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

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Abstract

This paper assesses the impact of judicial independence using stock and bond prices. North and Weingast (1989) argue that judicial independence and other institutional changes inaugurated by the Glorious Revolution of 1688-89 allowed the English government credibly to commit to repay sovereign debt and more generally to protect contractual and property rights. Although they provide some empirical evidence to support their theory, they do not investigate the effect of judicial independence separately from that of other institutional innovations. This paper is the first to attempt to do so. It looks at share price movements at critical points in the passage of the 1701 Act of Settlement and other events which gave judges greater security of tenure, higher salaries, and greater enforcement power. Our results suggest that giving judges tenure during good behavior had a large and statistically significant positive impact on share prices, while salary increases and other improvements to judicial independence had impacts which were consistently positive, but not individually statistically significant.

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I. 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 (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.

As a consequence, empirical investigation has focused on legal origin as a rough proxy for "good" (common law) and "bad" (civil law, particularly French civil law) system design (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. The problem is compounded by the fact that legal origin is usually a function of English, French, 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. (2002) and Feld and Voight (2002) 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. Moreover, other features are ambiguous. For example, does a system that puts judicial appointments under the control of non-governmental experts increase independence because it reduces government interference in the selection process, or is it evidence that judicial posts are considered unimportant and not prestigious?

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 the early 1690's and continuing through the eighteenth century. Fortunately, during this period there was a functioning securities market in London for which continuous price data are available starting in 1693. We accordingly test for abnormal stock and bond returns around the time of events changing the degree of judicial independence. These events include key dates in the passage of statutes granting judges security of tenure and increasing judicial salaries.

Empirical results are consistent (albeit weakly) with the view that participants in the financial markets viewed judicial independence as beneficial. Abnormal equity returns around the time of every event we examined have the correct sign. Individually, however, only the abnormal returns around key dates surrounding the 1701 Act of Settlement are 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 to some extent 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 and jointly, but not individually, significant. Abnormal returns on government debt provide generally similar, but more mixed, results.

We obtain similar results using two different expected-return models for equities. 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—the War of the Spanish Succession, conspiracies to overthrow William III and reclaim the throne for the Stuarts, and growing pains associated with the new political arrangements created in the wake of the Glorious Revolution—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 press accounts for evidence of other significant happenings 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 article also contributes to an ongoing debate about the economic impact of the Glorious Revolution. North and Weingast (1989) argue that the Glorious Revolution enabled the English government to commit to sound economic policies, which led to lower interest rates on sovereign debt and to financial innovation in the private sector. This view is supported by Wells and Wills (2000), who show that threats to the constitutional arrangements inaugurated by the Glorious Revolution, primarily heightened probabilities of a Jacobite invasion, led to lower share prices. Other authors, however, have argued that the Glorious Revolution had little or no economic impact. Clark (1996) examines land returns, rents, and prices and finds little change around 1688. Stasavage (2003) presents both theoretical and historical reasons for believing that the coalition between the "country" Whigs and the "moneyed interest" was more important to financial stability than the formal institutional changes of 1688.

Part II discusses the theory which suggests that judicial independence might matter, as well as some reasons to be skeptical. Part III sets out the historical background and lays out the events which will be tested for market impact. Part IV describes the data and methodology. Part V presents and discusses the results. Part VI concludes.

II. THEORY

A society in which the government can credibly commit to repay its debts, enforce private contracts, and protect property rights, is one which is likely to foster economic activity. As North and Weingast (1989) have pointed 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 economic 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."

An independent judiciary can foster economic activity in at least three ways.

(1) It can help assure repayment of sovereign debt by providing impartial adjudication of claims against the government.

(2) It can help assure impartial enforcement of private contracts and resolution of property disputes by insulating adjudication from possible pressure from litigants, especially politically powerful litigants. 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.

(3) It can help assure political stability by providing neutral adjudication of treason and other political crimes.

These reasons suggest that increases in judicial independence should have a positive impact on the value of long-term assets, including securities. The first suggests that judicial independence should increase the value of government debt as well as the value of firms holding significant amounts of government debt. During the relevant period, all of the major firms, including the Bank of England, the East India Company, and the

South Sea Company, held large amounts of sovereign debt. The second and third reasons suggest judicial independence should increase the value of all shares by increasing investment and reducing transactions costs, lobbying costs, and uncertainty.

What makes a judiciary independent? Security of tenure is probably the most important ingredient. Judges who can be replaced at will by the king are certainly likely to take his wishes into account. Conversely, judges who can only be removed "for cause" and through cumbersome procedures are more likely to be independent. That independence, however, is undermined if judicial salaries can be easily changed or if they are so low that judges are easily swayed by bribes, pensions, or promotion to more lucrative offices (Klerman, 1999).

Finally, an independent judiciary is irrelevant if economic disputes are resolved politically rather than legally. Thus, courts must have jurisdiction over important cases, both between private citizens and between citizens and their government. Although the issue of jurisdiction is not usually considered an aspect of judicial independence, structural rules regarding judges' tenure and salary will have little effect if courts lack the power to decide economically important cases. Thus, we analyze the impact of jurisdiction along with security of tenure and other institutions more traditionally viewed as central to judicial independence.

Although the value of judicial independence is generally acknowledged, it is important to note reasons to be skeptical. Judicial independence can usually be revoked. During the relevant period, it would have taken only an ordinary statute to do so in England. 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 lessening independence, because they increase the negative consequences of dismissal. Perhaps most importantly, judges require assistance from other governmental actors to enforce their judgments. This problem is especially acute in the enforcement of sovereign debt. What good is impartial adjudication of disputes relating to government debt, if judgments against the Crown cannot be collected?

III. HISTORICAL BACKGROUND AND KEY EVENTS

Before the late seventeenth century, English judges were essentially servants of the king. They were appointed by the king and could be removed by the king. 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 1990, 189-92).

In spite of their formal dependence, some English judges exhibited substantial *de facto* independence. 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 (Baker 1990, 192).

Similarly, the trial of Algernon Sidney and others exposed the degree to which a dependent judiciary could produce dubious convictions in politically sensitive cases.

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 pass any protection for 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 weekly share price data become available from 1693, and daily data are available from 1698. The rest of this historical background will therefore highlight key dates whose market impact can be measured. These key dates are organized around three aspects of judicial independence-- security of tenure, judicial salaries, and enforcement against the government.

A. Security of Tenure

March 11, 1701. Amendment providing tenure during good behavior. 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, p. 26). 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 pass a bill providing for life tenure of judges. In each instance, William III opposed the measure. It was presumably the fear of encountering similar opposition to a stand-alone bill that 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. We accordingly predict that the insertion of this provision into the Act of Settlement would have had a positive market impact.

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, pp. 26-25). 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 which was already well established by 1701. In addition, these other provisions so displeased William III that

there was concern that he or the House of Lords might reject the whole bill (Horwitz 1977, p. 284). 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.

May 10, 1701. **Attempt to delete amendment providing tenure during good behavior.** On May 10, 1701, the amendment was changed to allow removal of judges only upon vote of *both* the House of Commons *and* the House of Lords. This may have been a ploy by royal opponents of the bill, who thought that the House of Commons would reject a bill which did not give that house unilateral removal power. Strengthening this interpretation is the fact that parliamentarians allied with the crown also moved, on the same day, to remove the judicial independence provision from the bill altogether. However, Commons voted in favor of the newly amended bill and against the motion to delete the provision.

It is not obvious how to interpret this event. One might think that the amendment 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, 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 in that the Commons passed the bill anyway, 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 a veto over the appointment of new judges. The amended bill, however, allowed removal only when Commons and Lords concurred. Since the Lords were partially allied with the monarch at this time, the amended bill strengthened the power of the king to appoint judges whom he predicted would be subservient to him. These negative interpretations of the amendment are supported by the fact that the amendment was introduced by supporters of the king, who was a known opponent of judicial independence (Rubini 1967). The net effect of the events of May 10 is therefore predicted to be negative.

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.

March 3, 1761. Tenure surviving demise of crown. 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 failed to reappoint several

[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 1990, 192). We do not test the effect of this statute for two reasons. (1) Six months additional tenure is not a meaningful addition to judicial independence, and, even during those six months, the judges did not really get much independence, as they could be dismissed at will by the new monarch. (2) It is impossible to disentangle provisions relating to judicial independence from other parts of the statute. The provision which applied to judges was a relatively trivial part of a much larger statute addressing the governance of England upon the

of William's judges. Similarly, in 1714, George I also failed to reappoint several of Anne's judges (Sainty 1993, pp. 35-36, 50, 127-28). 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 which is predicted to have had a market impact, and, of course, it should be positive.

B. Judicial Salaries

March 14, 1759. Proposal to increase judicial salaries by £500-£1000. On March 14, 1759, a committee of the House was instructed to consider increasing judicial salaries. That very same day, the Chancellor of the Exchequer communicated the king's approval of this proposal, and a motion to delay discussion for six weeks was overwhelmingly defeated. As this was first time Parliament had discussed a salary increase, and since the day's events made passage nearly certain, this event is predicted to have had a positive market impact. No other events relating to the legislation, which was eventually passed, are important enough to have any predicted effect.

March 8, 1779. Proposal to increase judicial salaries by £400-£500. As was the case twenty years earlier, on March 8, 1779, a committee of the Commons was instructed to consider an increase in judicial salaries, and the king communicated his disposition to assent. The predicted market impact is positive, and no other events relevant to the legislation are worthy of consideration.

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death of Queen Anne. The issue was a serious one, because it was expected that her successor would be out of the country at her death.

June 12, 1799. Proposal to increase judicial salaries to £3000-£4000. As before, on June 12, 1799, a committee of the Commons was instructed to consider salary increases for the judges, and the king communicated his endorsement. The market is predicted to have reacted positively. No other events in the passage of the legislation are worthy of consideration, as enactment into law was a forgone conclusion.

As important is these statutes may have been, it is important to note that no provision was made for regular judicial pensions until after the period studied. Instead, the king had discretion to provide or not provide pensions and substantial choice as to the amount. Thus, through the entire 18th century, the king retained an important financial lever with which to influence the judges.

C. Enforcement against the Government -- The Case of the Bankers.

In order for judicial independence to play the role that North and Weingast (1989) identify—helping the sovereign commit credibly to repay debts and more generally not to violate the rights of the subject—courts must have the authority to adjudicate disputes between the sovereign and the subject. The extent to which the crown was subject to the common law was one of the issues dividing the crown and Parliament during the 17th century. As late as the 1690s, it was unclear whether the common law courts had the authority to adjudicate disputes regarding unpaid sovereign debts. The so-called "Bankers Case" confirmed that the courts had such authority.

June 23, 1696. Sommers argues against the bankers. In 1672, King Charles II issued the "Stop of the Exchequer." That is, he ordered the exchequer to stop repayment of certain government debts. Large amounts of the debts were held by goldsmith bankers in the City of London, who suffered substantial losses as a consequence. The King later

issued letters patent entitling the goldsmiths to periodic payments in lieu of the amounts owed to them, but these payments were in turn discontinued in 1683. The accession of William III provided some hope for the creditors. They brought suit in the Court of Exchequer, one of the three regular common law courts. Suit in this court was controversial. The conventional procedure for collection of royal debt was a "petition of right," which would have been heard and decided as a matter of grace by the king, with judges acting merely as advisers. In contrast, suit in the Court of Exchequer bypassed the king and gave the judges no discretion in their judgment. If the bankers convinced the court of the merits of their case, they were entitled to a judgment ordering the exchequer to pay the bankers and making treasury officials personally liable for non-payment. In February, 1692, the court gave judgment for the bankers. The Attorney General, acting on behalf of the crown, then appealed. The appeal was heard by the Court of Exchequer Chamber, which ordinarily consisted of the Lord Treasurer and Lord Chancellor, assisted by the judges of King's Bench and Common Pleas. At that time, however, there was no Lord Treasurer.

A majority of the "assisting" judges argued that the judgment of the Court of Exchequer should be affirmed. On June 23, 1696, however, Lord Sommers, the Chancellor, issued an opinion to the effect that the bankers should not have access to the Court of Exchequer, but should instead rely only on "the honour and justice of the crown" for repayment of royal debts.[2] However, Sommers' opinion also noted that he was unsure whether the court's procedures permitted him to enter a judgment contrary to the views of the common law judges (Horsefield 1982). Nevertheless, because his June

[2] See The Argument of the Lord Keeper Sommers on his giving judgment in the Bankers' Case, 14 Howell's State Trials 39, 105 (1816).

23 opinion was a strong indication of the way the case might go, it is a date with a predicted negative market impact. It is also important to note, however, that the case had been argued several years previous, in 1693. It is impossible to know today whether Sommers' opinion three years later was "news" or was anticipated by the market.

November 24, 1696. Sommers judgment against the bankers. After hearing that a majority of the common law judges believed that the Chancellor could give judgment in accordance with his own views, Sommers rendered judgment against the bankers. Again, the predicted market effect is negative.

January 23, 1700. Lords judgment in favor of bankers. The bankers appealed to the House of Lords, which reversed the Exchequer Chamber and issued judgment for the bankers. This event is predicted to have had a positive effect on the markets.

[NOTE TO READER: The importance one should attach to the events surrounding the Bankers' Case depends on the answers to questions we are still researching. Beginning in the 1690s, Parliament began authorizing public borrowing. We are unsure whether the result in the Bankers' Case would apply to debts authorized by Parliament or not. If not, then the case would have only retrospective application (that is, it would apply only to pre-1690 debts). Clearly, by 1700 the stock of such debts would have been much diminished, and in any event the more important issue for capital markets would have been the ability to enforce debts authorized by Parliament. We are in the process of researching the role of the common law courts in such cases.]

IV. 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 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 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 of the returns for each stock traded on a particular day, that is

$$M_t = \frac{1}{n}\sum_{i=1}^{n}\frac{\log(P_{i,t})}{\log(P_{i,t-1})},$$

where $P_{i,t}$ is the price for stock i on date t, n is the number of stocks with prices for day t, and M_t is the index for date t. 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 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

[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 dates.

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.

Castaing provides price data starting in 1698. For events in the mid-1690's, we rely on another publication, John Houghton's *A Collection for the Improvement of Husbandry and Trade*, which provided weekly prices beginning in 1693.[5] Houghton's publication covered a larger set of stocks, but only on a weekly basis. We construct a similar equally-weighted index of all stocks for which Houghton provides prices

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 t, M_t, to equal the average daily return on the index over a 100-day estimation period prior to the relevant event. The abnormal return is accordingly the observed return for day t minus the expected return. We use the standard deviation of daily returns during the estimation period to assess the statistical significance of the abnormal return. Prior to 1698, we use 52 weeks of pre-event data to determine expected weekly returns.

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

[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.

[5] Houghton actually began publication on a twice weekly basis in March 1692, but discontinued publication

period includes a major political event—the invasion of the Spanish Netherlands by Louis XIV of France, one of the events 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 substantially increase the standard deviation of returns, which would reduce the likelihood of rejecting the null hypothesis of zero abnormal return. In fact, the effects largely offset; none of the inferences described below is sensitive to the exclusion of the late January 1700 data.

A final methodological concern is that with only 3 or 4 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.

We also carry out tests where possible 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.[6] Neal (1987, Table 1) compares these to the prices of the three companies

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three months later for financial reasons. He resumed publication in January 1693 on weekly basis.

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

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 = .651, $p < .01$).

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 could be expected to reach Amsterdam and London approximately simultaneously. 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 and courts occurred literally within walking distance of the City of London, but news typically took three days to reach Amsterdam from London.

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 and judicial 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.

Three of our events—the 1759 and 1779 judicial salary increases and the 1761 provision for tenure after the demise of the monarch—fall within the time period for which Amsterdam data are available. Unfortunately, for two of the three events, van Dillen's data set does not 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 each of the three 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.

Wells and Wills (2000) use the Castaing data to test the reaction of financial markets to the ebb and flow of Jacobite conspiracies seeking to overturn the Glorious Revolution and restore the Stuarts to the throne. Their methodology is to look for dates on which the time series properties of the price data undergo shifts and then compare them to the dates of significant events as identified by historians. They discover that there are several persistent shocks to asset prices that correspond to important news regarding Jacobite activity. We do not anticipate that our events— movements relating to judicial independence—would have effects on the scale of those found by Wells and Wills. William III had already granted substantial security of tenure to the judges he had appointed, and Parliament was strong enough to prevent any serious royal challenges to property or contractual rights. The prospect of increased or decreased judicial

independence was not as momentous as the possible restoration of the more autocratic Stuart dynasty, especially since restoration of a Stuart monarch might lead to repudiation of debts incurred under William III. Although we expect the incremental moves towards greater judicial independence during the late seventeenth and eighteenth centuries to be reflected in equity prices, unlike the possibility of a Jacobite invasion or rebellion, these events did not have the potential to overturn the entire post-revolution political system of England. An event study, accordingly, is a more appropriate test for our purposes.

V. RESULTS

The first column of Table 1 reports abnormal returns based on the constant-return model for the events described in Section IV. We first calculate abnormal returns for three-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 3-day period centered on March 11 is 9.05% 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 is -9.24%, which is 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.

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), it seems very unlikely that rejection of the null hypothesis of zero abnormal return is an artifact of the non-normality of the pre-event data. The daily return on the index for the single day March 12, 1701 (4.03%) 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 (2.75%) 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 worse than any day during the estimation period apart from the January run on the Bank of England.

It should be noted, however, that the volatility of the return series 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. It is not surprising, therefore, that the resulting 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 and Parliament had voted supplies for war.

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.

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 1980, pp. 100, 106-7, 120). 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 17%.

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 three salary increases during the latter half of the eighteenth century are associated with cumulative abnormal returns of 0.73%, 1.34%, and 0.33%, respectively. The modest size of these effects is not surprising. Judges had reasonably good reputations for resisting bribery, so there was little room for increasing salaries to make things better. 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.

Although the magnitudes are modest, abnormal returns are consistently positive around the time of legislative moves to improve judicial independence. If abnormal returns are normally distributed, then the sum of the t-statistics for the 4 events just described would be approximately normally distributed with a mean of zero and a standard deviation of 2, permitting a test of joint significance. Using that procedure, we would reject the joint hypothesis that all four abnormal returns are zero ($p = 0.03$). Because returns are not normally distributed, the p-value is understated. However, we can construct a simple distribution-free alternative by noting that in all four instances, the average daily return during the event period is greater than the median return during the estimation period. If the actual impact of each of the 4 events is zero, we would expect realized returns to exceed the median in all 4 cases with probability $(1/2)^4$, or 6.25%. The abnormal returns are accordingly at least marginally significant in the aggregate.

The results for our alternative expected-return model based on Amsterdam prices are shown, where available, in the second column of Table 1. In each case, the abnormal return has the expected sign. For one of the three events (the 1779 salary increase) the abnormal return is 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 97^{th} 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.

We also look at abnormal weekly returns based on a constant-return model around the time of key decisions in the Bankers' Case. Sommers' initial opinion was issued on June 23, 1696. Because only weekly data are available for that period, we examine the market return for the week ending June 26. The abnormal return is negative, as expected, although not significantly so. Abnormal returns around the time of the other two events relating to this case (one using weekly data, and the latter using daily data) both have the expected sign, but neither is significantly different from zero.

Finally, we look at returns on government debt instruments during each of our event windows. The Castaing data include prices for consols, or perpetual government debt securities, beginning in the 1750s. During the earlier period, both Scott (1951) and Neal (1990) argue that returns on shares of the Million Bank, for which Castaing provides quotes, are a proxy for government debt returns. The Million Bank held government lottery tickets and annuities, and Scott describes it as essentially an investment trust for government debt. We accordingly use Million Bank returns as a measure of government debt returns for the period August 1700, when Castaing begins quoting it, to May 1701.

We anticipate that security of tenure makes it easier for judges to rule in favor of claimants against the government (given the result in the Banker's case, which gave the courts the power to adjudicate such cases). This should increase the likelihood that government debts will be repaid, which would have a positive impact on returns. Indeed, this may be one of the channels through which judicial independence affected equity prices, as the Bank of England and other publicly traded companies held government debt. We accordingly look at the correlation between government bond prices and equity prices during each of the relevant estimation periods.

The effects of salary increases, however, are less clear. The primary consequence of high salary is to make the judge less susceptible to bribery. This should increase the security of private rights (such as contractual rights) by making the litigation process more transparent. It is less clear that a larger salary insulates a judge from pressure by government (as opposed to private) actors. Indeed, a higher salary makes loss of office more painful. Thus, it seems plausible that security of tenure, but not higher judicial salaries, increases the probability of repayment of government debt. In that event, the expected impact of salary increases on bond returns would be zero.[7]

The results are shown in the third column of Table 1. In broad terms, they track the equity-market results. The positive and negative abnormal returns for March 11, 1701 and May 10, 1701, respectively, are large and statistically significant. The bond results do not, however, add significantly to the equity results because stock and bond prices are highly correlated during the estimation period. Abnormal returns around the time of the other events are not significantly different from zero.

Interestingly, however, the results for the salary increases are not consistent with the equity market results. In two of the three cases, the abnormal return is negative. We do not attach much importance to this result, given the fact that in general none of the results for the salary increase events are individually statistically significant. Nevertheless, it is consistent with the argument above that judicial salary increases would not improve the position of government debt holders.

VI. CONCLUSION

[7] Of course, if salary increases were part of a general increase in government expenditure, the overall consequences for holders of government bonds could be negative.

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. Nearly all abnormal returns have the predicted signs. The magnitudes, however, are typically modest, and only the returns around the time of the Act of Settlement are statistically significant.

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

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Table 1. Cumulative Abnormal Returns

Event	Equities		Bonds	Correlation of equity and bond returns
	3-day CAR	2-week CAR (Amsterdam)	3-day CAR	
March 11, 1701. Amendment providing tenure during good behavior.	9.05%** (2.21)		5.81%* (2.74)	0.63
May 10, 1701. Attempt to delete amendment providing tenure during good behavior	-8.65%** (2.21)		-10.10%** (2.74)	0.63
March 3, 1761. Tenure surviving demise of drown.	0.83% (0.64)	4.01% (3.92)	0.48% (0.77)	0.33
March 14, 1759. Proposal to increase judicial salaries by £500-£1000.	0.74% (3.87)	3.87% (3.92)	-0.23% (0.66)	0.09
March 8, 1779. Proposal to increase judicial salaries by £400-£500.	1.34% (0.92)	7.79%* (3.92)	1.13% (0.98)	0.22
June 12, 1799. Proposal to increase judicial salaries to £2000-£3000.	0.33% (1.27)		-0.19% (0.82)	0.05
June 23, 1696. Sommers argument against the bankers.	-2.05% (2.02)			
November 24, 1696. Sommers judgment against the bankers.	-0.17% (2.02)			
January 23, 1700. Lords judgment in favor of bankers.	0.28% (0.94)		-0.62% (1.98)	0.09

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

Standard errors in parentheses.

In columns one and three, abnormal returns are defined as the return in excess of the mean return over (1) a 100-day estimation period ending 5 days prior to the event (or prior to the first event, where two events fall within the same six-month period) for daily returns (all dates after 1698) or (2) a 52-week estimation period for weekly data (all dates prior to 1698). Abnormal returns are cumulated over a 3-day event window (for daily data) or a one-week event window (for weekly data). Standard errors are calculated as the standard deviation of daily (weekly) returns during the estimation period times the square root of the number of days (weeks) in the event window.

In column two, 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.

Figure 1

Equity Index Daily Returns, October 1700 - June 1701