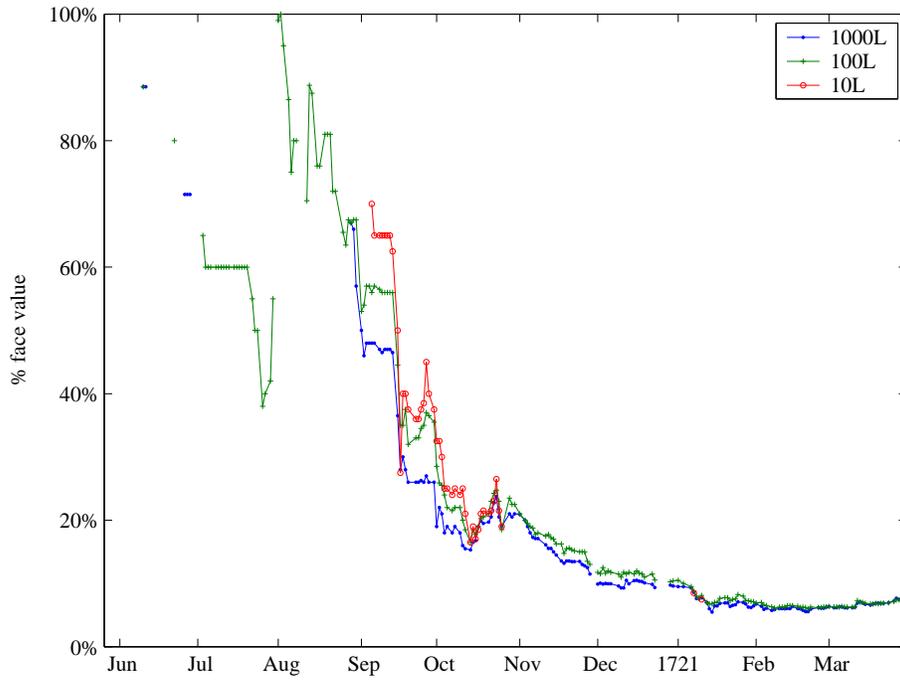


Figure 5: Prices of notes of 1,000L, 100L and 10L, in coin (May 24, 1720–Mar. 31, 1721).

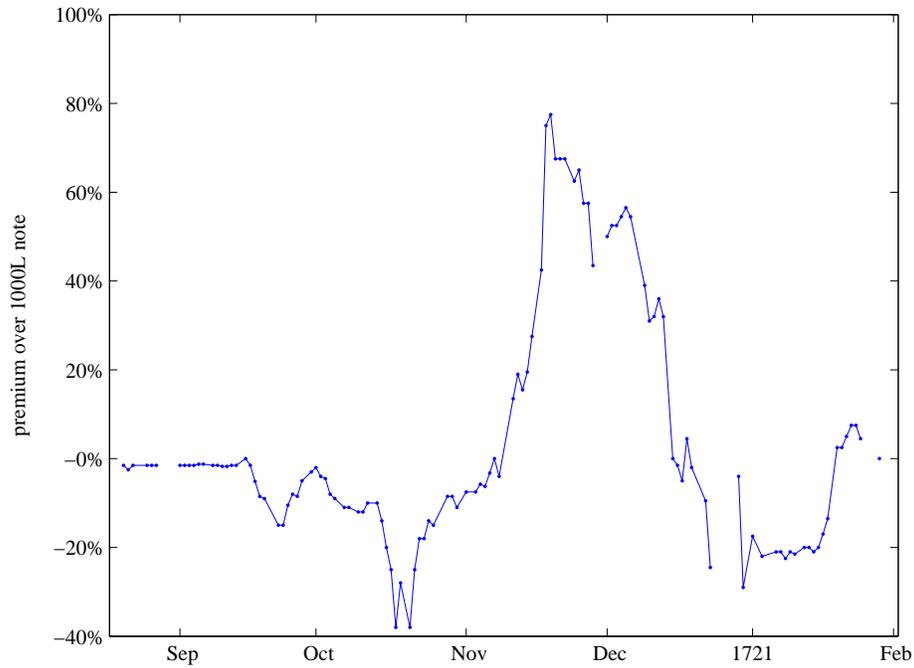


Figure 6: Comptes en banque, premium/discount over notes (Aug. 21, 1720–Jan. 29, 1721).

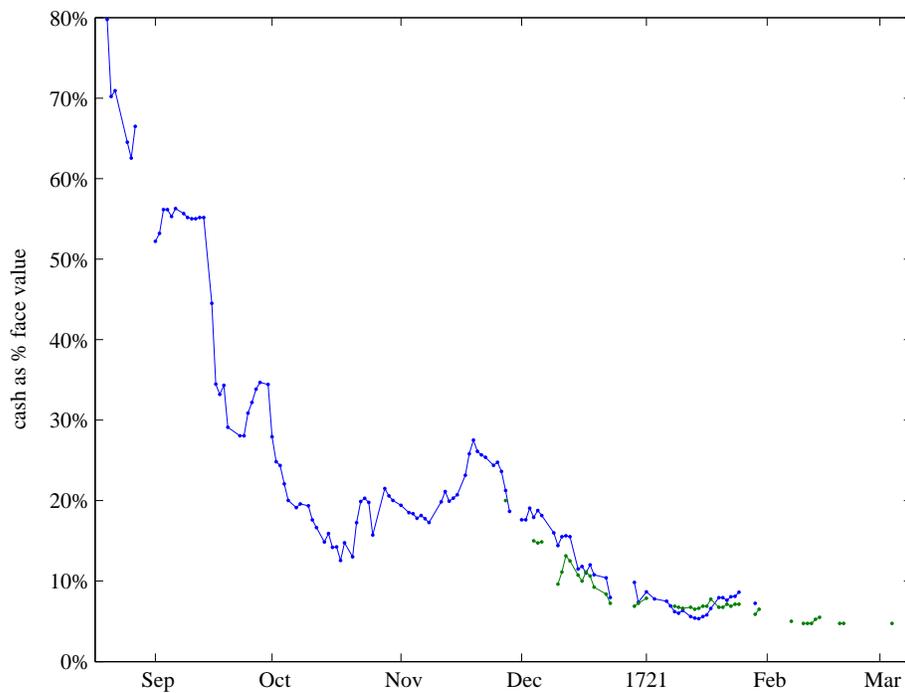


Figure 7: Cash price of compte en banque (nominal price deflated by price of 1000L notes, Aug. 21, 1720–Jan. 29, 1721; coin price Nov. 28, 1720–Mar. 4, 1721).

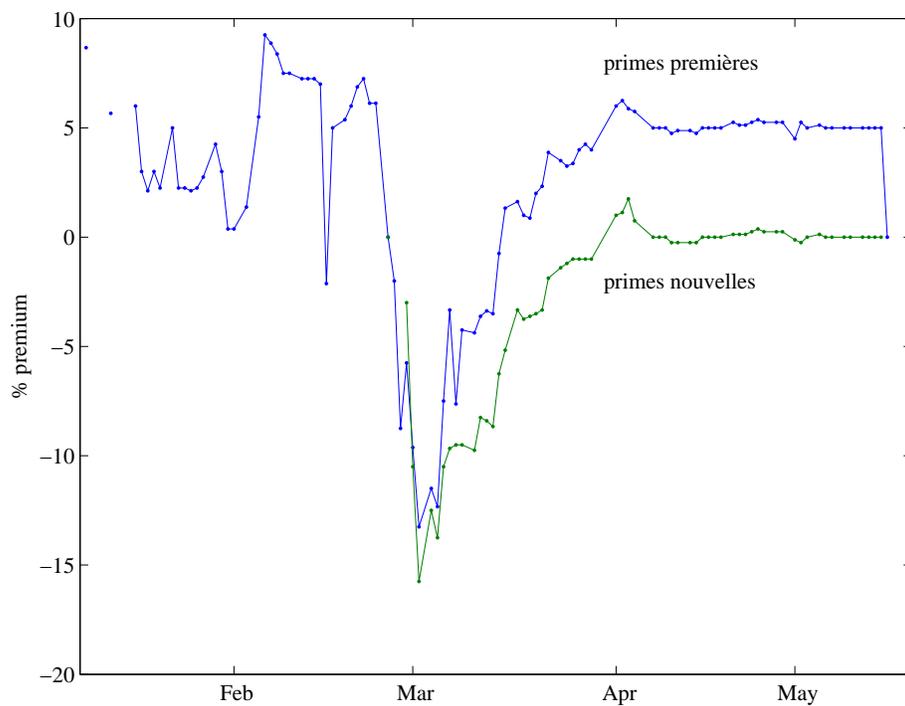


Figure 8: *Primes premières* and *primes nouvelles*, quoted as percentage premium/discount over face value (Jan. 7–May 21, 1720).

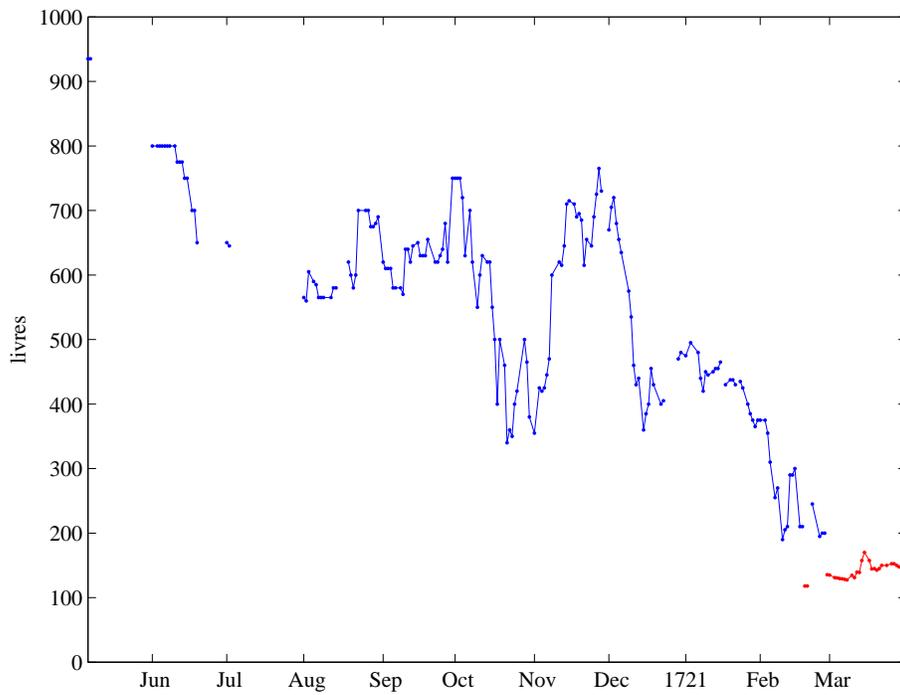


Figure 9: *Action rentière*, in notes (Jun 5, 1720–Feb. 27, 1721) and coin (Feb. 19–Mar. 31, 1721).

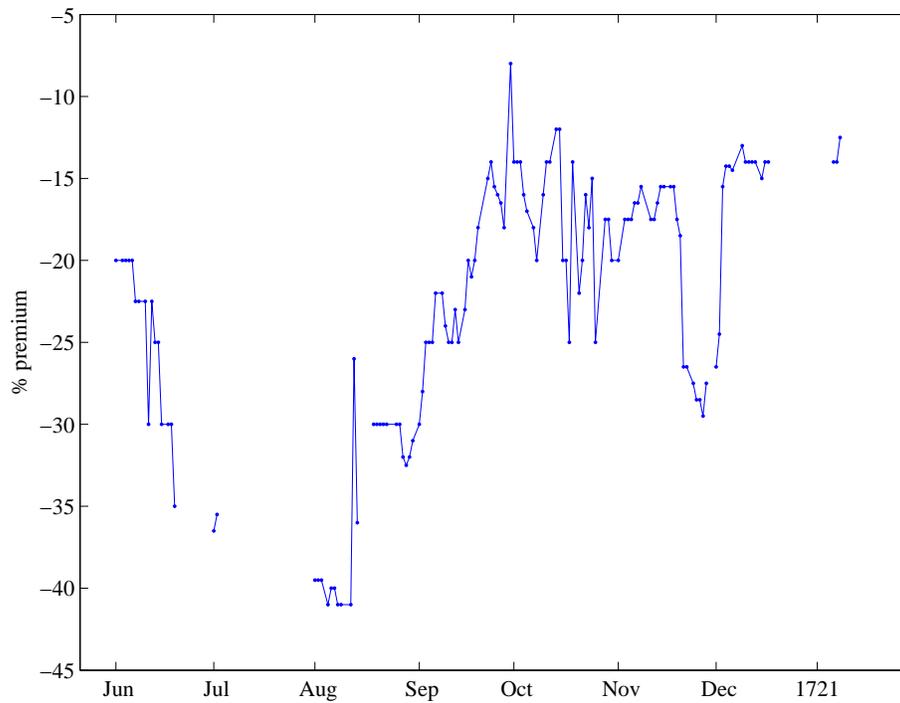


Figure 10: *Rente viagère*, in notes (May 21, 1720–Jan. 31, 1721).

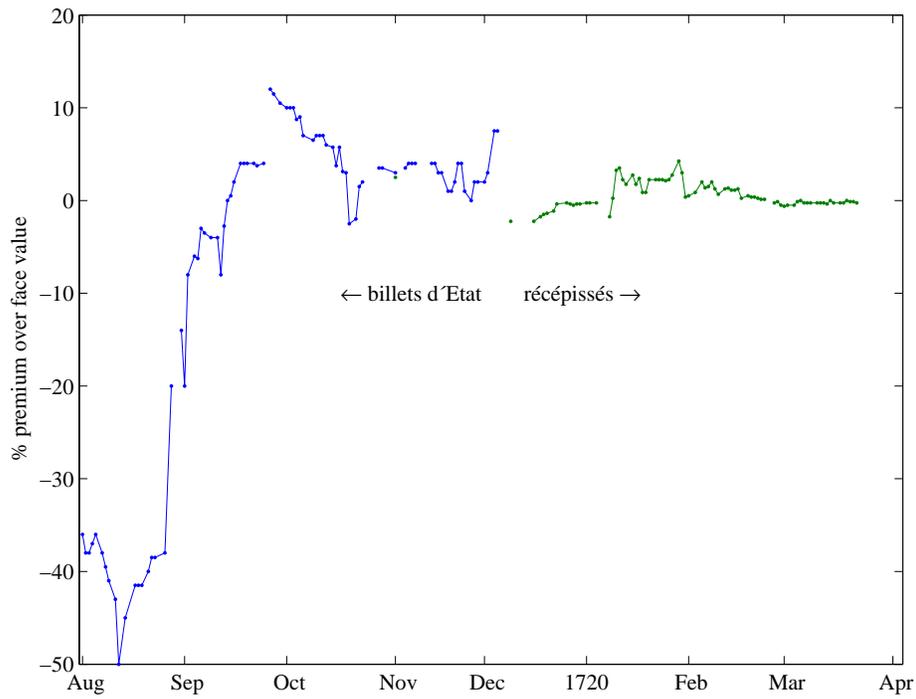


Figure 11: *Billets d'État* (Jul. 27–Dec. 5, 1719) and *récépissés du Trésor Royal* (Dec. 9, 1719–Mar. 23, 1720), quoted as percentage premium/discount over face value.