The Value of Judicial Independence:
Evidence from Eighteenth Century England
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The Value of Judicial Independence: Evidence from 18th Century England

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Abstract

This paper assesses the impact of changes in judicial independence on equity markets. North and Weingast (1989) argue that judicial independence and other institutional changes inaugurated by the Glorious Revolution of 1688-89 improved public and private finance in England by putting restraints on the government. We calculate abnormal equity returns at critical points in the passage of statutes giving judges greater security of tenure and higher salaries. Early eighteenth-century legislation granting tenure during good behavior is associated with large and statistically significant positive abnormal returns. Other statutes had positive but generally insignificant effects.

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1. INTRODUCTION

There is a growing body of evidence that differences in the quality of legal systems can explain part of the cross-country variation in financial development and economic growth (Beck et al., 2003; La Porta et al., 1998, 1997; Levine, 1998; Mahoney, 2001). An important shortcoming of this literature is that there is no obvious single measure of the quality of a legal system. A legal system consists of a mixture of substantive rules and enforcement and dispute-resolution mechanisms. Legal rules themselves include not only those relating to primary conduct, but also "meta-rules" allocating authority to make and enforce rules of conduct.

Empirical investigation has shown a link between English or continental legal origin and economic outcomes (La Porta et al., 1999). Unfortunately, common and civil law systems differ along many dimensions and there are variations within each family. There is no consensus about what elements of these legal families lead to differences in growth, financial development, and other outcomes. The problem is compounded by the fact that legal origin is usually a function of English, French, Dutch, Spanish or German colonization, which means that the legal system is ordinarily part of a larger cultural package.

One promising area of focus is judicial independence. Reviving an argument made by Hayek (1960), Mahoney (2001) suggests that separating judicial decision making and government policies acts as a check on government interference with property and contract rights. La Porta et al. (2004) and Feld and Voight (2003) provide measures of

judicial independence and empirical support for the idea that judicial independence is good for the development of financial markets and economic growth.

These studies have the same drawbacks as other cross-sectional studies of economic growth—the number of countries is small, the number of potentially relevant variables is large, and the theoretical links between the variables and growth are only weakly specified. It is also hard to develop an all-purpose measure of judicial independence. The phenomenon of interest is clear—can judges make decisions based on "the law" without fear of reprisal from the executive or legislature? But many institutional features of modern judicial systems are responsible for this phenomenon when it exists.

A fully independent judiciary is one in which judges enjoy tenure during good behavior, a salary sufficient to shield them from pressure from either government or private parties, sufficient prestige that the hope of promotion to a more prominent post is not a large motivator, a system of perquisites (location and appointments of offices, etc.) that is hard for the government to manipulate, and rules regarding jurisdiction over cases that are resistant to executive and legislative meddling, among others. But some of these variables are not objectively measurable, nor is there an obvious way to rank order legal systems that contain some but not all of these features.

We accordingly apply an alternative test of the importance of judicial independence by examining time-series data within a single country. Judges gained formal independence in England in a series of steps starting in 1701 and continuing through the eighteenth century. In particular, Parliament enacted statutes granting judges security of tenure and increasing judicial salaries. If formal protections against dismissal and payment of a sufficient salary promote impartial adjudication of disputes between

citizens and between citizens and the government, those protections should have a beneficial economic impact. The anticipated impact, moreover, should be reflected in equity returns. During the period of interest, there was a functioning stock market in London for which continuous daily prices are available starting in 1698. Neal (1990) presents evidence supporting the informational efficiency of this market.

There are also, however, reasons to expect no stock market reaction to legislative moves increasing judicial independence. One important issue is whether formal independence matters. Even before the eighteenth century, English judges had a strong professional identity and exhibited considerable de facto independence. If only de facto independence matters, we would expect no stock market reaction to legislative guarantees of formal independence. A second question is whether judicial independence actually produces judicial impartiality. Independence may not influence judicial behavior if judges are not motivated to resolve disputes according to relevant legal rules or if judges fear that independence will be revoked if they decide against politically influential parties. Our null hypothesis, then, is that the legislative events we study were not of sufficient importance to affect equity returns.

Empirical results are consistent with the view that formal judicial independence is beneficial. In particular, abnormal returns around the time of the 1701 Act of Settlement are large and statistically significant. The Act of Settlement mandated that judges enjoy tenure during good behavior rather than at the pleasure of the crown. As we discuss in detail below, it appears likely that the proposal to include provisions for judicial independence in the bill, and a later attempt by King William III to have them removed, were unexpected. Abnormal returns around the time of other legislative events—

provisions increasing judicial salaries and providing for continuation of judicial appointments after the demise of the reigning monarch—are positive but generally not statistically significant.

We obtain similar results using two different expected-return models. The first is a simple constant-return model. The second uses the fact that the principal English stocks were also traded in Amsterdam. Neal (1987) shows that returns measured over two-week holding periods are highly correlated between the two markets. We accordingly take Amsterdam returns as the expected return for the same securities in London. Because news from England took approximately three days to reach Amsterdam, by selecting holding periods that end during events of interest in London, we can assure that these events were not yet reflected in Amsterdam prices. Abnormal returns on the English stocks should therefore, on average, represent the effect of recent events in England.

This time-series approach is a useful supplement to the prior cross-sectional analyses because it avoids many of the drawbacks mentioned above. We can isolate the effect of mandating that judges gain tenure during good behavior or increasing salaries, holding other aspects of the legal system constant. Our analysis focuses on a single country, thereby avoiding the problem of correlations between legal system design and other political and cultural differences among countries.

We must acknowledge, however, that our approach also has significant limitations. The late seventeenth and early eighteenth centuries were a time of extreme political foment in England. Events of considerable importance to financial markets, including the War of the Spanish Succession, were ongoing during 1701. We try to avoid the confounding effects of these incidents by focusing on narrow event windows around

important legislative events and by looking at contemporary diaries and press accounts for other major news around the same times. There are also important data limitations. Only a handful of securities were publicly traded during the period of interest, making it difficult to draw strong inferences from standard event study procedures. Despite these limitations, however, the time series evidence is a useful supplement to cross-sectional studies of judicial independence.

In assessing the impact of the Act of Settlement and related events, this paper also contributes to an ongoing debate about the economic impact of the Glorious Revolution. Financial historians contend that Parliamentary control over borrowing and expenditure increased the government's credibility and ushered in a revolution in public finance (Dickson, 1967; Neal, 2000). North and Weingast (1989, p. 824) further claim that the government's increased credibility "was part of a larger commitment to secure private rights," which led to growth and financial innovation in the private sector.

Both claims have been disputed. Sussman and Yafeh (2002) provide evidence that the risk premium on English government debt remained high until the mid-eighteenth century, contradicting the claim that the government's credibility improved immediately after 1688. Relying on similar evidence, Stasavage (2003) contends that the balance of power between owners of land and owners of capital was more important than institutional change in creating policy stability and credibility. The relationship between the Glorious Revolution and the private economy is also controversial. Wells and Wills (2000) show that threats to the constitutional arrangements inaugurated by the Glorious Revolution, primarily heightened probabilities of a Jacobite invasion, led to lower share prices. Clark (1996) examines land returns, rents, and prices and finds little change

around 1688. Quinn (2001) notes that while the risk premium on government debt declined in the 1690s, interest rates on private debts increased. Our paper provides support for the North and Weingast view that institutional changes that followed the Glorious Revolution had an impact on private economic activity.

Part 2 discusses theoretical arguments suggesting that judicial independence might matter, as well as some reasons to be skeptical. Part 3 describes the historical background and the events which will be tested for market impact. Part 4 describes the data and methodology. Part 5 presents and discusses the results. Part 6 concludes.

2. THEORY

A government that can credibly commit to repay its debts, enforce private contracts, and protect property rights will likely foster economic activity. As North and Weingast (1989) point out, however, it is difficult for governments to so commit. There are often large, short-run gains to be made by defaulting on sovereign debt, expropriating property, or favoring certain parties in private disputes. A crucial factor in economic growth, therefore, is the development of institutions by which governments credibly commit to sound policies. North and Weingast suggest that England devised just such institutions in the late seventeenth century, following the Glorious Revolution of 1688-89. In particular, they single out "a Parliament with a central role alongside the Crown and a judiciary independent of the Crown."

Parliament's power of the purse, coupled with its practice of earmarking specific revenues for the repayment of particular loans, led to a sharp increase in the government's capacity to borrow. Judicial independence should not have added significantly to the credibility of the government's promise to repay its debts because a

court cannot ensure enforcement against the government. Even if a court ruled in favor of government creditors, as one did in a famous case at the turn of the eighteenth century, payment still required the cooperation of Parliament (Horsefield, 1982). Nevertheless, a judgment by a neutral arbiter in favor of a government creditor could increase the reputational cost of a default and thus contribute somewhat to the credibility of the government's promises.

North and Weingast suggest that these institutional changes also made it more difficult for the government to engage in opportunistic interference with private property and contract rights. Here we expect judicial independence to play a central role. One of the principal functions of the judiciary is to adjudicate property and contract disputes between private parties. There is a risk that wealthier or politically powerful litigants will subvert lawsuits by bringing financial or political pressure to bear on the judges. Judicial independence helps insulate judges from such pressures. It thus increases the potential returns to contracting and investments in property and reduces the returns to lobbying, thus creating more of the former and less of the latter.

Judicial independence could have affected the value of the companies in our sample through two channels. First, the businesses in which those companies were engaged—banking and overseas trade—are sensitive to the level of economic activity. If an independent judiciary is good for economic growth generally, it was likely good for the banking and trading companies that dominated equity trading on the London Stock Exchange. Second, the main traded companies, such as the Bank of England and the East India Company, were politically well-connected. Their political influence was an obvious advantage when a contractual dispute arose. However, that ex post advantage

should have made other firms and individuals reluctant to contract with them ex ante. If judicial independence implies judicial impartiality, then increases in judicial independence would have helped these companies make credible commitments to abide by contracts and should therefore have decreased their costs.

Testing the impact of judicial independence on the private economy is complicated by the fact that, during the relevant period, all of the major publicly traded firms held sovereign debt. If judicial independence increased the government's credibility but had no effect on the security of property and contract rights generally, we might still observe a positive impact on equity prices. Although our primary objective is to determine whether judicial independence resulted in increases in asset values, we also try to determine whether any such increases can be explained solely by changes in the value of outstanding government debt.

Although it seems clear that the rule of law provides economic benefits, it is less obvious that judicial independence contributes significantly to the rule of law. Unconstrained judges might indulge their own policy preferences, which could be at odds with contractual and property rights (Hanssen, 2004). While this is possible, it is important to note that English judges had earned a reputation as defenders of the rule of law during the constitutional struggles of the seventeenth century. The reasons for this judicial proclivity are something of a mystery, although it probably reflects judges' concerns for their reputations, the interest of the legal profession as a whole, and the large property holdings of the judges themselves.

It is also not obvious that legislation granting judges security of tenure or other formal protections will produce de facto judicial independence. Legislative protections can

usually be revoked. During the relevant period, it would have taken only an ordinary statute to do so in England. The monarch retained the unilateral power to appoint judges, and used that power to select men whose prior careers of public service could be thought to assure subservience (Lemmings, 1993). In addition, no institutional mechanism, including high salaries, can completely ensure that judges will not be swayed by bribes, pensions, or promotion. In fact, high judicial salaries can have the perverse effect of making judges more attentive to the government's desires because they increase the negative consequences of dismissal. Perhaps most importantly, judges require assistance from other governmental actors to enforce their judgments. It is, therefore, an open question whether the limited protections that a legislature can provide will have a practical effect. The English experience provides a valuable opportunity to shed light on this issue.

3. HISTORICAL BACKGROUND AND KEY EVENTS

Before the late seventeenth century, English judges were essentially servants of the king, who appointed and could remove them. They were paid by the king in amounts and at intervals that he saw fit. During the mid-seventeenth century, Charles I and Charles II were, for part of their reigns, pressured into appointing judges "during good behavior," but these were aberrations, and when circumstances changed, Charles II resumed the tradition of appointing judges to serve "during pleasure." He also forced the retirement of judges who displeased him (Baker, 2002).

In spite of their formal dependence, some English judges exhibited substantial de facto independence. Chief Justice Coke famously defied King James I on numerous occasions, although his eventual dismissal from office showed the limits of his power.

On the other hand, especially in the mid-seventeenth century, during the reign of the Stuarts, the baleful consequences of judicial dependence were vividly demonstrated. King Charles II defaulted on his debt with impunity. James II removed twelve judges in four years, primarily because they refused to recognize his power to "dispense" or suspend the operation of law in specific cases or against specific individuals. Similarly, the trial of Algernon Sidney and others exposed the degree to which a dependent judiciary could produce dubious convictions in politically sensitive cases. A century earlier, Henry VIII, in his quest for increased revenue, pressured the judges to issue a judgment in *Lord Dacre's Case* which threw in doubt the ownership of all land which had passed by will—probably most of the land in England (Baker, 2002).

In 1688, the Glorious Revolution deposed the despotic James II and invited William III from the Netherlands. Although Parliament at this time instituted a number of important institutional reforms, it did not protect judicial independence. A provision in the Bill of Rights giving security of tenure was deleted in committee. Two similar statutes were rejected by William III or blocked by his Parliamentary allies in 1692. William III did appoint judges with commissions specifying tenure "during good behavior," but, as under Charles I and II, he retained the right to resume appointments "during pleasure" (Rubini, 1967).

Continuous daily share price data become available in 1698. The rest of this historical background will therefore highlight key dates whose market impact can be measured. These key dates are organized around two aspects of judicial independence—security of tenure and judicial salaries. Table 1 identifies these dates and their predicted impact on equity markets.

A. Security of Tenure

On March 11, 1701, the House of Commons first discussed and drafted an amendment to the Act of Settlement relating to judicial independence (Luttrell, 1857). The Act of Settlement was a bill clarifying the succession to the crown after the death of William III and Princess Anne. The amendment provided "[t]hat Judges commissions be made *Quam diu se bene gesserint* [during good behavior], and their salaries ascertained and established; but upon the address of either house of Parliament, it may be lawful to remove them." That is, it provided for life tenure, fixed salaries, and removal only by a vote of either the House of Commons or House of Lords.

This event is almost ideal for testing the hypothesis of the effect of judicial independence on asset prices for several reasons. As noted above, the House of Commons had, on several prior occasions during the early 1690s, attempted to enact a statute giving judges life tenure. In each instance, William III opposed the measure. The fear of encountering similar opposition to a stand-alone bill presumably led the Commons to insert the provision into the proposed Act of Settlement. Both the crown and Parliament were eager to secure the Protestant succession, so the bill was likely to receive royal assent. Moreover (and also likely because of the fear of royal opposition), there is no prior evidence of the Commons' plan to add such an amendment, so news of it probably was a surprise to the markets.

Several other amendments to the Act of Settlement were also first discussed and drafted on March 10 or March 11. Among those amendments were provisions requiring the new sovereign to be in communion with the Church of England, requiring him or her to procure Parliamentary consent for foreign wars or to leave the country, and barring those receiving royal offices or pensions from serving in the House of Commons

(Luttrell, 1857). We cannot, of course, separate the market impact of these provisions from that of the judicial independence provision. Nevertheless, we believe that these other amendments would not have surprised the market. They were further expressions of Parliamentary power over the king, a power that was already well established by 1701. Moreover, these provisions were different from the judicial independence provision in one critical respect. The latter was a matter of governmental structure with which William III disagreed. The other provisions implied not merely disagreement, but rebuke. William III viewed them as such, and (unlike the judicial independence provisions) they angered him sufficiently to raise concerns that he or the House of Lords might reject the entire bill (Horwitz, 1977). The possibility that the bill might be rejected would create uncertainty as to succession of a Protestant to the crown. This, we predict, would have upset the market. Thus, the fact that the other amendments would most likely have had a negative impact strengthens the inference that a positive market reaction would actually represent reaction to the amendment providing for security of tenure.

On May 10, 1701, parliamentarians allied with the crown introduced an amendment to allow removal of judges only upon the vote of both the House of Commons and the House of Lords. The supporters of judicial independence wanted the House of Commons to have unilateral removal power and therefore opposed the amendment. In response, the amendment's sponsors moved to delete the judicial independence provisions from the bill altogether. The crown and its supporters apparently believed the House of Commons would reject a provision that did not give that house unilateral removal power. However, Commons voted in favor of the newly amended bill.

On its face, the change increased judicial independence, as it made it more difficult to remove a sitting judge. It is more plausible, however, to interpret the amendment as a setback to judicial independence for two reasons. First, as described by Rubini (1967), the amendment was a last-ditch attempt by the crown to secure removal of the judicial independence provision from the Act of Settlement. As such, this would have been bad news, assuming that judicial independence is good news. Even though the attempt failed, it left some doubt as to whether the bill might be rejected either in the House of Lords or by William III. Second, the original bill, which gave the Commons the unilateral power to remove a judge, effectively gave Commons (and therefore the legislative supporters of secure property rights) a veto over the appointment of new judges. The amended bill, however, allowed removal only when Commons and Lords concurred. We therefore predict a negative reaction.

The Act of Settlement passed the House of Lords in late May and was given royal assent on June 12. We cannot, however, interpret any positive effect on stock prices around those dates as reflecting the importance of judicial independence. The Act also advanced two central post-Glorious Revolution policies, the Protestant succession and Parliamentary power, and should therefore have had a positive impact apart from the judicial independence provision.

Although the 1701 Act of Settlement provided security of tenure, it was understood to apply only during the life of the appointing sovereign. That is, when the king or queen died, the commissions of all sitting judges expired, and the new monarch had the right to appoint an entirely new bench.[1] Queen Anne took advantage of this power in 1702 and

[1] Baker suggests that this aspect of tenurial insecurity was partially remedied by a 1707 statute which allowed judges to remain in office for at six months after the monarch's death (Baker, 2002). We do not

failed to reappoint several of William's judges. Similarly, in 1714 and 1723, George I and George II failed to reappoint several of their predecessors' judges (Sainty, 1993).[2] On March 3, 1761, George III addressed Parliament and requested legislation allowing judges to continue in office indefinitely after the death of the monarch and reiterating that judges could only be removed upon a vote of both Houses of Parliament. Since the bill encountered no opposition and was assured royal assent, March 3, 1761 is the only date on which we predict a market impact, and, of course, it should be positive.

B. Judicial Salaries

We hypothesize that increases in judicial salaries reduced the likelihood of bribery or other financial subornation, thereby making private rights more secure. Parliament increased judicial salaries on three occasions during the 18th century.

On March 8, 1779, a committee of the Commons was instructed to consider increasing most judicial salaries by £400-£500, and the king communicated his disposition to assent. Similarly, on June 12, 1799, a committee of the Commons was instructed to consider increasing most judicial salaries a further £500-£600, and the king communicated his endorsement. In both cases, the measure was not controversial, and the king's endorsement made enactment into law a forgone conclusion. We therefore believe these dates are the only relevant ones.

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believe the statute meaningfully increased judicial independence. It was, instead, part of a set of technical provisions meant to assure governmental continuity between Queen Anne's death and her successor's arrival from Germany. The new king, whenever he arrived in England, was free to dismiss Anne's judges.

[2] We do not test the effect of these removals on stock prices because we lack evidence of the baseline expectation. Obviously the removals were "news" only to the extent they diverged from what the markets expected. Given the new monarch's right to remove any and all judges, the fact that some were removed was news only to the extent there was an expectation that the right would not be exercised. We lack sufficient information to determine whether that was the case.

The other eighteenth century salary increase occurred in 1758-59, and unfortunately we do not have a similarly obvious candidate for the event date. On June 16, 1758, the Commons requested that the king raise judicial salaries and promised to allocate tax revenues to reimburse the king during the next legislative session. On June 19, 1758, the king agreed to the request. On May 9, 1759, the king requested reimbursement, and on May 14, Commons proposed, and the king agreed, to introduce a bill making the salary increases permanent. It is not obvious which of these dates, if any, generated new information. In the event, abnormal returns on June 16 and June 19, 1758 and May 9, 1759 are modestly positive, and on May 14, 1759 modestly negative. Given the uncertainly about which dates are most relevant, we do not further consider the 1758-59 salary increase.

There is good reason to suspect that the market impact of the events in the period 1759-1799 would not be as substantial as those of 1701. The permanence of the post-Revolution changes in English government was still in doubt in 1701, but not by mid-century. The marginal impact of these changes, therefore, must have been less than that of the hotly-contested issue of security of judicial tenure. We nevertheless include these measures because they affected the status of the judiciary. If impartial judges are good, the additional security of tenure and remuneration should have had some impact on equity values.

4. DATA AND METHODOLOGY

We use a data set derived from *The Course of the Exchange*, a sheet published by John Castaing, a London merchant, and successors from 1698 to 1809, as our principal source for London prices. The Castaing publication and its competitors are described in

detail by Neal (1990).[3] For 1700-01, the data set contains daily prices for the Bank of England, the Million Bank, the Old and New East India Companies, and the Royal African Company. For the period 1759-99, the set contains daily prices for the Bank of England, the United East India Company, and the South Sea Company. The Castaing publication occasionally contains prices for other companies, but these traded infrequently and are not included in the data set.

The Castaing publication contained information about dividend payments, but the information is not complete, particularly in the early period. We accordingly supplement Castaing with Scott (1951), which provides dividend information for early joint-stock companies up to the year 1720.

We construct an equally-weighted market index consisting of the average total return on the stocks traded on a particular day, that is

$$M_t = \frac{1}{n_t}\sum_{i=1}^{n_t}\left(\frac{P_{i,t} - P_{i,t-1} + D_{i,t}}{P_{i,t-1}}\right),$$

where $P_{i,t}$ is the price for stock *i* on date *t*, $D_{i,t}$ is the amount of any dividend that accrues for that stock on that date, n_t is the number of stocks with prices for day *t*, and M_t is the index for date *t*. We do not know the number of shares outstanding for all relevant periods and so cannot construct a value-weighted index. We do have this information for 1701, however. As a check, we create a market capitalization-weighted index for that period, with consistent results.

There are many days on which not all of the stocks traded. Some of these reflect the fact that shares had to be deposited with a registrar or paying agent around the time of

[3] The data set is available from the Inter-University Consortium for Political and Social Research at the University of Michigan, www.icpsr.umich.edu. We looked at microfilm of the originals to determine ex-

dividend payments and elections of directors. Thus, there are sometimes gaps of a week or more in the price series for a particular company. There are other days on which no trades occurred in a particular stock, and these are particularly common after the bubble period of 1720 and the consequent decline in stock market investment.[4] The number of observations for the South Sea Company for the 1770s and 1790s is so small that we omit it from the index for those periods.

We use a conventional event study to look for abnormal returns around the time of key dates in the movement towards greater judicial independence. We first employ a constant expected-return model. We predict that changes in judicial independence affected all securities traded on the London exchange and therefore lack an unaffected market portfolio to use as a factor for predicting returns. Brown and Warner (1985), however, note that a constant-return model performs well in short-run event studies with daily data. We accordingly take the expected return on the market index for day τ, M_τ, to equal the average daily return on the index over a 100-trading day estimation period ending 5 trading days prior to the relevant event. Where there are two or more events in a short time period, such as our March 1701 and May 1701 events relating to the Act of Settlement, we use a single estimation period ending before the first such event. The abnormal return for each day τ is the observed return minus the expected return on that day. We calculate cumulative abnormal returns over 3-trading day event windows centered on the relevant events and use the standard deviation of daily returns during the estimation period to assess the statistical significance of the abnormal return. Table 2

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dividend dates.

[4] We compared the distribution of the daily values of the index to those of an alternative index that is defined only for days for which a price is reported for each stock. The mean and standard deviation of daily values for both indexes over our estimation periods are almost identical.

provides descriptive statistics for daily returns during each of our estimation periods. One issue with our test for the 1701 events is the strongly negative returns during the estimation period. We repeat our test for those events with raw returns with consistent results, as discussed below.

The estimation period prior to the introduction of judicial independence provisions into the Act of Settlement runs from late 1700 through the end of February 1701. This period includes a major political event—the invasion of the Spanish Netherlands by Louis XIV of France, one of the provocations that led to the War of the Spanish Succession. The invasion prompted a run on the Bank of England. Our market index shows a few days of very large negative abnormal returns upon news of the invasion, followed by a sharp but partial correction. We exclude the week following the invasion from our estimation period given the existence of several extreme outliers in the index. In principle, the effect of excluding the data is unclear. All but one of the returns during that week are negative, which would bias the expected return in a negative direction, thus increasing the apparent abnormal return around the time of the March 11 event. On the other hand, inclusion of those observations would increase the standard deviation of returns, which would reduce the likelihood of rejecting the null hypothesis of zero abnormal return. In fact, the effects offset; none of the inferences described below is sensitive to the exclusion of the late January 1701 data.

A final methodological concern is that with only 3 to 5 traded stocks, the daily returns on our market index are not normally distributed, which should lead to over-rejection of the null hypothesis of zero abnormal returns. We discuss this issue in more detail in connection with our results.

For the later events, we also carry out tests using an alternative expected-return model. Neal (1987) notes that shares of the three main English joint-stock companies, the Bank of England, the East India Company, and the South Sea Company, were traded in Amsterdam. Van Dillen (1931) provides prices every two weeks for the period 1723 through 1794.[5] Neal (1987, Table 1) compares these to the prices of the three companies on the London Stock Exchange for the same dates. He notes that both the levels and the first differences of the two price series are highly correlated.

Using the Van Dillen data, we construct an equally-weighted index of the three English companies traded in Amsterdam and compare it to our London market index on the same dates. We calculate two-week holding period returns (rather than first differences of prices). Consistent with Neal's analysis, we find that the two-week returns for the entire period 1723 through 1794 are highly correlated (Pearson correlation coefficient = .654, $p < .01$).

This close correspondence between the London and Amsterdam markets provides an alternative test of the importance of legislative events occurring in London. Much of the news bearing on the future profitability of the trading companies would come from Asia and the Americas and should have reached London and Amsterdam at the same time on average. Returns on all shares were highly sensitive to diplomatic and military news from throughout Europe, which again would on average have arrived at approximately the same time in London and Amsterdam. In contrast, the proceedings of the British Parliament occurred literally within walking distance of the City of London, but news took three days on average to reach Amsterdam from London.

[5] These data are included in Neal's data set described in footnote 3 and accompanying text.

To the extent there exist prices from Amsterdam for dates falling within our three-day event windows, then, we can be reasonably confident that those prices do not yet reflect the Parliamentary actions of interest. Thus, we can take the Amsterdam return as the expected return for the London stocks, and any abnormal return in London can plausibly be attributed to events occurring there that were not yet reflected in Amsterdam prices.

Two of our events—the 1779 judicial salary increase and the 1761 provision for tenure after the demise of the monarch—fall within the time period for which Amsterdam data are available. Unfortunately, van Dillen's data set does not always include an observation within our event window. We accordingly supplement van Dillen's data by going to his original source, the *Amsterdamsche Courant*, which typically published stock prices two or three times a week. Using this source, we are able to obtain prices during both event windows. We calculate a two-week holding period return for each of the three stocks in Amsterdam and in London and define an abnormal return as the London return minus the Amsterdam return. For purposes of assessing statistical significance, we derive the abnormal return in the same way for each two-week period covered by van Dillen's data and compute the standard deviation of abnormal returns.

5. RESULTS

The first column of Table 3 reports abnormal returns based on the constant-return model for the events described in Section III. We first calculate abnormal returns for three-trading day event windows around March 11, 1701 and May 10, 1701. These are the dates on which the Act of Settlement was amended to include a provision for judicial tenure during good behavior and on which there was an attempt to delete that provision.

The cumulative abnormal return for the market index for the period centered on March 11 is 8.41% and is significant at the 1% level. There is a similarly large price decline in the 3 trading days surrounding May 10, 1701. The cumulative abnormal return of -8.74% is also significant at the 1% level. The magnitude of the abnormal returns is obviously large. In assessing statistical significance, however, we must keep in mind the small number of traded stocks and the consequent non-normality of daily returns on our index.

In order to alleviate the problem of non-normality, we employ a bootstrap procedure as an alternative method of assessing the statistical significance of cumulative abnormal returns. Specifically, we draw 10,000 resamples of size b=3, with replacement, from the 100 days of pre-event return data and calculate 3-day cumulative abnormal returns for each sample. We then take these CARs as an approximation of the distribution of CARs under the null hypothesis of zero abnormal return. The standard deviation of the 10,000 CARs (2.14) is almost identical to the standard error calculated directly from the estimation period (2.15), indicating that our rejection of the null hypothesis is not simply a consequence of the non-normality of daily returns.

The rejection of the null hypothesis is also not an artifact of the negative returns during our estimation period. As shown in the second column of Table 3, nominal returns on our index for the 3-day periods around the March 11 and May 10 events are 7.56% and -9.60%, respectively. Taking the standard deviation of 3-day nominal returns during the estimation period (2.15%) as the standard error of these estimates, they are both statistically significant at the 1% level.

We also consider the possibility that this standard error is understated because our estimation period is atypical. Figure 1 shows daily returns on our equity index for every trading day from the beginning of the estimation period (October 26, 1700) through the end of June, 1701. Looking only at the estimation period prior to the March 11 event (the left two thirds of the figure), the absolute value of returns during our event windows are considerably larger than average. The daily return on the index for the single day March 12, 1701 (4.13%) is greater than all but one day during the estimation period, and the day in question is the aftermath of the January run on the Bank of England. Indeed, the average return for the 3 days March 10, 11 and 12 (2.52%) is in the 96th percentile of daily returns for the estimation period. Similarly, the daily return on the index for May 9, 1701 (-5.79%) is lower than any day during the estimation period apart from the January run on the Bank of England.

The volatility of the return series, however, increases substantially in the period immediately following March 10-12, probably as a result of uncertainty about war with France. Beginning on March 18, 1701, debate in Parliament was dominated by William III's negotiations with France. The King wanted to avoid war by allowing France to keep some of the territory it had recently invaded, whereas some parliamentarians argued for a sterner line. Parliament also impeached several ministers on charges connected with their conduct of diplomacy. It is not surprising, therefore, that the resulting political turmoil and uncertainty about whether England would go to war would lead to swings in equity prices. By the end of the Parliamentary session in June, the uncertainty had largely been resolved, as William had responded to Parliamentary pressure by adopting a more

bellicose policy, Parliament had voted supplies for war, and the House of Lords had acquitted the impeached ministers.

The critical issue, then, is whether the more volatile period of mid-March through April, or the less volatile period from October through February should be taken as "normal" for the purpose of analyzing the March 11 and May 10 events. We note that the period after June 1701 saw a return to the relatively lower volatility characteristic of our estimation period. We carried out the event study using a post-event estimation period beginning in July 1701 with consistent results. Even were we to extend our estimation period through the more volatile March to June period, our results for the March 11 and May 10 events would remain statistically significant.

There was no war-related news during either of our two event windows that could explain the large moves in equity prices. Nor are we aware of any other legal developments during those periods. There is one potentially confounding event—on May 9, the House of Commons lodged formal impeachment charges against the Earl of Orford. The formal impeachment charges, however, would not have been news. Commons had already, on April 1, declared its intent to impeach Orford and three other ministers. We examined returns during 3-day windows around the days on which articles of impeachment were filed against the other ministers. In each case the abnormal return was positive, small in magnitude, and statistically insignificant.

The large and statistically significant results for the Act of Settlement are particularly noteworthy, because the provisions relating to judicial independence were not to take effect immediately. Rather, they came into force only "after the said Limitation shall take Effect," that is after the death of Anne, who at the time was only 36. Nevertheless,

she had suffered several miscarriages and was not in good health (Gregg, 2001). In fact, she lived only thirteen more years. At five percent interest (the early eighteenth-century market rate), the present discounted value of $1 in thirteen years was 53¢. Thus, if the market had a reasonable sense of Anne's life expectancy, one should almost double the cumulative abnormal returns noted above. So it could be inferred that the market thought security of tenure would increase stock values by 16%.

None of the remaining incremental improvements in judicial independence are associated with statistically significant positive abnormal returns. The 1761 statute providing security of tenure surviving demise of the crown (i.e. tenure which survived a monarch's death) is associated with a 3-day cumulative abnormal return of 0.83%. The two salary increases for which we have reasonable event dates are associated with cumulative abnormal returns of 1.35% and 0.33%, respectively.

As discussed above, a natural interpretation of the modest size of these effects is that the principle of judicial independence was no longer contested by the mid-eighteenth century. The provision for tenure notwithstanding the demise of the crown, moreover, was certainly not an issue of any immediate importance. King George III, the current monarch, was only twenty-two and in good health. In the event, he reigned for nearly fifty-nine more years.

An alternative possibility is that our 3-day event windows are too short for these later time periods. In the aftermath of the South Sea bubble of the 1720s and the Bubble Act, there was a noticeable decline in liquidity for stocks traded on the London Stock Exchange. Bekaert, Harvey, and Lundblad (2003) note that the proportion of trading days on which a particular stock does not trade at all is a natural proxy for liquidity in

developing markets. We can easily compare this measure throughout the eighteenth century for the Bank of England, which was listed for the entire period. From 1688 through 1719, Bank of England shares failed to trade on approximately 10% of trading sessions. For the period 1721 through 1799, by contrast, the figure is approximately 27%. We would expect information to be more slowly reflected in prices in a less liquid market (Maug, 2002). We note that there is a large and persistent rise in our stock index over the 2-week period following each of the three post-1720 events. The 2-week abnormal returns beginning March 2, 1761, March 6, 1779, and June 11, 1799 are 3.47%, 6.23%, and 7.02%, respectively, and each is significant at the 1% level. Clearly the selection of 2 weeks is arbitrary and we do not, therefore, take these results in isolation as strong evidence in favor of the importance of these late eighteenth-century events. We do, however, note that our failure to find large effects in the 3-day event windows could be a consequence of the relative illiquidity of the market during the period between enactment and repeal of the Bubble Act.

The results for our alternative expected-return model based on Amsterdam prices are shown, where available, in the third column of Table 1. In both instances, the abnormal return has the expected sign. The abnormal return around the time of the 1779 salary increase is positive and significant at the 5% level. Abnormal returns during the estimation period have mean and median very close to zero, but have thick tails, which again complicates the assessment of statistical significance. The abnormal return for the 1779 event, however, is in the 97th percentile of 2-week abnormal returns for the period 1723-1794. These results add further evidence that legislative moves to increase judicial independence were responsible for increases in equity prices.

The returns in the Amsterdam market after our London events are also consistent with the results from London. In both instances for which we have Amsterdam prices, there is a positive (but insignificant) abnormal return on the London stocks traded in Amsterdam for the holding period beginning during our event window and continuing until the next available observation. We also note that the abnormal returns for our London Stock Exchange index are positive on average just before our two-week event windows. This provides some assurance that the higher returns in London during our two-week holding periods reflect good news in London at the end of the periods, rather than bad news in London just prior to the beginning of the periods.

Is it possible to determine whether these positive reactions resulted from increases in the value of outstanding government debt securities held by the traded companies, the expectation of an improved climate for private economic activity, or both? In 1701, there were no publicly-traded government debt securities. However, we can compare the market reaction of firms that held relatively more government debt with those that held relatively less.

The assets of both the Bank of England and the Million Bank consisted principally of government debt, so much so that returns on their stock are sometimes used as proxies for the yield on government debt (Sussman and Yafeh, 2002). Like the Bank of England, the New East India Company in effect purchased its charter by making a large loan to the government. The New East India Company lent the government £1.7 million at the time of its formation in 1698 and had a market capitalization of approximately £2.3 million in early 1701. By contrast, the Royal African and Old East India Companies held smaller amounts of government debt (Scott, 1951).

As discussed above, judicial independence could have affected equity returns in three ways. By marginally boosting the credibility of the government's own promises, it could increase the value of government debt. By increasing the impartiality of adjudication, it could better secure property and contract rights generally and lead to greater investment. Finally, impartial adjudication would also help alleviate manager-shareholder agency problems. The last of these should be relevant to all publicly-traded companies. The first would be relatively more important for the Bank of England, the Million Bank, and the New East India Company, while the second would be relatively more important for the Royal Africa Company and the Old East India Company.

Table 4 shows the returns on the five stocks individually around the March and May 1701 events. Interestingly, the increases in value around March 12 are inversely related to the amount of government debt held by the five companies. The Bank of England and the Million Bank, which held the most government debt, experienced the smallest gains, followed by the New East India Company, which also held a substantial amount of government debt. The two companies that were engaged principally in trade experienced the largest rise.[6] The relationship is not as strong around May 10, but the average decline for the two trading companies is greater than that of the three that held more government debt. These results are consistent with the notion that judicial independence had an impact not merely on the reliability of government debt, but on the private economy generally.

We also look at returns on government debt instruments during our event windows from later in the 18th century. The Castaing data include prices for consols, or perpetual

[6] The Bank of England's shares were deposited for payment of a dividend beginning on March 12, so there are no transactions in the Bank's stock on that date. If we take the next observation for the Bank of

government debt securities, beginning in the 1750s. We again use a simple constant-return model based on the same 100-day estimation periods used for equity returns. We also calculate the correlation between equity and government debt returns during the estimation periods as a rough measure of the extent to which stock and government debt markets moved in tandem generally.

The results are shown in the fourth and fifth columns of Table 3. There is little relationship between the abnormal returns on the stocks and bonds during our event windows. In particular, in some instances the abnormal bond returns are negative. While we cannot read too much into this, given the lack of statistical significance of the abnormal returns, it does provide additional evidence that the positive reactions of equity-market returns did not arise solely from increases in the value of government debt held by the traded companies, but reflected anticipated improvements in the private economy.

6. CONCLUSION

Analysis of securities prices around the time of moves to increase (decrease) judicial independence supports the idea that increases (decreases) in judicial independence increase (decrease) the value of financial assets. All abnormal equity returns have the predicted signs. Except for events related to the 1701 Act of Settlement, which gave judges security of tenure, the magnitudes are modest.

We believe, however, that the results, read in connection with modern cross-country studies, lend support to the proposition that judicial independence is one of the key features of the design of a high-quality legal system. It is remarkable that incremental changes in the security of judgeships are so persistently associated with abnormal returns

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England, its 3-trading day return would be 3.42%, still the smallest increase of the five companies.

in the direction that we would expect if market participants viewed judicial independence as a good thing.

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TABLE 1

Judicial independence in England: Key events

Date	Description of Event	Predicted impact
March 11, 1701	Amendment to Act of Settlement providing tenure during good behavior	Positive
May 10, 1701	Attempt to remove amendment	Negative
March 3, 1761	George III proposes that judicial tenure survive death of monarch	Positive
March 8, 1779	Proposal to increase judicial salaries	Positive
June 12, 1799	Proposal to increase judicial salaries	Positive

TABLE 2

Descriptive statistics for equity returns during estimation periods

	Estimation Periods			
	10/26/1700 to 3/4/1701	8/11/1760 to 2/20/1761	9/26/1778 to 3/1/1779	12/22/1798 to 5/31/1799
Average	-0.28	-0.04	0.03	0.01
Median	-0.20	0.00	0.00	0.09
Standard deviation	1.24	0.37	0.54	0.73
Maximum	3.69	1.44	1.92	1.71
Minimum	-4.23	-1.65	-1.28	-3.57

All amounts represent daily total returns, in percents, on an equally-weighted portfolio of all stocks contained in the data set. The estimation period from October 26, 1700 to March 4, 1701 excludes the run on the Bank of England during the period January 29 to February 6, inclusive.

TABLE 3

Cumulative Abnormal Returns (CARs)

Event	Equities			Bonds	Correlation of equity and bond returns
	3-day CAR (%)	3-day nominal return (%)	2-week CAR, Amsterdam (%)	3-day CAR (%)	
March 11, 1701. Amendment providing tenure during good behavior.	8.41** (2.15) [0.00]	7.57** (2.15) [0.00]			
May 10, 1701. Attempt to delete amendment providing tenure during good behavior	-8.74** (2.15) [0.00]	-9.58** (2.15) [0.00]			
March 3, 1761. Proposal that tenure survive demise of crown.	0.83 (0.64) [0.19]	0.71 (0.64) [0.27]	3.95 (3.89) [0.31]	0.47 (0.85) [0.58]	0.42
March 8, 1779. Proposal to increase judicial salaries by £400-£500.	1.35 (0.94) [0.15]	1.44 (0.94) [0.13]	7.84* (3.89) [0.04]	1.13 (0.95) [0.23]	0.25
June 12, 1799. Proposal to increase judicial salaries by £500-£600.	0.33 (1.03) [0.75]	0.36 (1.03) [0.73]		-0.19 (0.82) [0.82]	0.06

*, ** = significant at the 5%, or 1% level, respectively.

Standard errors in parentheses. P-values in brackets.

In columns one and four, abnormal returns are defined as the return in excess of the mean daily return during a 100-trading day estimation period ending 5 trading days prior to the event (or prior to the first event, where two events fall within the same six-month period) and are cumulated over a 3-trading day event window. Standard errors are calculated as the standard deviation of daily returns during the estimation period times the square root of the number of days in the event window.

In column three, abnormal returns are defined as the difference in returns on the relevant stocks on the London and Amsterdam stock exchanges over a two-week holding period. Standard errors are calculated as the standard deviation of abnormal returns over the period 1723-1794.

TABLE 4

Cumulative returns on individual stocks for 1701 events

Stock	Trading days	
	March 10, 11, and 12	May 9, 10, and 12
Bank of England	1.00%	-5.86%
Million Bank	4.66%	-11.08%
New East India Company	6.53%	-8.65%
Old East India Company	11.28%	-13.89%
Royal Africa Company	10.20%	-8.52%
Average	6.73%	-9.60%

FIGURE 1

Equity Index Daily Returns, October 1700 – June 1701