

[Company name]

Riding a wave

the Company's role in the South Sea Bubble

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I.

Commentators* on the subprime mortgage crisis often treat the South Sea Bubble of 1720 as an early forerunner¹. The comparisons come easily for several reasons. Both are commonly attributed to a speculative mania. In each case investor losses were very large. In 2008 American households lost 23 per cent of their net worth.² New shareholders lost between a quarter and a half of whatever they invested in the South Sea Company.³ And the underlying causes seem very similar. The head of risk assessment at the Bank of England considers the subprime crisis 'a story of classic informational and distorted incentive problems'.⁴ Another recent commentator believes mortgage-based securities were the focus of 'a vast "investment pyramid" or "pump-and-dump" scheme' in which executives at companies like Goldman Sachs persuaded 'ordinary investors to purchase investments that the bank knew to be defective and that would decline greatly in future value'.⁵ Similarly the traditional view of the South Sea Bubble, well captured in the words of the investigating parliamentary committee, is that Company directors 'had chiefly in view the raising and supporting the imaginary value of the stock, at an extravagant and high price, for the benefit of themselves, and those who were in the secret with them'.⁶

In one respect however the two bubbles are very different. The public commission that studied the causes of the recent crisis was silent on the conduct of corporate leaders in the

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¹ See for instance Pain, 'From the sublime' and Landa, 'Subprime collapse'.

² Federal Reserve Bank of St. Louis, 'FRED economic data'.

³ Dickson, *Financial revolution*, p. 185.

⁴ Haldane, 'Risk-pricing', p. 31.

⁵ Friedrichs, 'Wall Street', p. 14.

⁶ Great Britain, Parliament, Commons, *Several reports*, p. 16.

financial industry.⁷ Even years later the state had yet to sponsor any legal prosecutions.⁸ By contrast the Commons committee reported almost exclusively on the behaviour of the South Sea directors. Parliament followed up within the year by forcibly removing all thirty-three directors from office and stripping them on average of about 82 per cent of their estates.⁹ Though a contemporary anonymously alleged that the scheme had been masterminded by a cabal of seven who kept the rest in the dark,¹⁰ only nine Company officials were permitted to retain more than £10,000, and only two more than £20,000, of their former assets.

Some early commentators seriously doubted whether justice had been served in the British case. Gibbon, the celebrated historian and a grandson of one of the South Sea directors, noted that the Commons investigation failed to observe due process.

Against a bill of pains and penalties, it is the common right of every subject to be heard by his counsel at the bar: they [the directors] prayed to be heard; their prayer was refused; and their oppressors, who required no evidence, would listen to no defence. . . . [I]nstead of the calm solemnity of a judicial inquiry, the fortune and honour of three-and-thirty Englishmen were made the topic of hasty conversation, the sport of a lawless majority; and the basest member of the committee, by a malicious word, or a silent vote, might indulge his general spleen or personal animosity.¹¹

Malachy Postlethwayt, an authority on matters financial, believed the directors innocent of the charges brought against them. Had they 'been allowed the benefit of a fair and candid trial, they

⁷ U. S. Financial Crisis Inquiry Commission, *Financial crisis*.

⁸ 'A financial crisis with little guilt', in *New York Times*, 14 Apr. 2011, p. A1.

⁹ The final results are tabulated in Postlethwayt, *Universal dictionary*, pp. 746-47.

¹⁰ 'Secret history'.

¹¹ *Miscellaneous works*, p. 14.

might very justly have pleaded that they had done nothing privately or of their own heads; that they were driven in all the steps they took by the irresistible temper of men of all orders'.¹²

Despite these early misgivings, economic historians have sided with the parliament's initial assessment. The consensus is that Company officials bought, or already held, large quantities of South Sea stock, worked behind the scenes to push the market price higher, and then sold out a large proportion of their holdings at the top of the market. In the classic account, Dickson asserted that the directors used several strategies to manipulate the market:

1. sequencing the new stock subscriptions in several tranches, each of them at successively higher prices;
2. engaging in 'underhand buying' of stock and 'systematic use of forward purchases at high prices' to induce 'market optimism';
3. restricting the supply of stock and subscription receipts by taking them as security for loans and delaying the initial issue of receipts as long as possible; and
4. lending vast sums of cash to those interested in buying Company stock.¹³

Dickson maintained that sequencing helped raise prices because a) the reasonable terms offered on the first debt subscription lulled the market into paying more for later subscriptions and b) successive money subscriptions for 'large round sums . . . impress[ed] the imagination'. Dale, who largely repeats Dickson's arguments,¹⁴ offers a much better version of the first. Stock issues were phased so that in the interim public opinion could be influenced by spreading rumours in coffee houses and planting 'bogus valuations' in newspapers.

This paper questions the consensus view. Sections two examines manuscript evidence of the directors' own trades in Company-related assets and of the timing of Company loans to potential investors. Though historians have long known of these documents, no one has yet examined them systematically. Carefully considered, they don't accord well with the traditional

¹² *Universal dictionary*, p. 744.

¹³ *Financial revolution*, pp. 144-5.

¹⁴ *First crash*, pp. 98-101.

interpretation of the directors' motivations. Section three seeks to discount the other suspect behaviours noted by Dickson and Dale. The penultimate section proposes an alternative hypothesis: that for the directors the Bubble was an unfortunate accident which they did their best to keep from undermining the financial project upon which they and the Treasury had jointly embarked that year.

A little background will be helpful to those not already familiar with the episode. In 1720 the Company was engaged upon a project to convert a large part of the country's public debt, some £31 million in all, into South Sea stock and to raise a further £7 million or so for a one-time cash payment to the Exchequer.¹⁵ The debt slated for conversion had two main components, of roughly equal value; contemporaries distinguished them as 'redeemable' and 'irredeemable' because the government had no legal right to buy the latter part back from its owners. The irredeemable debt, consisting only of an obligation to continue fixed annual payments for many more years (about 80 and 23 on average for so-called 'long' and 'short' annuities respectively), didn't even have an agreed capital value. The government valued it officially at £15 million when calculating how much interest it would pay the Company. But South Sea officials would have to entice the annuitants into volunteering it for conversion by offering an attractive lump-sum cash price. The redeemable debt had a definite principal value of £16.5 million upon which the nation

¹⁵ In *South Sea bubble*, Paul maintains that the Company's slaving operations were an important part of the project's design. But here, following contemporary convention, they are treated as a relatively minor sideline. Boyer for instance wrote: 'Every body knows that . . . [the capital deployed in their trading operations] is not at present in any way of improvement that gives more than five pounds [per cent] per annum to be divided in an equal proportion among all the proprietors' (*Political State*, Sep. 1720, p. 166). Sperling reports that the Company invested a total of £1.3 million in its trading operations for the whole period 1714-39 (*South Sea Company*, p. 22). Similarly Hutcheson asserted that only a small part of the Company's capital could ever be invested in its trade operations and did not expect the returns on such investment to contribute much to the Company's overall value (*Some calculations*, pp. 7-8).

was obligated to pay a fixed rate of interest (currently 5 per cent per annum for most of it) in perpetuity or until redemption. Those seeking to exchange public debt for new Company stock were termed 'debt subscribers'. The Company sought to raise the Exchequer payment by selling more new stock to so-called 'money subscribers'. (The term 'subscriber' applied since the several classes of investor all indicated their intent, and simultaneously their legal commitment, to deal with the Company by signing their names in large books kept for this purpose.) Three debt subscriptions were scheduled: one in late April for about a third of the irredeemable debt, another in mid-July for three quarters of the redeemable debt, and a third in early August for all the rest. There were four money subscriptions in all, opened on 14 April, 28 April, 17 June, and 24 August, for £6.75, £6, £50, and £12.5 million respectively. The last sums may seem puzzling given the project's basic design as outlined above; we will return to this small but very important mystery in the closing section.

II.

There is considerable documentary evidence, none of it ideal, about how South Sea officials traded in the securities of their own Company during 1720. Late that year the House of Lords ordered all London stock brokers to provide accounts of the relevant transactions they had undertaken for the Company's thirty-three directors, its chief accountant (Grigsby), and the chief and deputy cashiers (Knight and Surman). And early in 1721, from the same individuals (but for Knight, who by then had fled abroad) the Commons demanded statements of the composition and value of their estates as of 1 June 1720 and of all property transactions after that date. The Commons published its findings in two large volumes.¹⁶ The brokers' accounts are preserved only in manuscript form.¹⁷

The Commons report is disappointing as a source for forensic accounting. A great deal could have been learned from data the House did not request: the directors' transactions before 1

¹⁶ *Particulars and inventories*.

¹⁷ BL, Add. MS 35584, and House of Lords Records Office, HL/PO/JO/10/2/158 (hereafter collectively Brokers' accounts).

June. Even for the later period the available information is of poor quality. Company officials kept their books in idiosyncratic ways and often failed to report details crucial to understanding the exact nature of their transactions. Further, many aggregated their transactions over several weeks or months instead of recording individual dates, amounts, and prices.

The brokers' accounts are much more consistent and usually more detailed in their reporting. But they are not necessarily complete. From Commons and Company records it is clear that the directors engaged in transactions that did not necessarily flow through the brokers. The brokers may also have had reason to hide some details, particularly for transactions involving high-level government officials. One, for instance, reports that on Knight's instruction he had torn several pages out of his ledger.¹⁸

The two data sets have been spliced together to obtain a record of officer trading that is as complete as possible. Obvious overlaps were eliminated and aggregated entries have been broken down into smaller transactions at dates and prices chosen randomly within the intervals specified in the accounts. When it was obvious that assets were being traded for future rather than immediate delivery, quoted prices were converted to spot equivalents by deducting an estimate of the premium typically charged on futures contracts.¹⁹

A broad overview of the results is reported in figure 1. Several explanatory notes are in order. First, the figure covers only the six most commonly-traded Company-related securities: extant stock, 'refusals'²⁰ of stock (extant or soon to be issued), and four different 'subscriptions'²¹

¹⁸ Commons, *Several reports*, p. 31.

¹⁹ Shea, 'Financial market analysis', p. 755, proposes 77% p.a. as a reasonable lower bound on the forward premium during the very unusual months of summer 1720.

²⁰ 'Refusals' was the contemporary term for call options. These were contracts giving buyers the right (but not an obligation) to purchase Company stock from the seller at a specified ('strike') price on a specified ('expiry' or 'settlement') date.

²¹ Many people subscribed for the right to buy future shares, paying 10 or 20% of the total price down and committing to making future instalment payments upon pain of forfeiting their

for new stock issues. Second, it may prove helpful to distinguish those officials whom a well-informed contemporary (often thought to be the director Janssen) alleged were the only true insiders.²² The trades of purported insiders (as also in other figures) are denoted in black and the rest in gray. Third, figure 1 overstates official trading to some unknown extent. Much of the trading by Knight and Surman was probably on the Company's behalf rather than on their own accounts. For instance, the broker accounts report Surman as having traded £537 thousand (par value) in South Sea stock, while in the personal accounts he submitted to the Commons the comparable figure was £136 thousand. And the Commons accounts suggest that most of the directors' third subscription purchases were on behalf of friends and relatives. This section concentrates on official trading in stock and refusals; transactions in the other assets were either relatively minor or, as with the third subscription, of uncertain meaning.

Official trading in the spot market for South Sea stock does not follow the simple pattern we would expect if the consensus view were correct. Had the directors planned to engineer a market bubble, presumably they would have bought large quantities of stock just before South Sea share prices spiked significantly (the shaded date ranges) and cashed out large amounts shortly afterward. Alternatively they might have bought large quantities before the January announcement of the scheme and started selling out once prices had reached their peak in June. Blunt, the alleged mastermind of the scheme, is accused of exactly this in the 'Secret history'.²³ Figure 2 tracks the running total of net sales of South Sea stock by the most active Company-affiliated traders, plotting only those days on which they bought or sold. It does show that Blunt, Gibbon and Surman ran down their holdings after very high price levels were reached in early June. We do not, however, observe anyone building up their inventories before January or just

down payments. Contemporaries traded (or contracted for future delivery of) the 'receipts' the Company eventually issued to subscribers for their partial payments.

²² 'Secret history', pp. 411-2. I have added Surman to the list of insiders, since as Knight's deputy cashier he is likely to have traded quite often on Knight's or the Company's behalf.

²³ Pp. 431-2.

ahead of major price surges. Knight and Surman alternated between buying and selling as prices began climbing in February. Knight actually increased his holdings in late June, after prices had already reached their peak. Lambert did the same in early June (though he started selling large amounts by the end of the month).

There is little evidence to support Dickson's claim of 'systematic use of forward purchases at high prices'. Judging from parliamentary records, only 2.9 per cent (by transaction value) of the South Sea shares bought by Company officials in 1720 were for future delivery. To know whether these contracts were negotiated at 'high' prices we need information on the prices at which forward contracts for South Sea stock were selling generally. Fortunately information of this kind is available for the summer months of 1720. The Company's stock transfer books were closed on 23 June and re-opened only on 22 August. During that time all stock transactions were by necessity for future delivery. So the price quotes for these months in London's financial newssheets offer an appropriate point of comparison for the directors' forward purchases.²⁴ Figure 3 depicts all the forward contracts negotiated by Company officials during the summer months. Only about 10 per cent were purchases. Of these, three were at prices significantly ahead of the market rate. But another matched, and the last – the largest of the group – was for a price well below, the day's going rate. The directors' much larger number of forward sales were, with one exception, negotiated for prices at or below the going market rate.

The Commons investigating committee intimated that Company officials had likewise tried to influence public opinion by buying refusals at strike prices well above those at which South Sea stock was selling for immediate delivery. In particular it found fault with Knight for having issued a 'considerable sum' to brokers for the refusal of South Sea stock at 'at very high prices'.²⁵ But the

²⁴ For this purpose I have used Freke's *Prices of the Several Stocks*. The close fit with the directors' reported prices suggests that in reporting their trades to parliament, Company officials used prices inclusive of the 10% mid-summer dividend – as *Prices of the Several Stocks* did but Castaing's *Course of the Exchange* did not.

²⁵ Great Britain, Parliament, Commons, Several reports, p. 16.

broker accounts don't offer a great deal of support for the proposition. Figure 4 shows strike prices and quantities for refusals purchased by Company officials during 1720. There were only four occasions on which insiders negotiated strike prices well above the going spot market price for South Sea stock. In January, just before the debt-conversion scheme was announced in parliament, Grigsby bought £15,000 of refusals with a strike price of £200. If this was an attempt to influence the market, it had no apparent effect; the exercise was not repeated. On 12 May, a partnership consisting of Surman, Grigsby, and the broker Strode purchased £15,000 in refusals with a strike price of £400 and a settlement date in late August. The market price for spot delivery began its largest surge a week later. This probably had little to do with Surman's contracts; Neal surmises that it was driven by an influx of new investment from the continent.²⁶ In mid-June, when the market price for spot delivery hovered in the mid-700s, Surman and Grigsby, alone and in partnership with Strode, bought a total of £47,000 in refusals with a strike price of £1,000. Surman bought a further £3,000 with a strike price of £1,200. This is the best available evidence for the proposition that the Company had tried to use options contracts to influence the market. It is therefore reserved for closer consideration in the penultimate section. Finally, in mid-September Grigsby, Knight, Surman, alone and in partnership, bought refusals for £45,000 at strike prices of £700 or £800 at a time when South Sea stock for immediate delivery could be purchased at between £535 and £660. But since these purchases came after the bubble had already collapsed, they cannot possibly have played any role in the latter's formation. Figure 5, which shows strike prices and quantities for refusals sold by Company officials, suggests that optimism about future prices of South Sea stock was greater outside than inside the organization.

Finally, Company lending practices don't accord well with the claim that the directors used lending to drive the price of South Sea stock higher. Figure 6 compares loan volumes with stock prices from April to September. It clearly shows that the first two of the three main surges in Company lending (late April, mid-June, and late August) came after large spikes in the market

²⁶ *Rise of financial capitalism*, pp. 70-71.

price. It shows too that after each major lending push stock prices stabilized around their previous peak (April and June) or even declined (August).

III.

Company officials certainly did engage in the other practices to which Dickson points. Stock was issued out in tranches at successively higher prices. Officials accepted stock and subscription receipts as security for loans. And it took quite some time before subscription receipts were provided to investors. For most of these practices alternative explanations are available. Others can be considered possible evidence of a conspiracy to raise share prices and so are laid over for closer examination in the penultimate section.

South Sea directors had good reason, quite apart from price considerations, to sequence the several debt subscriptions. They began sensibly enough with the irredeemable debts. These would be hardest to bring in and the Company had agreed to pay the crown a substantial fine if any remained unconverted at year's end. Limiting the first debt subscription to about a third would have made potential subscribers fear being excluded and so offer more than the nominal limit. Should the price of South Sea stock increase in the meantime, the Company would be well positioned to bring in the remaining irredeemable debt.²⁷ The Company targeted next that portion of the redeemable debt currently being handled by the Bank of England. This too made sense, since the Company was interested in stealing from its chief rival the cash flow associated with this debt.²⁸ It left for last the redeemable annuities being processed by the Exchequer: much smaller

²⁷ The anonymous author of *True state*, often thought to be Blunt, claimed that the Company had originally planned to use modest price increases to the same effect. The design called for four successive debt subscriptions, valuing Company stock at £130, £140, £150 and £160 respectively. The writer explained that potential subscribers '(through apprehension of being either left intirely out, or of coming in afterwards at a higher price) wou'd be quickened to make their subscriptions, whereby the execution of the scheme wou'd be render'd more easy and certain' (pp. 11-2).

²⁸ See Kleer, 'Folly of particulars', pp. 183ff.

quantities and less strategic for its business interests. Administrative considerations described later in this section would have prevented the Company from tackling all these tasks at once. The penultimate section argues that the final two money subscriptions were ad hoc responses to pressures of the moment. If this claim is accepted, it makes no sense to describe their temporal separation as 'phasing' since this implies foresight.

There is little evidence that the Company floated rumours to drive market prices higher between stock subscriptions. Dale cites only two news items: one in March that the directors were demanding £1.5 million in compensation from the Spanish crown in the peace treaty then being negotiated, and another of no specified date that England was about to cede Gibraltar to Spain (presumably in exchange for better access to South Sea markets). The former story was inevitable given the recent war. It was not at all like the glowing tales of Louisiana that Law used to help inflate the Mississippi Bubble. Its timing was driven, furthermore, by diplomatic, not market, considerations. Dale gives us no specific date for the Gibraltar rumour. His evidence for the proposition that it came from Blunt is a reference to an account written a century after the fact and itself without documentary support. There were other relevant newspaper stories surely; but careful analysis would be needed before drawing from them any firm conclusions.

The Company did indeed use 'large round sums' when pricing its several money subscriptions. In three of the four cases, moreover, its asking prices were well ahead of the going market spot price for extant South Sea stock. (This was not at all the directors' practice for the debt subscriptions, which were set at prices almost identical to the going market rates on the days terms were announced.)²⁹ The four subscriptions were priced at £300, £400, £1,000, and

²⁹ In announcing terms for the debt subscriptions on 19 May and 12 August, the Company valued its own stock at £375 and £800 respectively. Closing spot market prices on those two days were £375 and £798. *Course of the Exchange* actually quoted a price of £815 for 12 August. But this was a forward price, *i.e.* the rate to be paid on the future date when the stock was actually contracted for delivery. By convention all forward prices in July and August were quoted

£1,000 respectively. These were asking prices for stock to be purchased in installments over several years; the equivalent up-front payments were £291, £373, £894, and £949 respectively.³⁰ Peak market spot prices on the corresponding days (13 April, 29 April, 15 June, and 24 August) were £305, £341, £814, and £830,³¹ putting official ahead of market prices by 10, 10, and 14 per cent for the second through fourth money subscriptions respectively. It is possible, as one recent commentators puts it, that '[i]n setting prices for new issues ... the directors were more likely riding a pre-existing wave of public opinion than they were causing the wave in the first place'.³² At least two directors claimed at the time that they came under pressure from investors to set prices higher than they themselves thought warranted.³³ But this is nevertheless at least potential

relative to a delivery date of 22 Aug. The future was converted to a spot price using a discount rate of 77% p.a. as per G. Shea, 'Financial market analysis', p. 755.

³⁰ These present-value prices were calculated using the instalment payment schedules conveniently tabulated in Shea, 'Financial market analysis', Appendix IV and assuming the same interest rate of 5% p.a. used by Shea.

³¹ *Prices of the Several Stocks*. The actual market price on 15 Jun. was £740 (£750 in *Course of the Exchange*). But this didn't yet reflect the 10% dividend, payable in stock, that the directors had announced a month earlier and would be received also by investors in the third money subscription (BL, Add. MS. 25499 (hereafter Directors' court minutes), 15 Jun. 1720). Reported market prices did indeed jump by about 10% once the dividend was factored in – as demonstrated by the sizeable gap after 24 Jun. between quotes in London's two financial newssheets: *Prices of the Several Stocks* (dividend included) and *Course of the Exchange* (dividend not included).

³² Banner, *Anglo-American securities regulation*, p. 57.

³³ Anderson, *Origin of commerce*, p. 96; *Political State*, Sep. 1720, pp. 192-3.

evidence for the thesis the Company officials were trying to move the market higher.³⁴ Certainly Archibald Hutcheson, a member of the Commons investigating committee, charged that the high prices set by the Company on its money subscriptions were 'the chief if not the sole encouragement for the high prices given for this stock in the dealings amongst particular persons'.³⁵ The practice will therefore be considered further in the penultimate section.

The practice of taking South Sea stock and subscription receipts as security for Company loans would certainly have restricted the market supply of these assets. But we don't have any evidence that the Company hoped thereby to raise prices further. As figure 3 showed, the main surges in Company lending, and so presumably any corresponding reductions in the supply of stock and subscription receipts, occurred after prices had already risen. As the next section will show, in all but the last case prices stabilized rather than rose further (and in the last case, that of the fourth money subscription, actually fell). And in their loan security arrangements the Company officials deliberately waived a strategy that might have helped move stock prices higher. In early June, with the market at £720, they were prepared to accept stock for security at only £300 per share. They raised the rate to £400 a few days later but never higher, even after pricing the third money subscription at £1,000 per share.³⁶ Yet Company officials clearly believed that the security rate could have an impact on market prices. They had asked the Sword Blade Bank to lend £0.5 million of Company cash on its behalf. Blunt grew angry when he learned the Bank had been taking security in subscription receipts at rates well below those prevailing in the market. He

³⁴ Dale et al., 'Financial markets can go mad', p. 260, speculate that 'progressively larger premiums of subscription prices over the stock price at issue date may have generated, via the anchoring heuristic, expectations of a still larger premium in the secondary market'.

³⁵ *Estimate*, p. 23.

³⁶ House of Lords Records Office, HL/PO/JO/10/5/64 (hereafter Treasury committee minutes), 2 and 8 Jun. 1720.

allegedly 'sent for ... one of the partners and having severely chid him for lending at such low rates, and told him that he depreciated the stock', demanded the balance of the cash back.³⁷

Subscription receipts and new South Sea stock were not deliberately withheld from the market. Admittedly signatories to the first debt subscription, in late April, didn't receive official title to their new stock until autumn.³⁸ There were good reasons for this. Company officials first had to obtain proof of title to the public debts in question and verify those documents against records in the Bank or Exchequer.³⁹ Then came the niceties of making full legal transfer of property from shareholders to Company and the complex calculations needed to ascertain the exact amount of shares, bonds, and cash to which irredeemable debt subscribers would be entitled – no mean feat in an age without spreadsheet software and a decimal currency. The steady stream of new money subscriptions, and the issuing out dividend payments and vast quantities of loans to its shareholders, would have generated still more work for Company clerks. The Company did try to get money-subscription receipts into circulation as quickly as possible. For these much less administrative preparation was needed; the Company had merely to record the amount of money received and issue out a receipt for a corresponding amount of stock. In mid-June the Committee of Treasury ordered the Company cashier to sign and deliver the receipts on the second money subscription (taken a month earlier) 'with all possible expedition'.⁴⁰ And in mid-July the directors ordered the Company's Committee of Treasury to ensure the same for the third money subscription (again taken about a month earlier) and to 'consider what further officers and offices may be necessary for the greater dispatch of the Company's business in the Treasury'.⁴¹ Staffing

³⁷ *Account of the loans*, pp. 16-7.

³⁸ Directors' court minutes, 14 and 18 Oct. 1720.

³⁹ On the first debt subscription it took the Company three weeks just to ascertain exactly who its new subscribers were and in what amounts they had subscribed – for instance because some failed to bring proof of title to their annuities (Directors' court minutes, 17 May 1720).

⁴⁰ Treasury committee minutes, 8 Jun. 1720.

⁴¹ Directors' court minutes, 21 Jul. 1720.

shortages and bookkeeping-related bottlenecks can easily account for the delays in issuing out new Company securities.

IV.

While most of the evidence is inconsistent with the hypothesis of an insider conspiracy to escalate share prices, two signs do still seem to point in that direction: money subscriptions with official prices, and large corporate purchases in mid-June of refusals with strike prices, well ahead of current spot market prices. Furthermore, even if most of the lending occurred after prices had already risen, it isn't clear why the Company was lending at all. What are we to make of these practices? There may never be a definitive answer, since no one involved in the project's design and execution left written accounts of their logic. This section attempts an explanation that is at least fully consistent with the available evidence.

The Company's central aim in 1720 was to get as much as possible of the public debt converted into South Sea stock. It had no need to profit from the conversion operation itself. The payoff would come from the resulting change in the flow of public funds. Instead of the annuities and the interest payments on the redeemable debt being paid out through the Bank of England and the Exchequer, they would be re-routed through the Company's coffers. To the extent that the Exchequer paid its obligations in specie, this would enable the South Sea Company, working together with the Sword Blade Bank, to support large new issues of short-term paper credit.⁴²

A corollary objective, and indeed the Company's principal strategic problem during 1720, was to prevent any significant decline in the price of South Sea stock while the conversion was under way. The debt subscriptions were best conducted in stages rather than all at once. If later subscribers were to feel confident about offering their debt for conversion, the market price of South Sea stock could not fall below whatever value the Company had set upon the stock when converting the earlier subscriptions. Otherwise potential investors would fear large capital losses should they choose, or be compelled, to resell their new South Sea shares into the marketplace. So the directors became particularly vulnerable after 19 May, when a conversion price of £375

⁴² See Kleer, 'Folly of particulars'.

per share was announced for the irredeemable debt subscribed in late April. A similar problem existed with regard to the money subscribers. For the first money subscription there were to be eight installment payments in all, the last not coming due until August 1721. Subscribers could choose at any point to decline making further payments; the maximum penalty they would suffer was the loss of their down payment.⁴³ Yet the Company would need the full amount of the first money subscription to fund the one-time payment to the Exchequer upon which the conversion project was predicated.⁴⁴ So once the subscription was priced at £300 in mid-April, Company officials needed the market price to stay above that threshold until the subscription was complete. They had been worried very early about the problem of mid-conversion price declines. From the beginning the project's design called for the Treasury to lend the Company £1 million in Exchequer bills. The directors later told shareholders that this money was intended 'to enable the Company to lend money on their stock' and that a program of lending was well-advised because

⁴³ BL, Add. MS. 35584, item 7. Any installment payments already made, other than the first, would be converted into the equivalent value in South Sea stock and the obligation for any future payments would cease. These are the terms set out in the preamble to the books for the fourth money subscription. The same terms seem to have prevailed for earlier money subscriptions. For the directors explicitly directed that the preamble for the third money subscription be the same as for the previous two (Directors' court minutes, 15 Jun. 1720). And in early June, before the third money subscription, they placed ads reminding investors that anyone defaulting upon the second payment of the first money subscription would forfeit their first installment payment (Treasury committee minutes, 2 Jun. 1720). An ad to this effect appeared in the 7 Jun. issue of the *London Gazette*.

⁴⁴ The subscription, had it been completed, would have brought in £6.75 million. The authorizing statute stipulated that the Company must pay the Exchequer £4.2 million plus 4.5 times the annual value of whatever irredeemable debt was subscribed. Given the amounts of debt actually subscribed by August, the Exchequer payment would have been about £6.6 million.

‘attempts may be made to depreciate the stock at the times of the execution of the Act’.⁴⁵

Government officials expressed similar worries after South Sea stock climbed from £185 on 15 March to around £320 by month’s end. On 31 March (old style) Daniel Pulteney (the British representative in Paris) wrote to Secretary of State James Craggs that John Law doubtless planned ‘to make such a strong and sudden push on our stocks as we may not be able to stand’.⁴⁶

Those Company practices identified at the outset of this section as suspect were implemented at times when the market price of South Sea shares had come under downward pressure. The details will be rehearsed in a moment. But it must first be noted that the thesis only makes sense if we suppose that with such tactics Company officials believed it possible to support the spot price of South Sea stock. None of them should have altered the value of the Company’s fundamentals as perceived by sophisticated investors. And we know from several recent studies that there were many highly sophisticated traders in Exchange Alley at the time.⁴⁷ But behavioral models suggest that bubbles are possible if some investors trade based on past price movements and more capital continues to be invested in the asset (which could have happened as long as the Company kept making new loans) or if investors are biased toward signals that confirm their beliefs and receive signals that the value of a security is about to rise (which signals could have been generated by Company officials setting high official prices or trading in refusals with high strike prices).⁴⁸ And we know that investors of this kind were also

⁴⁵ Directors’ court minutes, 21 Apr. 1720.

⁴⁶ TNA, SP 78/166, 11 April 1720 (new style).

⁴⁷ See for instance Neal, *‘I am not master of events’*, Shea, ‘Sir George Caswall’, and Temin and Voth, *Prometheus shackled*.

⁴⁸ Models of this type are reviewed in A. Scherbina, ‘Asset price bubbles: a selective survey’, IMF Working Paper WP/13/45 (Feb. 2013), pp. 16-18. Note that in some versions of these models the presence of rational speculators can actually push prices even further away from the asset’s fundamental value.

active at the time. King George I was a prime example. John Aislabie, Chancellor of the Exchequer, had invested on his behalf in the first money subscription. In early June, after the spot price of South Sea stock had risen to near £900, Aislabie urged the king to sell out and invest the proceeds, some £106 thousand, in a safe asset like Exchequer tallies. George eventually agreed to sell his first subscription but wanted the money reinvested in some combination of South Sea stock and third money subscription. Aislabie tried very hard to dissuade him, arguing 'that the stock was carried up to an exorbitant height by the madness of the people and that it was impossible it could stand but must fall before he [the king] cou'd return from Hanover [in the fall]'. But George told Aislabie that he 'had the character of a timorous man', had been assured the stock would rise to £1,500, and wanted to reinvest accordingly. The king was eventually persuaded to place 40 per cent in tallies and the rest in stock and third subscription. The ensuing account supposes that the Company counted upon being able to influence investors of this kind by what amounted to sleights of hand.⁴⁹

Official pricing of the money subscriptions and the timing of Company loans are best considered together, since money subscriptions were the main source of lending. Though the first money subscription was priced a little below the spot market price, it facilitated Company lending at a time when share prices had come under downward pressure. On 23 March, after a large upward surge of some two weeks, South Sea shares had peaked at £350. For the next two weeks the spot price hovered between £310 and £320. On 8 April (the day after the statute authorizing the debt conversion finally passed), it fell beneath £300 and thereafter settled for several days in the mid-280s. According to a contemporary, this 'occasion'd no small alarm among those who had lately bought in at a higher price'.⁵⁰ The directors quickly took countermeasures. On 11 April they scheduled the first money subscription for 14 April. They had planned to secure subscriptions for £2 million of stock (at par value); the issue was oversubscribed the same day by a further £250 thousand. With a 20 per cent down payment and

⁴⁹ Memorandum by Aislabie, ca. 1730, Royal Archives, Windsor Castle 52838-40.

⁵⁰ *Political State*, Apr. 1720, p. 448.

an issue price of £300, this should have brought the Company £1.35 million in new cash resources. But the subscription itself seems to have helped; the stock recovered that day to £315 and a week later had reached almost £350. So at first no loans were given out. The directors began lending only a week later, after prices had started to slide a little. A total of £1.7 million was given out over the next two weeks. Once the stock recovered to £350 in early May, the volume of lending fell right off. On 29 April, half way through the lending surge and probably with a view to rebuilding the war chest, the directors opened a second money subscription. By pricing this subscription at £400, when the stock stood that day in Exchange Alley at £340, the directors may have been hoping to buoy the market a little. In any case, with a down payment set at 10 per cent, the new subscription immediately raised another £600 thousand. Since prices stabilized shortly thereafter, it seems the directors held onto most of this cash. See figure 7 for an overview of the impact on the Company's cash reserves.

The third money subscription likewise came after the price of South Sea stock had experienced a sudden surge and was beginning to slip back. On 19 May the directors had offered terms to the first debt subscribers, for this purpose valuing South Sea stock at £375. Perhaps much to their surprise, the price of South Sea stock began a very sharp ascent the next day. From £375 on 19 May it steadily rose to £595 on 31 May and to £770 on 3 June. Over this period the directors did engage in some further lending, but only for the relatively small sum of £400 thousand. Prices held reasonably firm during the next week. But the second instalment on the first money subscription was due on 14 June and investors generally may have been worried about the impact on the spot price for South Sea stock if subscribers were unable to meet their payments. On 10 June, the spot price having declined to £735, the directors resumed lending in a major way, issuing out a total of £2.7 million. At first they drew no doubt upon the £1 million in Exchequer bills that had finally been received on 8 June. The market nevertheless continued downward, reaching £700 on 13 June. On 14 June several of the wealthier directors were asked to borrow from their correspondents in Amsterdam and the Company cashier was instructed to 'take care to support the Company's stock by buying the same at £700 or under as far as the Company's cash will permit'. On 15 June, cash reserves having been seriously depleted by all the

new lending (see figure 7), the directors laid plans for a third money subscription on 17 June. With the issue officially priced at £1,000, a 10 per cent down payment, and subscriptions for £5 million (par value) actually received, the Company may have acquired as much as £5 million in new cash resources. The official price set by the Company may have induced market optimism. For when the new subscription became public knowledge on 15 June, South Sea stock immediately climbed to £750. The directors loaned a further £2.7 million the following week, including a massive £1.7 million on 22 June. It is during this week too, and especially on 21 June, that Surman and Grigsby bought large quantities of refusals with a strike price of £1,000. Further support operations became unnecessary after 22 June, since the Company's stock transfer books closed that day – making contracts for spot delivery impossible. Lending operations and refusals purchases halted that same day (but for one further small refusal purchased by Grigsby on 23 June).

Finally, the fourth money subscription and another round of Company loans came after the market price of South Sea stock had come under serious downward pressure. Prices for forward delivery had slowly declined in July (from £950 to £850). The stock was sure to come under more pressure when the Company's stock transfer books re-opened on 22 August – since that was the settlement date for all manner of option and forward contracts.⁵¹ As early as 27 July the directors were exploring the idea of a fourth money subscription. This one was to be limited to existing 'proprietors' of South Sea stock, including any of the existing debt and money subscribers. A contemporary commentator explained the thinking behind this novel design. '[I]n case the eagerness of buyers should abate, which was to be apprehended from the daily sinking of the price of South Sea stock, the Company might be assured that the new subscribers would make the several payments to which they should submit themselves and for which their capital stock would be a sufficient security' (*Political State*, August 1720, p. 133). For the statute had

⁵¹ *Political State*, Aug. 1720, p. 143.

authorized the Company to sell shareholders' stock to cover any payment deficiencies.⁵² The market price continued its descent in early August, slipping to £805 on the 10th. Two days later the directors announced conversion terms for the debt subscriptions obtained in mid-July and early August, valuing stock for this purpose at £800. They also resolved in-camera to go ahead with a proprietors' money subscription, though as yet without setting purchase terms or a date. The market price continued downward, reaching £780 on 18 August. That day, acting on Company instructions, Knight bought £59,000 (par value) of South Sea stock at a price (dividend excluded) of about £800 per share. A day later he was directed to buy a further £100 thousand 'so as to keep up the price thereof' and the directors ordered the issue of £400 thousand in new bonds for lending upon South Sea stock. Despite all this, a day after the transfer books re-opened on 22 August the market had fallen further to £740. The Company's reserves having been run down very significantly (see figure 7), more cash was needed. A proprietors' money subscription was sure to take some time; so instead a money subscription of the usual kind was opened on 24 August. With £1.25 million (par value) subscribed, a 20 per cent down payment, and an official issue price of £1,000, the immediate cash proceeds would have been around £2.5 million. The

⁵² Shea believes that this provision also applied to regular money subscribers ('Understanding financial derivatives', pp. i75-6). But the wording in question appeared in a section of the statute pertaining only to capital calls upon existing shareholders – one of three methods (money subscriptions being another) by which the Company was authorized to raise the Exchequer payment. Indeed, many of the money subscribers hadn't previously owned South Sea shares in any case. The Company had a hold over them only if they had already made the down payment. As Boyer explained, some of those signing on to the third money subscription had failed to make even their first payment (*Political State*, Aug. 1720, p. 132). It was in this very connection that the directors first raised the idea of a money subscription for proprietors only. Had the plan actually gone ahead, there would no doubt have been a legal contest about whether a clause on payment defaults attached only to a paragraph on shareholder calls applied also to those signing on for a voluntary money subscription.

official issue price may have been another attempt by the directors to induce market optimism – by occasioning a public demonstration that many were still willing to buy at that price. If so, their objective was achieved when the subscription filled, in fact over-filled, the same day the books were opened. The spot price quickly rose above £800 and remained there for a few days. Still worried, the directors loaned out £0.6 million over the next few days, ordered Knight to purchase a further £76,000 of South Sea stock, and decided on 25 August to proceed with a proprietors' money subscription on 12 September.⁵³ Investors could sign on for 20 per cent of the stock to which they currently held title in the Company's transfer books. To accommodate the necessary accounting work, the books would be shut from 31 August to 21 September. The measure would have had several positive effects. It would bring in a lot more cash right away. It would ensure access to regular cash infusions in future since any payment defaults could be raised by selling the proprietors' existing stock or subscription receipts. It gave a plausible reason for shutting the transfer books again. And, to the extent the public was anxious to subscribe, it would give proprietors real incentive to keep their stock and subscription receipts off the market. Yet somehow the plan backfired. Perhaps the decisions to close the transfer books once more and to let investors borrow the down payment for the proprietors' money subscription without having to transfer actual stock or subscription receipts as security struck investors as signs of desperation – which indeed they were. On 29 August the market price fell to £775 despite massive lending that day in the amount of £2.9 million. The promise of very large future dividends bruited about by the directors on 30 August and formalized on 8 September did nothing to forestall further declines. The crash had begun.

V.

It is possible therefore that the directors actually rued the sharp increases of spring 1720 in the price of South Sea stock. Aislabie later claimed as much in his testimony before the House of Lords. 'It is very plain that the wisest of the directors, who saw their stock carried to that monstrous height where it never cou'd be supported, were apprehensive of the consequences of

⁵³ An advertisement to this effect appeared in the *London Gazette* for 27 Aug. 1720.

it'.⁵⁴ He asserted further that the directors had even tried to restrain the Bubble. In late May the Commons was putting the finishing touches on a bill that on 11 June became the so-called 'Bubble Act' (6 Geo. I, ca. 18). This statute is best known for its attempt to halt the year's surfeit of new stock issues by a host of dubious companies. But it also specifically authorized large issues for two new insurance companies in exchange for their contributions of £300 thousand each to the 'Civil List' – the annual grant for the expenses of the royal household. Some of the directors knew the scheme had 'become ungovernable ... [and] were so sensible of it that . . . they came to the Treasury and offer'd to advance the money for the Civil List upon sure and easy terms rather than that those bubbles [viz. the two insurance companies] should take place'. The new projects, having extensive political support, were approved anyway. '[T]hey had that consequence which the directors of the S. Sea Company foretold, and which every body might foresee, viz. to increase the flame, by adding this unnecessary fuel to it.'⁵⁵

The very design of the later money subscriptions suggests the directors were worried that the market would collapse relatively soon, before their project could be completed. The third, fourth, and aborted proprietors' money subscriptions were nominally configured to bring in £50, £12.5, and £60.5 million respectively.⁵⁶ This was far more than the Company could ever have needed or used with profit. It amounted to roughly twice the estimated annual national income of

⁵⁴ *Aislabie's second speech*, p. 13.

⁵⁵ *Aislabie's second speech*, p. 14.

⁵⁶ The latter figure assumes that the proprietors' subscription would have been priced, like the previous two, at £1,000 per share and that for this exercise the Company would count prior money subscriptions as fully-paid shares. The Company began the year with 117 thousand shares. By mid-August it had committed to issuing a further 85 and 100 thousand shares to the debt and money subscribers respectively (House of Lords Records Office, HL/PO/JO/10/2/157, Abstract of what stock has been made out).

£62 million.⁵⁷ The whole national debt was only about £50 million;⁵⁸ the Company held title to £11 million of this before the conversion began and had already obtained subscriptions for a further £26 million. What the directors really wanted were the down payments, which they needed for share price-support operations. The second installments on the third and fourth subscriptions were initially scheduled for January and March 1721.⁵⁹ By then the project would be virtually complete. The bulk of the irredeemable and redeemable debt had already been locked in for conversion.⁶⁰ It remained only to secure a cash reserve sufficient to cover the Exchequer payment and to support market prices for some reasonable period of time (at least long enough for the debt subscribers to sell out if that was their intention). The proprietors' subscription alone, slated to be finished by no later than 21 September, would have ensured both of these objectives. Thereafter the directors could have proceeded exactly as they did in late September after market prices had tumbled: cancel all further installment payments and renegotiate the later debt and money subscriptions at a more sustainable and equitable price.⁶¹ But when investors panicked the directors were forced to abort the planned proprietors' subscription. This left them without the cash needed to support the market price of their stock. Once that fell below £400 those who had borrowed upon security of South Sea stock at that price lost all incentive to repay their loans. Unfortunately, the Company needed that money, roughly £11.3 million,⁶² to cover the Exchequer payment. Unable to fulfill this part of the bargain, its project had failed.

⁵⁷ O'Brien, 'Rise of a fiscal state', p. 175.

⁵⁸ Dickson, *Financial revolution*, p. 93.

⁵⁹ Shea, 'Financial market analysis', Appendix IV, pp. 24-5.

⁶⁰ Those who subscribed debt during the summer soon learned, to their regret, that they had lost title to their former property the moment they signed the subscription books (*Political State*, Aug. 1720, pp. 137-8).

⁶¹ *Political State*, September 1720, pp. 203-5.

⁶² Loan ledgers.

On this version of events a big question is why the directors would have chosen to support the prevailing market price no matter how high it rose. Already in April, when South Sea stock was only in the mid-300s, well-informed investors were shaking their heads. The day after the directors announced a midsummer dividend of 10 per cent -- apparently targeting a price of £400⁶³ – Lord Londonderry, an experienced trader, wrote his cousin in Amsterdam: ‘The South Sea people are mad. . . . I content myself to make good interest of my money. I can't be mad myself & will not have to do with madmen, for nobody knows what a length they may run’.⁶⁴ On 29 April the very well-connected banker Richard Cantillon wrote from London to his client Lady Herbert in Paris:

People are madder than ever to run into the stock and don't so much as pretend to go in to remain in the stock but sell out again to profit. . . . The payments of the last subscription here at 400 are to be made in three years and if they can have money enough for circulation I make no doubt but the stock will be kept up for some time, perhaps some years . . . I see nor hear no encouragement to concern your Ladyship in anything on this side where there appears but a melancholy prospect for those who shall stay in the last.⁶⁵

Perhaps the directors reasoned as Aislabie did when he later explained to the House of Lords why the Treasury had not tried to cool the market down:

[I]t was not in one man's power, or in the power of the whole administration, to stop it, considering how the world was borne away by the torrent, and particularly the members of the House of Commons. . . . And tho' perhaps my Lords it was in the

⁶³ This at least is a price investors would have been willing to pay had they been expecting the standard 5% p.a. on their investments and the Company proved able to sustain a dividend rate of 20% p.a. (there were two dividend payouts per year).

⁶⁴ Cited in Neal, ‘I am not master of events’, p. 103.

⁶⁵ Cited in Murphy, *Richard Cantillon*, p. 165.

power of the Treasury, if they wou'd have taken upon them what did not belong to them, to have run down the stock; yet considering the parliament was then sitting, the greatest part whereof were deeply engag'd in it, it had been a bold undertaking for the Treasury to have attempted to have brought down the stock and must have drawn upon themselves the rage of all the sufferers and sure destruction.⁶⁶

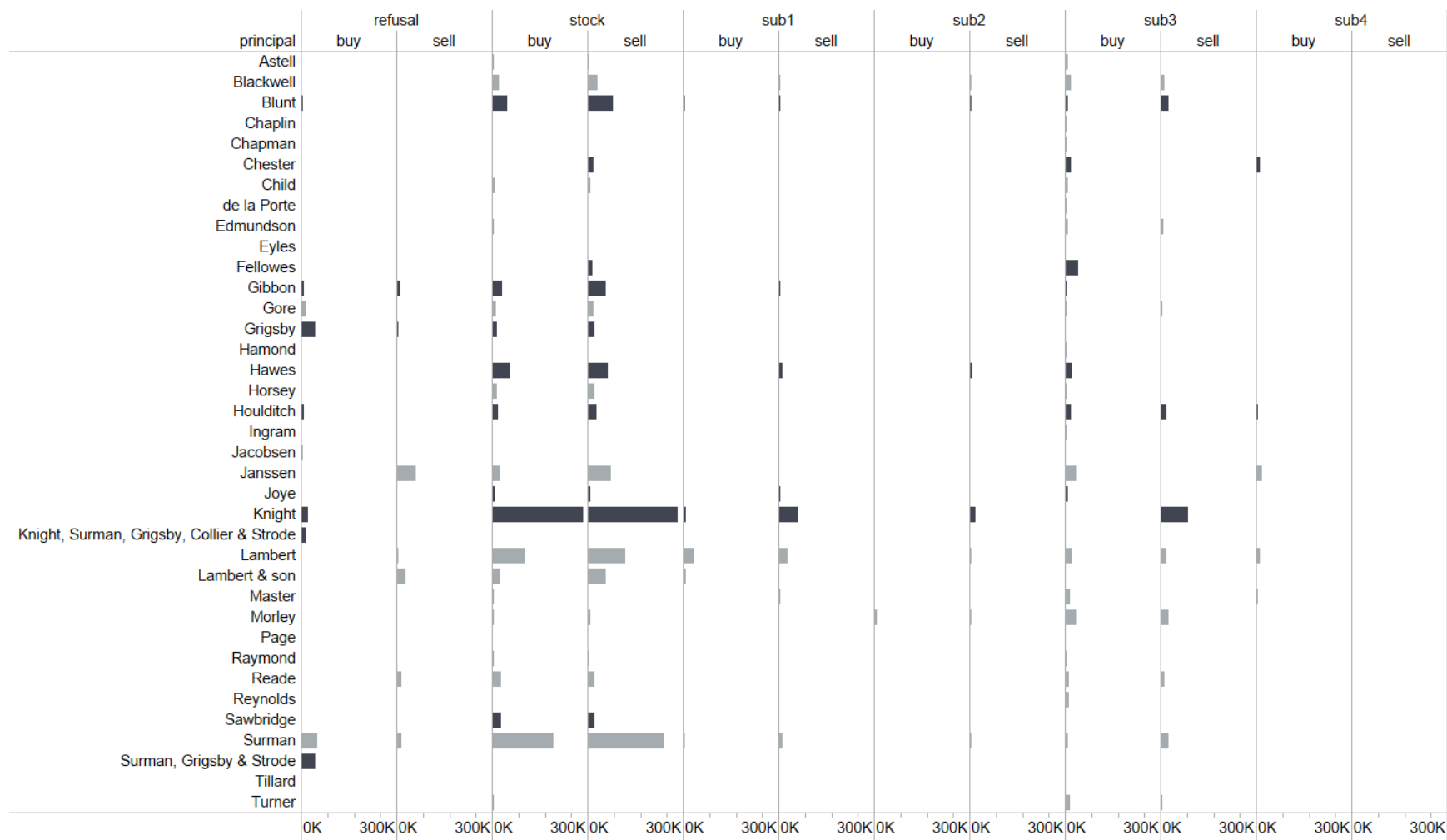
Or maybe they feared that a market decline, once begun, would be hard to stop (as indeed proved to be the case in September) and that it was wiser to try to lock in all the irredeemable debt before accommodating a market correction.

In any case there is little evidence for the proposition that the directors worked to raise prices with a design to sell out their personal holdings at the top. The several sharp spikes in the price of South Sea stock that year may just have been unfortunate accidents. As a pro-Company newspaper later claimed: 'Tis evident the early rise of the stock was as much a surprize to the directors as to the rest of the on-looking world, and they stood frighted and amaz'd for a while'.⁶⁷ If so, the Bubble forced Company officials to carry out the juggling act of the debt conversion at a much higher altitude than they had originally counted upon. They managed this most difficult feat for a time. But unfortunately for them the market collapsed before the project could be completed.

⁶⁶ *Aislable's second speech*, pp. 12-4.

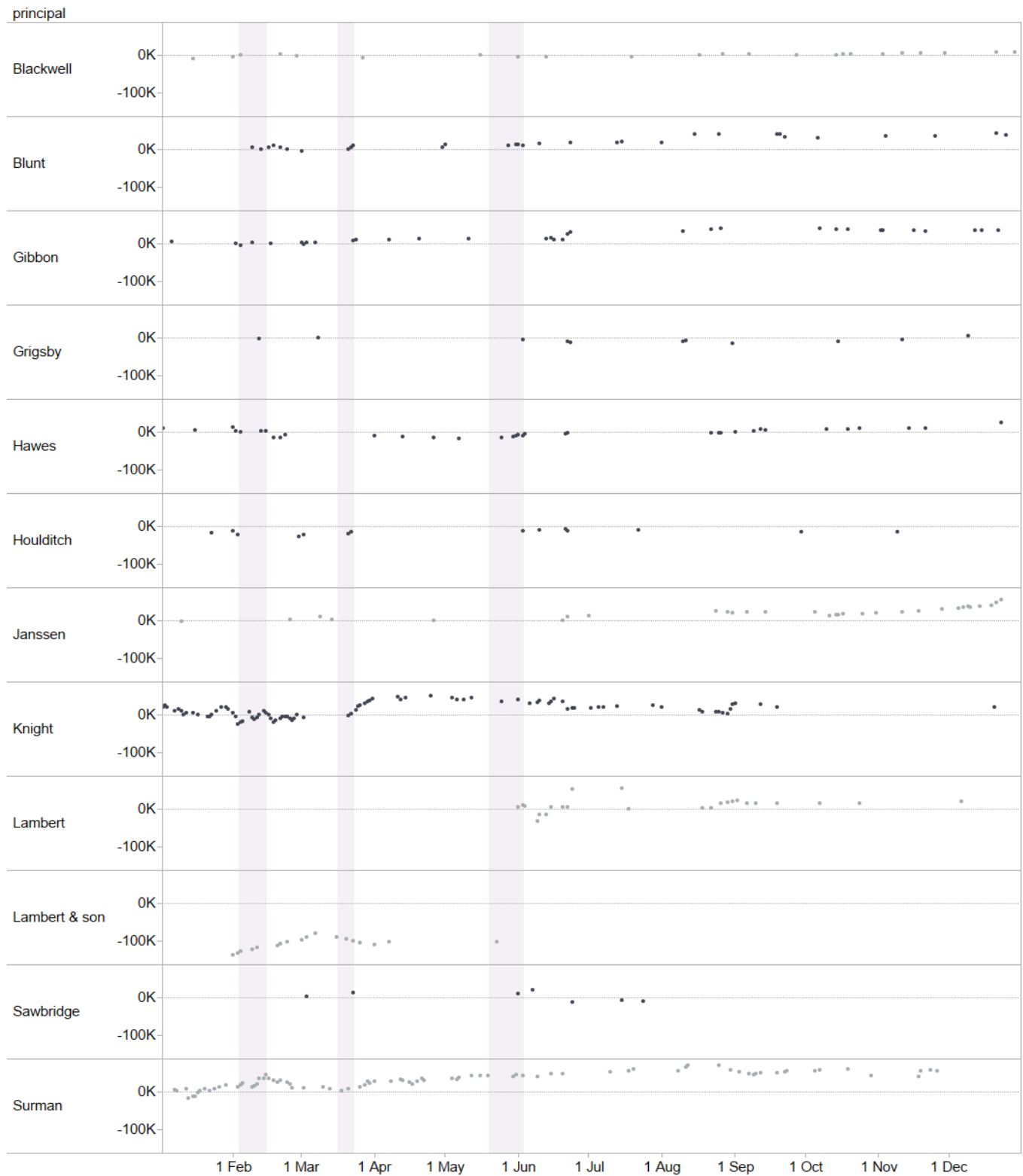
⁶⁷ *Director*, 30 December 1720.

Figure 1. Official trading in South Sea Company securities (£ par value), 1720



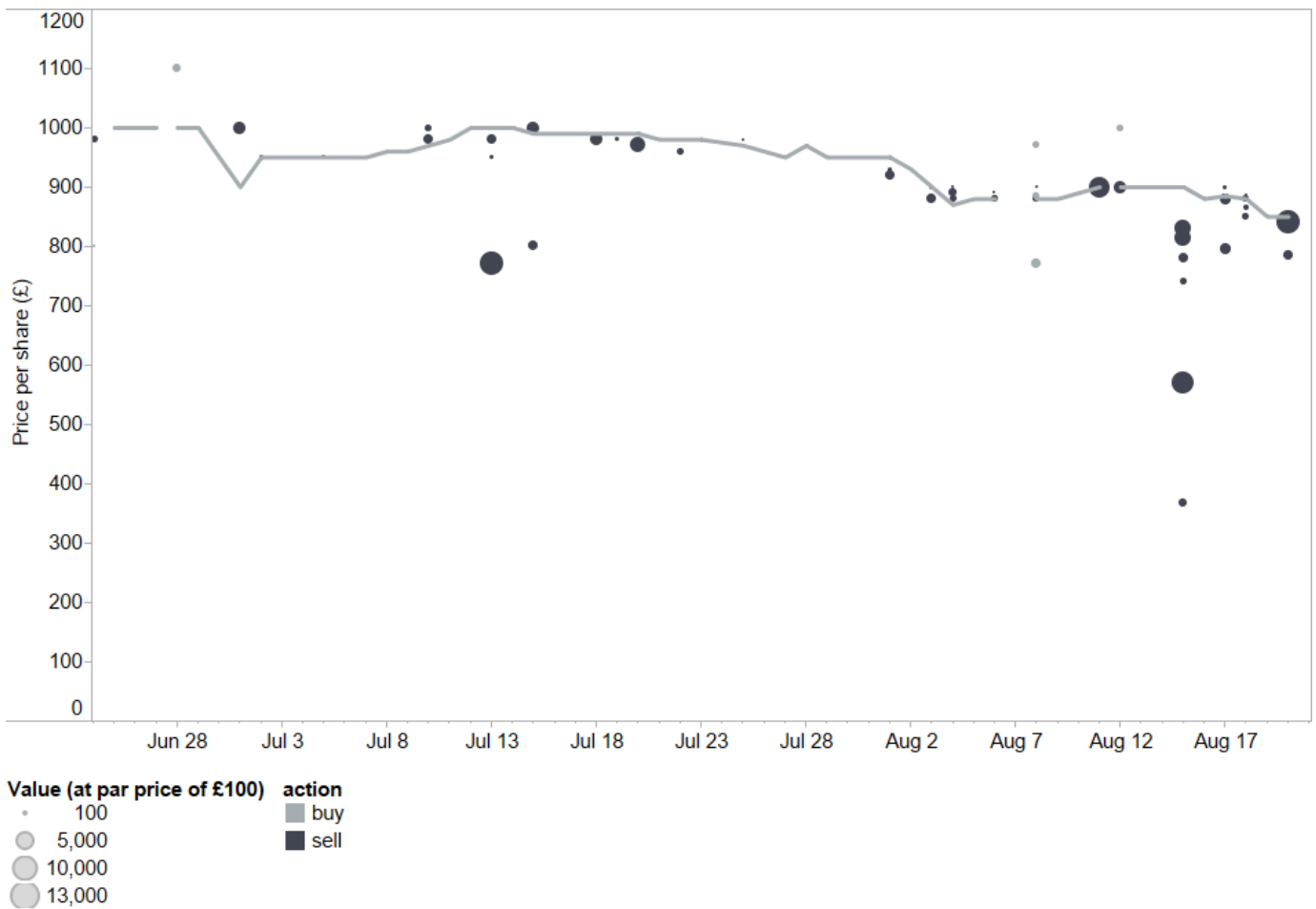
Source: See text.

*Figure 2. Running net sales (£ par value) of South Sea Stock
by Company officials, 1720*



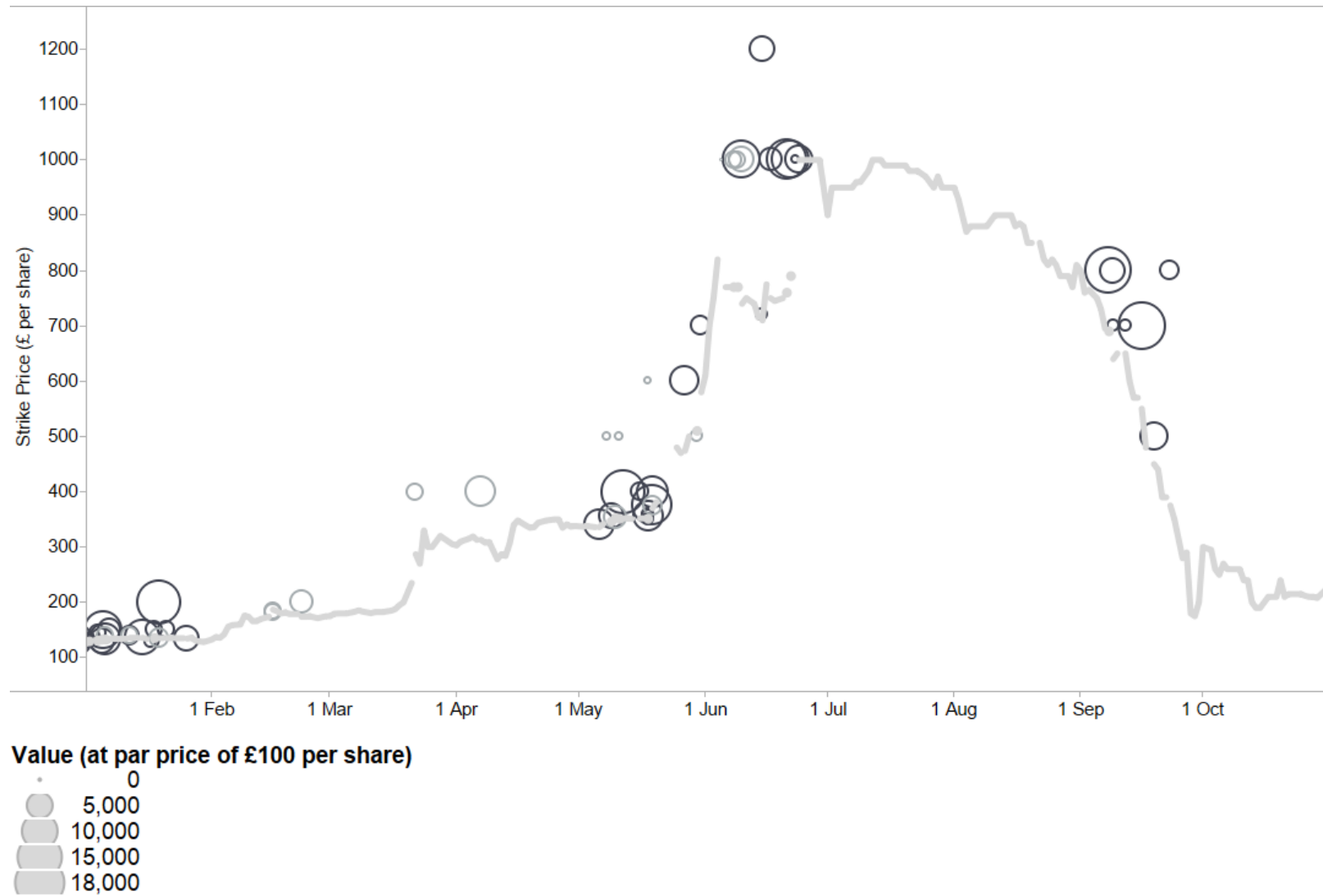
Source: See text.

Figure 3. Forward contracts in South Sea stock traded by Company officials, 23 June to 21 August 1720



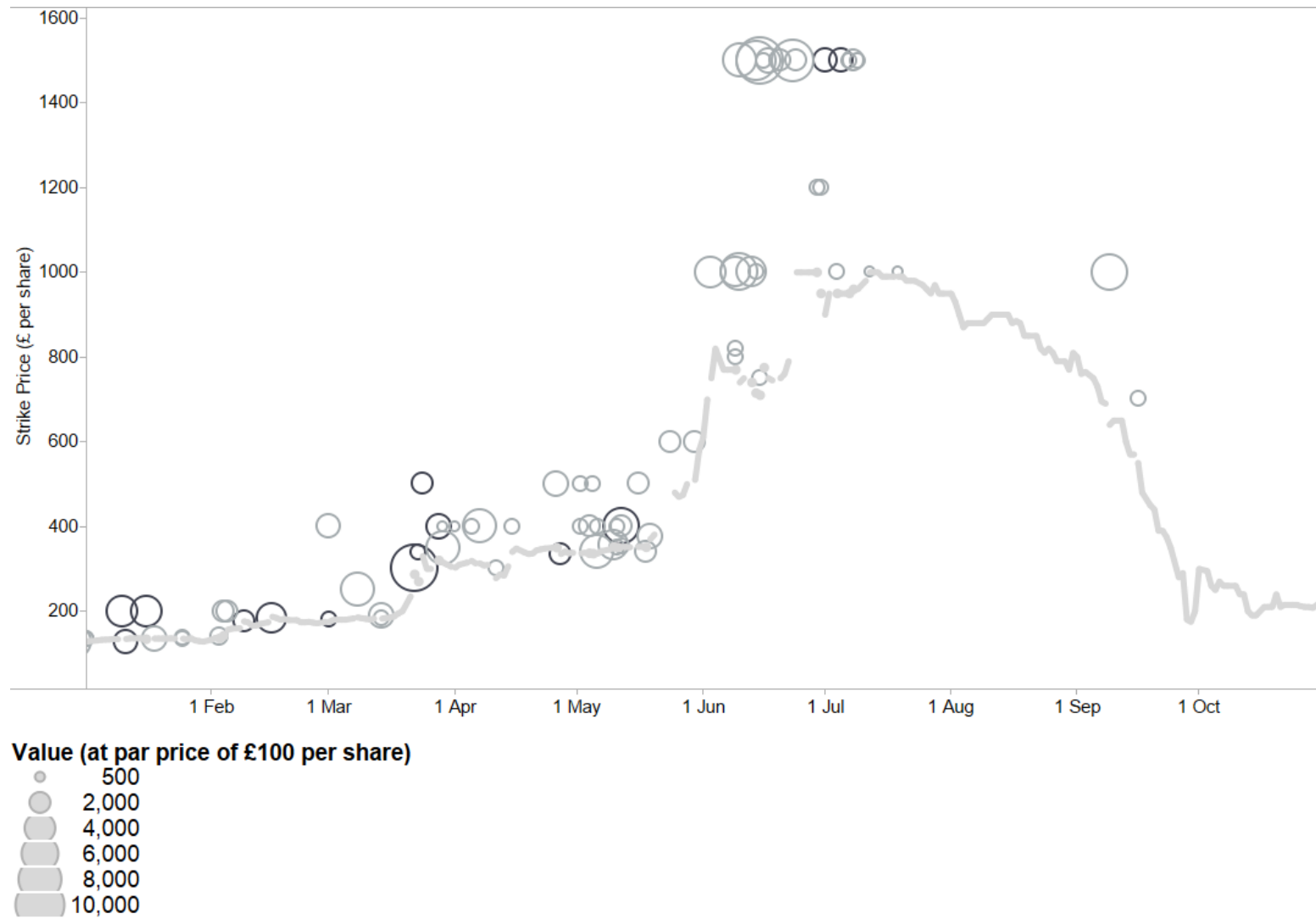
Source: See text.

Figure 4. Official purchases of refusals of South Sea stock, 1720



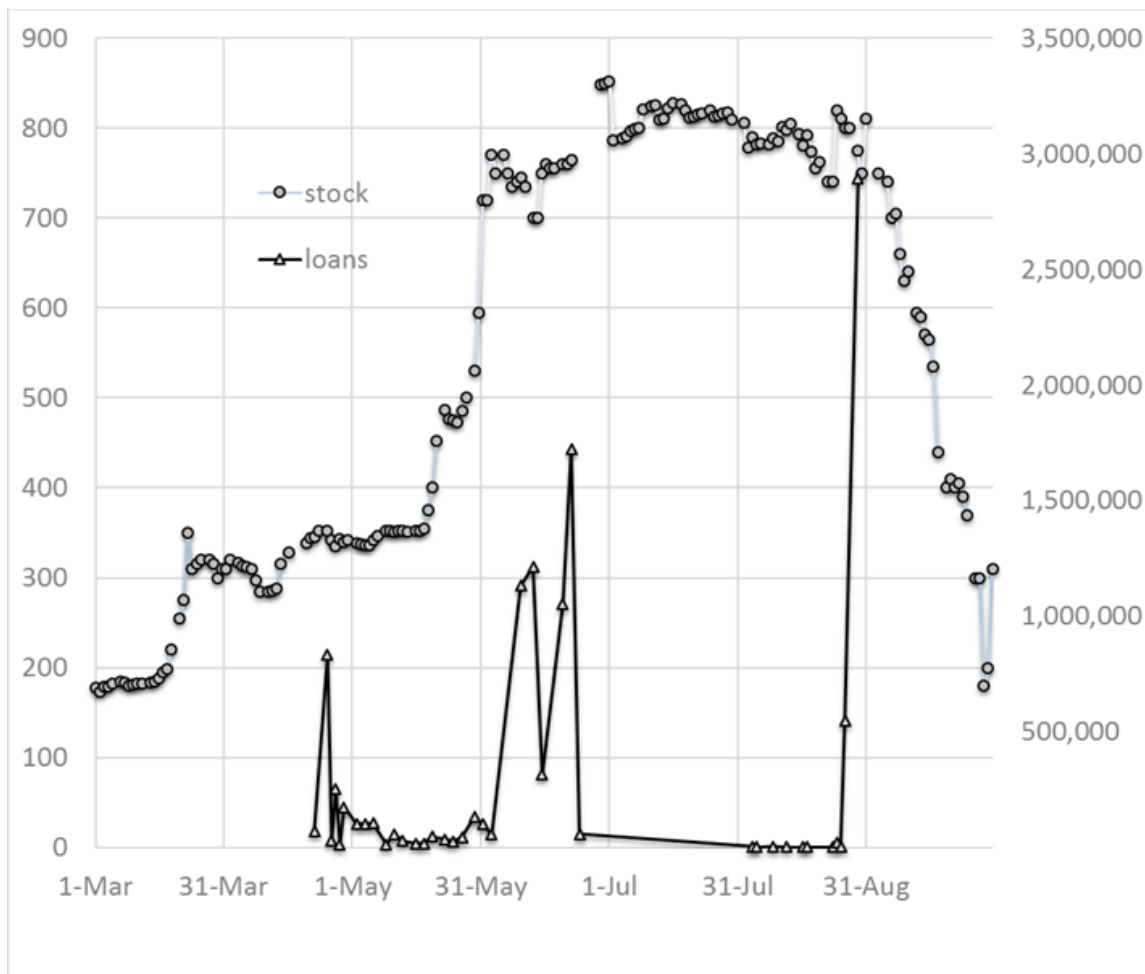
Source: See text.

Figure 5. Officials sales of refusals of South Sea stock, 1720



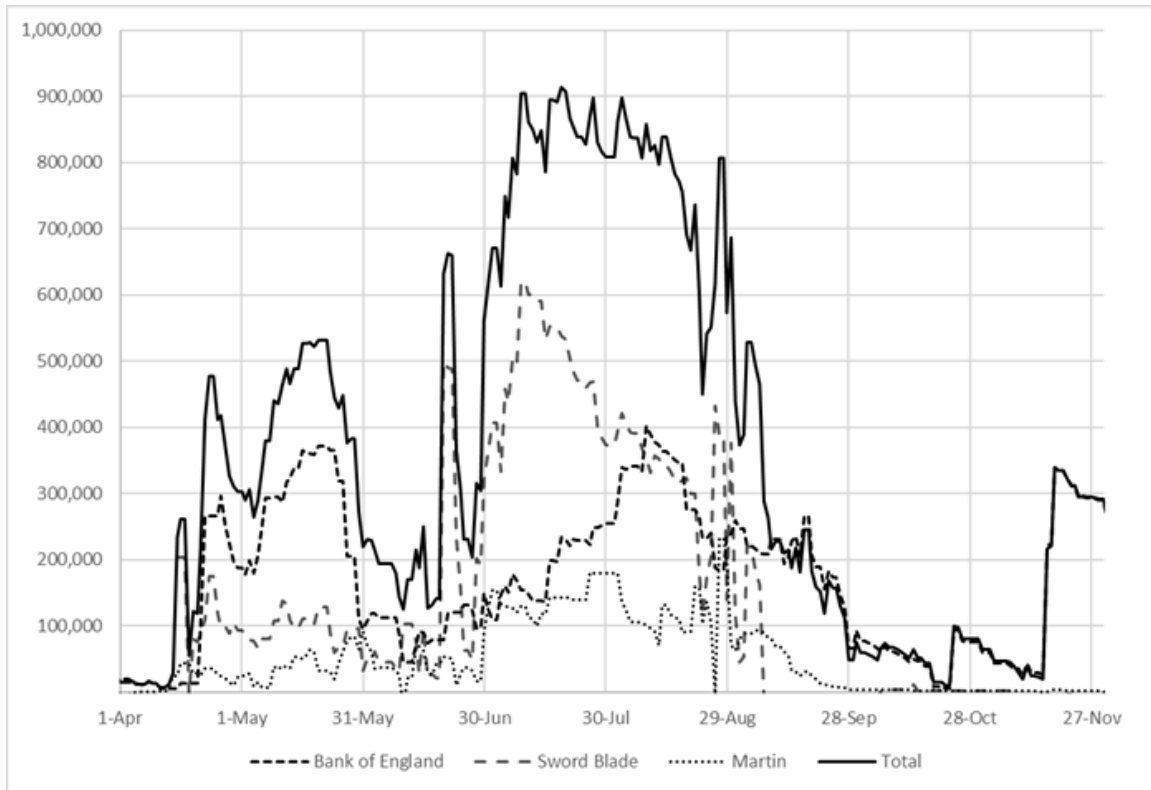
Source: See text.

Figure 6. South Sea Company lending volumes (£) and stock prices (£), 1720



Source: Stock prices are from *Course of the Exchange*, forward prices converted to spot as in Shea, 'Financial market analysis'. Loan volumes are from House of Lords Records Office, HL/PO/JO/10/2/157, Abstracts of the ledgers of the loan (hereafter Loan ledgers).

Figure 7. South Sea Company cash accounts (£), 1720



Source: House of Lords Records Office, HL/PO/JO/10/2/157.

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