

FINANCIAL ASSET HOLDINGS AND POLITICAL ATTITUDES: EVIDENCE FROM REVOLUTIONARY ENGLAND*

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The English Parliament's struggle for supremacy against monarchical dictatorship during the Civil War (1642–1648) was crucial for the establishment of representative government, yet its lessons continue to be debated. I exploit novel data on individual MPs drawn from 1,842 biographies to show that the conflict was over overseas interests and other factors over which the executive enjoyed broad constitutional discretion, rather than over domestic property rights. I further exploit the coincidence of individual MPs' ability to sign legally binding share contracts with novel share offerings by overseas companies to measure the effect of overseas share investment on their political attitudes. I show that overseas shareholding pushed moderates lacking prior mercantile interests to support reform. I interpret the effect of financial assetholding as allowing new investors to exploit emerging economic opportunities overseas, aligning their interests with traders. By consolidating a broad parliamentary majority that favored reform, the introduction of financial assets also broadened support for the institutionalization of parliamentary supremacy over dictatorial rule. *JEL* Codes: O10, G11, F10, K00, N23, P10.

I. INTRODUCTION

The seizure of executive authority by Parliament from the Crown in the years spanning England's Civil War (1642–1648) has been called the “fountainhead of revolutions” (Schama 2001). Before the Long Parliament (1640–1660), England approximated a dictatorship. The Crown called and dismissed Parliaments at

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will. Between 1629 and 1640, no Parliament met at all (see Figure A1.1 in the Online Appendix).

The summoning of the Long Parliament in 1640 precipitated a process of revolutionary change that inspired future revolutions in both the Old World and the New (Carlyle 1897 [1845]; Stone 1985; Pincus 2009). Reformers were able to consolidate a majority in the House of Commons and broaden support outside it. This allowed Parliament, through both legislative and ultimately violent means, to acquire new rights to convene without royal approval, control state finance, and direct foreign policy and war. These constitutional changes set England on a path of experimentation that led to one of the world's most enduring institutions of representative government.

The central puzzle—what drove the creation of a novel, broad, and ultimately successful coalition in favor of parliamentary supremacy?—has been a focus of much debate ever since. Economists have focused on three key explanations. North and Weingast's (1989) groundbreaking work argues that a coalition formed to defend property rights in response to a political shock in the form of excessive executive greed by the Stuart monarchs. The successful removal of kings yielded a credible threat that enabled future rulers to commit not to expropriate property, leading to dramatic financial and fiscal development in England. Others suggest that economic shocks created new commercial middle classes that then sought to protect their newly acquired wealth from executive predation. For Karl Marx, England's Civil War was the "First Bourgeois Revolution" (Stone 1985). Acemoglu, Johnson, and Robinson (2005) suggest that this wealth was acquired by new merchants involved in trade across the Atlantic (see also Brenner 1993). Rajan and Zingales (2003), Moore (1993 [1966]), and Tawney (1941) propose, in contrast, that the revolution was led by newly commercialized gentry that acquired land due to the dissolution of monasteries in 1536–1541.

In all three interpretations, a constituency of wealth holders emerged that demanded and obtained improved protection of domestic property rights, leading both to representative government and to economic growth. However, all these theories have proven difficult thus far to reconcile with a body of indirect empirical evidence that suggests that domestic property rights were already relatively secure in seventeenth-century England, at least for the wealthy, and did not experience much change

thereafter (e.g., Clark 1996; Quinn 2001; Sussman and Yafeh 2004; de Lara, Greif, and Jha 2008).

In this article, I provide the first direct evidence on the importance of different endowments on individuals' decisions to choose to support the coalition in favor of monarchical dictatorship or parliamentary supremacy during the English Civil War. Using novel data on economic and social endowments drawn from 1,842 biographies of political elites, including the paternal lineages of 528 members of the Long Parliament that initiated England's revolutionary reforms, I first address the central question: who rebelled? I show, consistent with a simple theoretical framework, that those endowments most subject to executive discretion under the existing constitution were most likely to influence an individual's decision to rebel. In contrast, a range of endowed measures of domestic wealth, that themselves strongly predict contemporary income, have no effect on the propensity of an individual to support parliamentary supremacy. These measures include whether an individual was an heir, stood to inherit landed estates, or had a father with a peerage, baronetcy, or knighthood. These null effects for endowments that were major components of elites' portfolios suggest that domestic wealth, whether old or newly acquired, was not expected to experience large decreases in expropriation risk. Thus it is unlikely that a coalition of domestic wealthholders chose to support revolutionary change during the Civil War, as suggested in all three of the most prominent economic interpretations of the English revolution.

How then was the broad coalition in favor of parliamentary supremacy formed across groups with initially divergent interests? I provide evidence that a new type of financial asset—shares in overseas joint stock companies—played an economically and statistically significant role in transforming fragmented interests into a broad coalition that favored parliamentary supremacy. Joint stock companies had become popular in the late sixteenth century to share risks and opportunities overseas. I argue that since the rights needed to profit from overseas investment belonged to and were benefiting the Crown at investors' expense, the introduction of shares aligned the incentives of a broad coalition in favor of constitutional reforms aimed at seizing control of these rights. In particular, shares aligned the interests of nonmerchants, who otherwise would have lacked exposure to lucrative opportunities and expropriation risks overseas, with

merchants, who could trade on their own behalf in the absence of shares. I show that shares shifted the views of moderate nonmerchants and consolidated a majority of core support for reformers in Parliament. Thus, the broadening of the coalition was conducive not merely for reforms beneficial to narrow interests but also for parliamentary supremacy.

Empirically identifying the effects of financial assetholding is naturally very difficult given the selection processes through which investors choose to hold and choose to retain financial assets. To the best of my knowledge, this is the first article to exploit plausibly exogenous variation to estimate the effect of financial shareholding on the political attitudes of individual elites.¹

I use two complementary means to estimate the causal effect of overseas shareholding. First I match investor MPs to noninvestor MPs along a range of endowed wealth and locational characteristics likely to explain deviations from the mean-variance efficient benchmark—where all agents hold the market portfolio—to construct lower bound estimates of the effect of shareholding. I then identify the effect of shareholding using a series of plausibly exogenous shocks to the propensity to invest overseas among individuals who turned 21 and were able to sign legally binding share contracts just as overseas companies were making an initial public offering (IPO) of shares. I detail each approach in turn.

First I show that among members of Parliament, an elite group of frequent visitors to the financial capital, those who held shares appear actually very similar to others across a range of endowments that might explain differences in propensities to hold shares in broader populations (Tables I and II). Not surprisingly, then the measured effect of shareholding on support for parliamentary supremacy of 21.5 percentage points is robust to matching on a range of relevant individual wealth and geographical endowments and constituency characteristics, reflected in a preferred lower bound estimate of around 20 percentage points (Table III). I further test for a differential

1. I build on an emerging literature in finance, with arguably the closest paper being Kaustia, Knüpfer, and Torstila (2015). They exploit a regional matched comparison of Finnish areas where mutual funds became publicly listed companies to others where they did not and document a relationship between the extent of demutualization in an area and the proportion of right-of-center votes.

alignment effect of shares in allowing nonmerchants to share in the exposure to new overseas opportunities already enjoyed by merchants. I find that while MPs with mercantile endowments were 18 percentage points more likely to rebel regardless of shares, the effect of shares specifically shifts the political allegiance of nonmerchants (Table IV and Figure II).

I evaluate alternative explanations and mechanisms. I show that overseas investors were not any richer at the time of the Civil War, suggesting that a shock to existing wealth was not driving their support for reform. In fact, investors in overseas companies that were unprofitable prior to the Civil War, and thus had less to lose from regime change, were more likely to rebel. Unobserved differences in risk preferences alone also do not explain the results: investors in domestic joint stock companies that were also risky—but faced less executive risk—did not rebel. Similarly, it does not appear to be the case that overseas investors happened to have a preexisting antimonarchical vision. Instead overseas investors were actually more likely to cultivate ties to the court prior to the Civil War, not less, consistent with a strategy of securing overseas investments through political patronage.

As in all quasi-experimental settings, the possibility that residual unobserved selection biases these results remains. I therefore exploit a series of plausibly exogenous shocks to the propensity to invest overseas among agents who attained adulthood just as companies were making an IPO of shares. Turning 21 allowed an MP to buy and sell property as well as sign legally binding contracts, including share contracts, which he could not have done had he been 20. Gaining this freedom to contract and reallocate portfolios during moments of broad enthusiasm for overseas ventures that accompanied the creation of new companies also increased an MP's propensity to invest even relative to those who were 22 or older at the time of an IPO, and thus were not legally constrained from investing (Figure IV). I show that MPs are around 22.3 percentage points more likely to invest in overseas joint stock companies if they came of age during an IPO year than those that came of age at other times within a five-year window of an IPO, and around 15.9 percentage points more likely to support parliamentary supremacy in the Civil War. This translates into an increased probability of rebellion of around 71.2 percentage points among those who invested in shares because they came of age in an IPO year (Table VIII). Furthermore, consistent with an alignment effect of shares, while both merchants and

nonmerchants are more likely to invest if they came of age in IPO year, the effect of holding overseas shares once again only changes the political allegiance of nonmerchants (Fig. III and Table VIII).

In fact, shares appear to have switched moderate nonmerchants from supporting the Crown to favoring rebellion, consolidating a majority in Parliament, and arguably influenced moderate elites outside Parliament as well (Figure VI). The compliant switchers—investor MPs who supported parliamentary supremacy but were predicted to be royalists in the absence of shares—may have encompassed four of the six members that drafted the Grand Remonstrance (the manifesto for Parliament's reforms on the eve of war) and all of the Five Members whom the king identified as ringleaders of the reforms (Online Appendix Table A1.13). Far from being extremists, these members appear to have been actually more likely to support monarchical dictatorship had they not invested in overseas joint stock companies.

Beyond the stark choice to support Crown or parliamentary control of government during the violence of the Civil War, I trace a direct link between overseas share ownership and support for constitutional reform throughout the life cycle of the early struggle for parliamentary supremacy. I exploit surviving records that indicate support for reform during early legislative attempts to change the constitution, on the eve of the outbreak of violent hostilities, and in the parliament of post-Civil War victors that implemented dramatic investments in England's navy in defense of overseas trade. A consistent picture emerges: the introduction of overseas shares appears to lead nonmerchants to make similar political decisions to those with prior overseas trade interests, consolidating a majority coalition that favored revolutionary reform.

My findings support, though add further nuance to the Acemoglu, Johnson, and Robinson (2005) interpretation of England's transition: new Atlantic trade routes did matter. However, England did not become an oligarchy of newly enriched traders; in fact the Crown extracted many of the gains from new trades (Online Appendix Figure A1.2). Instead, the introduction of shares in these new opportunities promised future gains to a broader coalition, transcending conflicting initial interests such as those between merchant and nonmerchant, devout and worldly. The fact that investor-reformers were able to consolidate

a broad majority within Parliament and enjoyed the support of moderates outside of it (Figure VI) explains why reformers in England pushed for fundamental institutional change aimed at parliamentary supremacy rather than engaging in narrower sectarian or class conflict.

By identifying a new mechanism to explain a pivotal moment in England's development, this article relates to important literatures in finance and the political economy of development. Much blame for underdevelopment around the world has been attributed to a failure to align the incentives of disparate interest groups in favor of political reform and beneficial public policies (e.g., Haber and Perotti 2008; Rajan 2009; Benmelech and Moskowitz 2010; Acemoglu and Robinson 2012). Unlike a number of papers in historical political economy, where interests form around differences in wealth, and shocks to existing wealth provide the impetus for change, I provide evidence that shocks to future opportunities for wealth, in combination with the introduction of financial assets that allowed initially disparate groups to share in those opportunities, played an important role in building coalitions for reform. The introduction of financial assets to share in future opportunities for wealth is arguably much easier to influence through policy than overcoming the loss aversion induced by attempts to redistribute existing wealth to create common middle class interests (Jha 2012). Furthermore, in England, important positive feedback existed between financial development and political institutional change. As I show, the introduction of financial assets helped broaden access to political power through the alignment of interests favoring parliamentary supremacy. The fact that parliamentary supremacy led in turn to the subsequent broadening of access to economic opportunities through England's financial revolution (North and Weingast 1989) suggests an intriguing role for financial assets in fostering the coincidence of inclusive economic and political institutions that have been credited for economic development more generally (Greif 2005; Acemoglu and Robinson 2012).

I begin by providing relevant context for my interpretation, supported by novel statistical evidence in the Online Appendix. A simple framework tracing the relationship between MPs' endowments and choices motivates the empirical methodology. I then introduce a new micro data set drawn from 1,842 parental and politician biographies and present the results. I conclude by

discussing the aftermath of the struggle and the broader implications.

II. CONTEXT

Inspired by Spanish and Portuguese successes in exploiting new sea routes to the New World and Asia, the first English joint stock company was founded in 1552 (Online Appendix Table A1.1 provides a timeline of key financial and political events). The explicit purpose of issuing shares in what became the Russia Company was to enable merchants to share the risks of finding a sea route to the Indies with nonmerchants (Hakluyt 1962 [1589], p. 267).² For the first time, joint stock companies enabled nonmerchants to take advantage of potentially highly lucrative overseas opportunities, without themselves specializing in navigation and commerce. Dividends were promised both in terms of future profits and in terms of land and property rights in the new territories.³

English overseas ventures languished, however, until September 1580, when the *Pelican*, the sole survivor of a fleet of five ships that had sailed three years earlier, moored in Plymouth. Her captain, Francis Drake, had achieved an unlikely success—the circumnavigation of the world, direct trade with the Spice Islands, and a raid on Spanish treasure ships in the Pacific. Drake's voyage and the charts of watering places, ports, and trade routes he constructed meant that for the first time English traders had the vital intelligence necessary to break into Portuguese and Spanish monopolies in Eastern trades

2. The joint stock company was innovative in a number of ways. First, large numbers of individuals, particularly nonmerchants, could invest in shares and overseas opportunities for the first time. Second, unlike traditional overseas regulatory companies where merchants gained the freedom after long apprenticeships to trade on their own account or in small partnerships, now trade was done on behalf of the company. Third, England's early joint stock companies were run by courts of directors who were elected by votes allocated in proportion to the votes held. These latter two factors meant that joint stock companies had a system of governance designed to accommodate larger groups of investors.

3. For example, each £12.50 share in the Virginia Company also yielded its owner 100 acres. Even companies, such as the Bermuda Company, which had already distributed their land, or the Gynney Bynney Company, which did not colonize and wrapped up operations, retained certain property rights, such as a monopoly over the right to trade with the colony or region, that had also promised dividend streams (Scott 1910, p. 185).

(Andrews 1967). Not only did this voyage change the feasibility of direct trade, it also amply demonstrated the scale of profits to be had.⁴ In 1585, Drake successfully raided Spanish ports in the Atlantic as well, demonstrating their vulnerability to English attacks. His extraordinary achievements made him a national hero and triggered great enthusiasm for overseas joint stock ventures.⁵ Indeed, mentions of *trade*, *Indies*, and the *Americas* in published tracts in English experienced particularly large boosts in 1580 and 1585, thereafter achieving levels comparable to and often exceeding written mentions of *Pope*, *Catholic*, *papist*, and *bishop* and of *rights*, *privileges*, *liberties*, and *freedoms* in the years preceding the Civil War (Online Appendix Figure A1.4). Joint stock companies were established to trade with and colonize much of the world, including Africa, the Levant, the East Indies, Virginia, New England, and Latin America (Online Appendix Table A1.2). Enthusiasm for shares in these companies spread beyond merchants to encompass a broad spectrum of political elites. The more than 6,366 investors between 1575 and 1630 included 23 percent of all members of Parliament seated in that period (Rabb 1967) (see also Online Appendix Figure A1.5).

The incentives generated from overseas share investments also tended to be stronger than those faced by modern-day holders of common stock. Without limited liability, joint stock investors faced long-term obligations should the company need further funds.⁶ Secondary markets for shares also only emerged in the 1660s, after the Civil War (Carlos, Key, and Dupree 1998; Harris 2009). With divestment difficult, individuals were legally and financially locked into the fate of the companies in which they had invested.

Despite the enthusiasm for investment, most joint stock ventures failed to make profits prior to the Civil War. An important

4. The Spanish ambassador, Bernardino de Mendoza, estimated the profits from Drake's voyage to be worth 1.5 million pesos. Elizabeth I alone received around £64,600 of gold and silver (Kelsey 1998, p. 215).

5. Mendoza cautioned Philip II to destroy all English and French ships entering the Pacific as "at present there is hardly an Englishman who is not talking of undertaking the voyage, so encouraged are they by Drake's return . . . everybody wants a share in the [next] expedition" (Rabb 1967, p. 20).

6. For example, between 1554 to 1586, the Russia Company paid no dividends to its shareholders but continued to make calls on them for funds to pay for its high costs (Harris 2000, p. 44). General limited liability did not emerge until 1856 (Harris 2000, pp. 127–128).

reason was that unlike domestic property rights that were governed by common law precedent, foreign trade was governed by civil law, administered by the Crown in the Admiralty courts (Gardiner 1862, p. 87; Burgess 1992). English rulers also could grant and revoke charters to companies overseas, impose customs, and create monopolies of newly introduced goods, as commerce and innovation was believed to be protected by the king's foreign policy (Gras 1912). As Online Appendix Table A1.2 documents, prior to the Civil War, even those joint stock companies that enjoyed initial profits faced not only foreign predation but also Crown expropriation through rising customs charges or the revocation of their charters.⁷ These setbacks eventually led to a decline in enthusiasm for investment in the 1630s (Rabb 1967, pp. 71–75). In contrast, the contribution of overseas customs to total Crown revenues rose from 5.2 percent in 1552 to 52.5 percent on the eve of the Civil War in 1642 (Online Appendix Figure A1.2). The increase in value of the Crown's sovereignty rights over customs and foreign policy meant that England's kings, though still relatively limited in their ability to extract resources domestically, were becoming increasingly enriched over time.⁸ At the same time, even shareholders of companies whose charters had been revoked, like the Virginia Company, continued to possess legal obligations and claims on hundreds of acres of undeveloped territory overseas with the potential to rapidly gain value in the future, a potential that was indeed met after the Civil War (Online Appendix Figure A1.11).

Not surprisingly then, attempts to bargain over the control over rights over customs and foreign policy played a pivotal role in parliamentary debates from 1603 to 1625, with joint stock investors playing prominent roles (Hill 1961, pp. 48–50; Rabb 1998). These culminated in the Great Contract of 1610, an

7. Even the fortunes of the East India Company were reversed in 1623, when the Dutch destroyed their factory at Amboina in the Spice Islands, with the Crown also raising customs on pepper and extracting loans. Outbound shipping declined and the company discussed terminating itself on the eve of the Civil War (Chaudhuri 1965).

8. That the monarch was the major beneficiary of expanded overseas trade, and probate records of individuals' estates show no evidence that the wealth of England's business community rose in any part of the distribution until the trade boom after the Civil War (Grassby 1970), suggests that the enrichment of Atlantic traders proposed by Acemoglu, Johnson, and Robinson (2005), while potentially shaping political attitudes prior to the Glorious Revolution, did not play that role in the Civil War.

attempt to exchange the king's authority over independent means of revenue for assured parliamentary grants of direct taxes. Bargaining foundered, however. Parliament wanted control over customs, and the king was counseled not to surrender "the fairest flowers for profit and command in all his garland" (Smith 1999, pp. 53–55). Customs revenue helped the Crown rely less on Parliament, with James I dismissing the Addled Parliament of 1614 and ruling without parliamentary taxes for a 11-year period (see Online Appendix Figures A1.1 and A1.2).

Reconciliation could and did occur. The Happy Parliament of 1624 witnessed a spike in acts of Parliament passed (Online Appendix Fig. A1.1), with Charles I willing to accept parliamentary grants of taxation explicitly tied to the declaration of war with Spain (Hill 1961, p. 58).⁹ However, disputes over foreign policy soon reemerged. Rather than fighting a "profitable war" against Spanish colonies in the West Indies as investor-reformers preferred (Mitchell 1957), the king chose to invade the Spanish mainland. With Parliament refusing to grant taxes to fund such a strategy, the king once again dismissed Parliament in 1629 and governed England as a dictator for the next 11 years.

Though the king's resources were growing (Online Appendix Figure A1.2), invasion by the Scots overwhelmed his finances and led Charles to summon the Long Parliament in 1641. Over the next two years, the Long Parliament passed, and the king signed, key constitutional reforms. These included the abolition of the royal prerogative courts and the passage of the Triennial Act that guaranteed that Parliament must be called at least every three years and, critically, could not be dismissed without its own consent. Parliament also passed bills to arrest the king's chief councillors, including the Earl of Strafford, and sought control over future appointments.¹⁰

9. The collegiality of 1624 is often cited by revisionist historians as evidence against broad socioeconomic explanations for England's revolution (e.g., Morrill 1993). However, it is also consistent with my interpretation: reformers' willingness to support the monarch rose when he was willing to cede prerogative control over foreign policy to Parliament (see also Smith 1999.)

10. Unlike later in the seventeenth century, records of MPs' votes in Parliament were not systematically kept, with one exception. In April 1641, Parliament voted to convict the king's chief advisor, Thomas Wentworth, the Earl of Strafford. Those who voted against the conviction were seen as supporters of royal authority and their names were anonymously posted in Westminster Yard, providing a useful prewar indicator of support.

In November 1641, investor-reformers penned the Grand Remonstrance, a manifesto aimed at instituting parliamentary authority over remaining Crown rights, including over foreign policy, finance, and the armed forces. This led the king to illegally enter the House of Commons to arrest the Five Members considered the ringleaders of the parliamentary opposition in January 1642. Parliament summoned London's citizen militia in its defense. The king abandoned the city and, in June 1642, raised his war banner, threatening to use force in defense of Crown rights.¹¹

Sufficient support in 1628 had enabled reformers to deny the king grants of taxation. In the Long Parliament, reformers also commanded enough support to push through key legislative reforms. However, it was less clear whether this support was strong enough and broad enough to persist when individuals were forced to choose and to commit themselves publicly and likely irreversibly to the cause of revolutionary change or to accede to reinvigorated dictatorial rule. It is to understand the determinants of that decision that I now turn.

III. EMPIRICAL STRATEGY

Since the English revolution was ultimately a battle between the supremacy of the king and Parliament, theories of who pushed for parliamentary supremacy should find validation among those who sat in the Long Parliament and initiated the conflict. Despite the importance of this episode, this is, to my best knowledge, the first article to systematically gather, measure, and analyze the endowments and political choices of the individual MPs who initiated England's constitutional reforms. A particularly valuable feature of these data is that the political

11. *Eikon Basilike*, purportedly written by Charles I himself, explains his ultimate rationale for war: "For although I can be content to eclipse my own beams to satisfy [Parliament's] fears . . . yet I will never consent to put out the sun of sovereignty to all posterity and succeeding kings, whose just recovery of their rights from unjust usurpations and extortions shall never be prejudiced or obstructed by any act of mine" (Charles I and Gauden 1649, pp. 48–49). If there were discontinuous differences in the ceding of prerogative rights in shaping future bargaining power, Charles's rationale would mimic conditions for the failure of the political Coase theorem (Fearon 1996).

allegiances of virtually all members were publicly revealed by their actions during the Civil War. Parliamentary fence-sitters on the eve of the Civil War were forced to choose between accepting the conflicting summons of the king to Oxford and of Parliament to Westminster. By 1644, every living parliamentarian could be associated with one side or another (Brunton and Pennington 1954) (Online Appendix 2).¹²

A simple theoretical framework can shed light on the relationship between endowments, property rights, and political choices. Suppose that the utility for a member of parliament can be summarized by the following additive relationship:

$$(1) \quad U_i = \sum_j x_{ij} \beta_{jz} + u_z,$$

where x_{ij} are predetermined individual endowments, β_{jz} , $z \in \{P, R\}$ denotes the rate of return on endowment j in the state of the world where either the monarchy (R) or Parliament (P) wins the civil war, and u_z , $z \in \{P, R\}$ contains other orthogonal factors that influence expected utility in the state of the world z . Suppose that each agent believes that with probability μ , Parliament (P) will win the struggle against royal authority (R).¹³ Then the expected utility for each MP is:

$$(2) \quad \mathbb{E}U_i = \mu \left(\sum_j x_{ij} \beta_{jP} + u_P \right) + (1 - \mu) \left(\sum_j x_{ij} \beta_{jR} + u_R \right).$$

Suppose further that the support of an individual agent increases the chances of victory by an amount $s > 0$. Then the

12. The well-documented allegiances of parliamentarians differs from other public figures. The loyalties of local leaders were confounded by both local power politics and the presence of occupying armies. Even London, often seen as the epicenter of parliamentary power, initially had a strong royalist presence among its leadership, including a royalist Lord Mayor.

13. Naturally, μ is likely to be affected by other agents' choices. For plausible specifications of the multiagent game, multiple values of μ will be consistent with equilibrium. However, as will be shown, the specific realization of μ is irrelevant for an agent's decision, as long as $\mu \pm s$ is interior. This condition—that there is some uncertainty about whether Parliament or monarchy wins regardless of an individual agent's choices—makes sense in the historical context.

agent's problem is to choose to support parliamentary supremacy or royal control:

$$\max_{z \in \{P, R\}} \left[(\mu + s) \left(\sum_j x_{ij} \beta_{jP} + u_P \right) + (1 - \mu - s) \left(\sum_j x_{ij} \beta_{jR} + u_R \right), \right. \\ \left. (\mu - s) \left(\sum_j x_{ij} \beta_{jP} + u_P \right) + (1 - \mu + s) \left(\sum_j x_{ij} \beta_{jR} + u_R \right) \right].$$

The optimal choice naturally implies a cut-off strategy: an agent will support parliamentary supremacy if:

$$(3) \quad s \left(\sum_j x_{ij} [\beta_{jP} - \beta_{jR}] + (u_P - u_R) \right) > 0.$$

Inequality (3) yields an implicit condition on the minimum $u_P - u_R$ required for support for parliamentary control. Thus the probability of supporting Parliament is:

$$(4) \quad \mathbb{P}\{P\} = F \left(\sum_j s x_{ij} [\beta_{jP} - \beta_{jR}] \right),$$

where $F(\cdot)$ is the cumulative density function of $u_P - u_R$.

Notice that if MPs believe that their support has a nonzero effect on the outcome ($s > 0$), the influence of each endowment is determined by $x_{ij}[\beta_{jP} - \beta_{jR}]$.¹⁴ In particular, even small differences in $[\beta_{jP} - \beta_{jR}]$ will be magnified for those endowments x_{ij} that are large components of an MP's portfolio, such as landed estates. For a large endowment to have no effect, it must be therefore that $\beta_{jP} \sim \beta_{jR}$: that is, that the expected return on the endowment is unaffected by regime change. This is consistent with the presence of secure property rights under the existing constitution. As I shall show, a series of endowments that are likely to be major drivers of wealth and strongly predict contemporaneous income have no effect on the propensity to rebel.

Similarly, equation (4) implies that even if an asset endowment x_{ij} was small in current value, such as was likely the case for

14. Observe that if $s = 0$, all endowments should be irrelevant, and thus a joint test of the significance of all endowments should be zero. The regressions that follow are sufficiently significant to reject this test.

overseas share investments in unprofitable companies, the expected change in return $[\beta_{jP} - \beta_{jR}]$ must be large for that asset to be influential in determining an MP's propensity to support regime change. Such would be true for overseas property rights and other endowments heavily exposed to executive discretion under the existing constitution.

I estimate equation (4) using:

$$(5) \quad Rebel_i = \sum_j \gamma_j \tilde{x}_{ij} + \mu Merchant_i + \kappa OverseasInv_i + e_i,$$

where $Rebel_i$ is an indicator for whether an individual supported Parliament in 1642–1648, and all endowments are measured prior to those dates.¹⁵ I also separate the matrix of endowments X_j into $Merchant_i$, an indicator for whether an individual was apprenticed to a merchant company when young or whose father was a merchant, and $OverseasInv_i$, an indicator for whether the individual invested in overseas joint stock prior to 1640.

The coefficients $\{\gamma_j, \mu, \kappa\}$ measure how a unit change in each endowment changes the probability of support for parliamentary supremacy over dictatorial rule. From equation (4), they can also be interpreted structurally as $s(\beta_{jP} - \beta_{jR})$, the differential expected rate of return on each endowment from parliamentary supremacy over dictatorial rule scaled by the influence an MP believes his support will have on the chances of victory.¹⁶

To obtain a causal estimate of the effect of overseas shareholding in particular, I use two complementary approaches. The first approach compares shareholder MPs to noninvestor MPs matched along a range of those endowed wealth and locational characteristics that have been emphasized to explain the stockholding puzzle—departures from the mean-variance efficient portfolio where every agent should hold shares—and conditional on which the decision to hold shares could plausibly be idiosyncratic and as good as random (e.g., Merton 1987; Coval and

15. The Civil War itself was unexpected, even as late as 1641 (Whitelocke 1732 [1682], p. 60).

16. Note that those more able to sway the ultimate outcome ($s \uparrow$) also experience a greater magnification of small differences in $[\beta_{jP} - \beta_{jR}]$. Thus, since MPs' influence on the outcome likely exceeded that of non-MPs, the MP estimates imply an upper bound estimate for non-MPs within the framework. In particular, a lack of an effect of domestic wealth endowments for MPs also suggests that domestic wealth should not influence support by non-MPs.

Moskowitz 1999; Guiso and Jappelli 2005; Barber and Odean 2006).¹⁷

In particular, the literature on the stockholding puzzle emphasizes two sets of transaction costs that lead to deviations from the efficient portfolio. First, it is plausible, particularly in a nascent stock market environment, that even fully rational agents cannot invest in particular assets that they do not know exist (Merton 1987). If investors face fixed costs in gaining access to information about particular assets, or more generally in purchasing them, there will be a correlation between the possession of liquid assets, or wealth, and investment in stocks. I therefore include in X_j a set of controls for wealth endowments. As discussed already, these include whether an agent was the eldest son (and thus the heir, particularly important during this period during which primogeniture was customary), whether the agent inherited land or manors, whether the MP experienced wardship, and whether the agent's father had an aristocratic title, a baronetcy, or a knighthood. Fixed costs in learning about shares may also lead to local geographical concentrations among shareholders (Coval and Moskowitz 1999; Zhu 2002). Thus I include in X_j a set of controls for the proximity to London, already the major financial center, of the residences of the father of each MP, as well as the distance to the constituency of the MP, and compare MPs who represent constituencies within the same county.

Though this theory-driven choice of wealth and geographical controls cannot cover all the potential avenues by which

17. In the canonical model of portfolio choice, assuming that investors are aware of all assets, there are no transaction costs, and there are no uninsurable risks (such as accumulated human capital), all agents seeking the mean-variance efficient portfolio should choose to hold the market portfolio. The market portfolio would include shares in joint stock companies, as soon as they are introduced. Differences in risk preference affect the allocation of assets between risky and nonrisky assets, but not the particular set of risky assets, such as shares in joint stock companies (Guiso and Jappelli 2005). Thus in a frictionless environment, there should be no systematic selection bias among those who choose to invest in shares, and OLS will provide unbiased estimates of the average effect of the introduction of shares on support for parliamentary reform among investors. Furthermore, if investors' utility functions obey constant absolute risk aversion, investors will invest the same amount in stock. Even with constant relative risk aversion, asset shares will be independent of wealth: rich and poor will hold the same proportion of each asset, including stock, but in differing amounts (Guiso and Jappelli 2005).

shareholders may have been selected, they do allow me to match investors to noninvestors based on those transaction costs considered most important. Assuming that any residual unobservable dimensions that might influence an individual's propensity to hold shares have similar magnitude effects as the set of theory-driven observable controls, I construct benchmark lower bound estimates of the effects of shareholding. I then present a complementary strategy that relaxes the assumption that unobservables have effects that are similar in magnitude to observables, and instead use the plausibly exogenous coincidence of an individual's ability to sign share contracts at age 21 with the IPO of overseas shares in a company in that year to identify the effects of overseas shareholding on support for parliamentary supremacy.

Differences in human capital endowments can present an important source of noninsurable risk that can also be useful for ruling out the possibility that it is purely selection bias common to all overseas shareholders that is driving the results. Prior to the introduction of shares in England, individuals seeking to invest overseas had to join a regulatory company and trade on their own account or in small partnerships. Those who possessed such human capital were naturally already exposed to foreign opportunities and risks from changes in Crown foreign policy. In contrast, the introduction of shares allowed nonmerchants to gain such exposure for the first time. To test whether shareholding aligned the incentives of disparate groups, I estimate:

$$(6) \quad \begin{aligned} Rebel_i = & \sum_j \gamma_j \tilde{x}_{ij} + \tilde{\mu} Merchant_i + \tilde{\kappa} OverseasInv_i \\ & + \lambda (Merchant_i \times OverseasInv_i) + u_i, \end{aligned}$$

where λ provides the differential effect of shareholding for those with mercantile endowments. If the results are purely the result of selection bias common to all shareholders, for example, through unobserved risk preferences or preexisting ideological preferences, then there should be no differences between merchant and non-merchant shareholders, and λ should be 0. Instead, if as I have argued, merchants already enjoyed exposure to overseas risks and opportunities, whereas nonmerchants mostly lacked exposure to overseas risks and opportunities in the absence of shares, $\tilde{\kappa}$ should be positive and λ should be off-setting and negative.

IV. SAMPLING AND DATA

To become a member of the House of Commons, an individual had to be selected by one of 249 constituencies, including the chartered boroughs, the 59 counties, and the universities of Oxford and Cambridge. I estimate that 144,737 individuals, or 2.9 percent of the population, had the vote in 1628 (see Online Appendix 2.2.2). By the Long Parliament, the electorate “reached down not only to the minor gentry and rich merchants, but to yeomen, craftsmen, shopkeepers in the majority of towns and all the counties” (Plumb 1969, p. 103). With the summoning of a new Parliament, writs were sent to all enfranchised boroughs and counties calling for representatives to be sent to London. To be elected “knight of the shire,” representing one’s county, was an important social distinction for the most prominent landowners. Normally, county representatives would be chosen at a meeting at the county seat on the next county day, with voices in favor of a particular candidate counted and returned by a designated sheriff. All English and Welsh county seats had the same franchise—any males possessing 40 shillings’ worth of freehold land were entitled to vote. Borough franchises varied considerably, with the vote restricted to property owners or freemen in some to encompassing all adult male inhabitants in others (see Online Appendix 2.2.2). Boroughs often sent town officials or accepted nominations from local patrons. Though technically MPs were entitled to compensation for their expenses and service, many boroughs preferred to choose members who were willing to support themselves.

Not surprisingly then, MPs were selected from the English elite. Online Appendix Table A2.2 compares the social classification of fathers of members of the Long Parliament and 1628 Parliament with Lindert and Williamson’s (1982) estimates of the relative incomes and proportions of different social groups in 1688. MPs disproportionately came from families of the nobility, gentry, lawyers, Crown officeholders, and merchants. The average MP’s father in 1628–1640 came from a class that had an average yearly income 690 percent of the average Englishman in 1688, with the median MP’s father being a gentleman with around 410 percent of the average yearly income. These wealth differences, along with a greater familiarity with London and financial and political capital, may have caused the information costs of learning about shares to be less pronounced

among this elite group, and may explain why wealth endowments do not appear to be correlated with the propensity to hold shares among MPs (please also see Online Appendix 2.2.1). This elite sample may therefore better approximate an environment where the decision to hold shares was as good as random, conditional on observable wealth and geographical endowments, than one might expect for the population more broadly.

To construct the data, I consulted biographies of each member of the Long Parliament (and where available, the father of each member), drawing in particular from compilations by Keeler (1954), Brunton and Pennington (1954), and the History of Parliament Trust. Online Appendix 2.1 provides details, including an example of such an entry. I augmented these data with 505 members of the 1628 Parliament, producing a data set derived from consulting more than 1,842 MP and parental biographies in total. I also created a GIS of the 1,235 addresses of the fathers of each member of the 1628 and 1642–1660 Parliaments to assess how endowed locational characteristics influence the propensity to invest among MPs (see Figure I). I also draw on corroborative out-of-sample evidence from a thin data set on the joint stock investment and birthdates of all 1,667 members of the Parliaments of 1603–1628 and 89 members of the House of Lords during the Civil War.

Each individual and his father were matched with Rabb's (1967) lists of all investors in overseas companies mentioned in the founding charters, patent rolls, and subsequent transfer books of the major overseas trading companies founded in England between 1575 and 1630. In total, Rabb provides names of 6,336 investors mentioned during this period. These investor lists were further supplemented and extended to 1640, where possible, using biographical information and the charters of the Providence Island and Connecticut River companies. Online Appendix 2.1.2 provides the preferred matching algorithm that I use for identifying overseas investors, while Online Appendix Table A1.10 shows the robustness of my results to alternative codings.

I also collected a set of controls for other endowments that the literature has emphasized as influencing support for parliamentary supremacy. For example, religion has played an important role in the historiography of the Civil War. A combination of two proxies can be used to capture the effect of Puritanism. First, biographical data identifies individuals who attended Puritan

seminaries or colleges that had strong Puritan ties. An MP's education at such institutions may be interpreted as an indicator of Puritan preferences. To capture religious preferences among those who did not attend such institutions, I also gathered data, based on diocesan records, of active Puritan ministers and Catholic recusants in the county each MP represented in 1600.¹⁸ Similarly, to gauge whether an individual's family had entered the gentry prior to the Tudor dynasty, I followed biographical records of the ancestors of each MP as far back as the Battle of Bosworth Field in 1485, which led to their accession.

As discussed already, MPs were also selected by constituencies with varying franchises. I create estimates of the number of voters in 1628, as well as indicator variables for franchise type in that year (Online Appendix 2.2.2). I also coded whether there was an electoral contest during the Long Parliament (true of 23.5 percent of counties and 23.3 percent of boroughs) or in the period 1603–1640 (39.2 percent and 22.8 percent, respectively).¹⁹

I also examine a sample of particular interest: the set of constituencies that constituted the major tax base of England, and whose members of Parliament were relatively free from Crown influence. A useful gauge of constituency wealth, population, and relative independence comes from the extent to which constituencies paid taxes during the extensive Tudor lay subsidy survey of 1524–1525 (Online Appendix 2.2.3). Constituencies that did not appear as separate jurisdictions at the time of the lay subsidy include those rotten boroughs that simply lacked any taxpayers as well as certain frontier counties that had separate taxation arrangements and over which the Crown enjoyed greater discretion and influence (Online Appendix Figure A2.2). As a result, those constituencies that did appear in the subsidy arguably constituted the core constituencies of wealthholders during the Civil War.

18. These were at the ancient diocese level (McGrath 1967). To get estimates at the county level, a uniform distribution of ministers and recusants per unit of area in a diocese was assumed.

19. These contests could be close elections, but among borough constituencies could also be the submission of double returns due to rival sets of individuals claiming the right to vote.

V. RESULTS

As the descriptive statistics in Table I reveal, overseas shareholders constituted 17.2 percent of members of the Long Parliament, or 91 members, according to my preferred matching algorithm (though this figure could have been as high as 23.5 percent or 125 members; Online Appendix 2.1.2). As the means comparisons suggest, consistent with the importance of information costs in shaping financial investment, sons of shareholders were more likely to invest. Consistent with the presence of local biases in share investment, MPs whose fathers had lived closer to London were also more likely to invest. However, investment was not just a London story. Investor-MPs were distributed throughout the country, as far north as Carlisle and Berwick-upon-Tweed, and there is significant variation both between and within counties of origin in the propensity to invest and to subsequently rebel (Figure I). Similarly, MPs from mercantile backgrounds constituted 17.4 percent of the Long Parliament and 35.2 percent of overseas investors. I control for all these factors explicitly and show the effect comes mainly from nonmerchants.

Apart from these differences, shareholder and nonshareholder MPs seem strikingly similar along a range of other dimensions, including central determinants of wealth. Similar proportions of shareholder and nonshareholder MPs were heirs, inherited ties to the royal court, inherited manors or landed estates, or had fathers who were nobles, knights, or baronets. MPs educated in Puritan colleges or seminaries also do not seem to have been more likely to invest.

Despite the broad similarities between the endowments of shareholders and nonshareholders, there are large differences in their political decisions. Of shareholder MPs, 75.8 percent supported parliamentary supremacy in the Civil War, compared with 51.6 percent of nonshareholders. Shareholder MPs also were more likely to support Parliament against the Crown at other points in the life cycle of the struggle for which roll call evidence survives: they were three times as likely as nonshareholders to support the conviction of the Charles's chief advisor, the Earl of Strafford, in 1641, for having suggested the use of Irish troops on quell mainland protest. Of shareholder MPs, 59.3 percent offered a loan to defend Parliament in London on the eve of hostilities in 1642, compared with 34.0 percent

TABLE I
SUMMARY STATISTICS, BY OVERSEAS SHAREHOLDING AND SUPPORT FOR PARLIAMENTARY SUPREMACY (REBELLION)

Outcomes	Long Parliament			Royalists			Rebels			Noninvestors			OJS investors				
	N	Mean	Std. dev.	N	Mean	Std. dev.	N	Mean	Std. dev.	N	Mean	Std. dev.	N	Mean	Std. dev.	Prob> t	
Parliamentary rebel, 1642-1648	529	0.558	0.497	234	0.000	0.000	295	1.000	1.000	438	0.516	0.500	91	0.758	0.431	0.000	
Held court/patronage office before 1640	529	0.301	0.459	234	0.410	0.493	295	0.214	0.410	0.000	438	0.274	0.021	91	0.429	0.498	0.003
Supported Crown advisor (Strafford) 1640	529	0.123	0.329	234	0.261	0.440	295	0.014	0.115	0.000	438	0.139	0.347	91	0.044	0.206	0.012
Contributed to London's Defence 1642	529	0.384	0.487	234	0.115	0.320	295	0.597	0.491	0.000	438	0.340	0.474	91	0.593	0.494	0.000
Sat in Rump Parliament 1648-1653	516	0.256	0.437	223	0.004	0.067	293	0.447	0.498	0.000	426	0.237	0.426	90	0.344	0.478	0.034
Log income, ca. 1640-50	265	6.798	1.165	180	6.766	1.159	85	6.865	1.183	0.519	221	6.729	1.140	44	7.142	1.241	0.032
Variables of interest																	
Investor in overseas joint stock co.	529	0.172	0.378	234	0.094	0.292	295	0.234	0.424	0.000	438	0.000	91	1.000			
Attained adulthood in overseas IPO year	529	0.208	0.406	234	0.175	0.381	295	0.234	0.424	0.089	438	0.194	0.396	91	0.275	0.449	0.085
Individual endowment controls																	
Father investor in overseas joint stock	529	0.193	0.395	234	0.197	0.398	295	0.190	0.393	0.845	438	0.171	0.377	91	0.297	0.459	0.006
Father merchant or apprenticed merchant	529	0.174	0.379	234	0.107	0.310	295	0.227	0.420	0.000	438	0.137	0.344	91	0.352	0.480	0.000
Gentleman (inherited a manor)	529	0.548	0.498	234	0.547	0.499	295	0.549	0.498	0.961	438	0.543	0.499	91	0.571	0.498	0.626
Inherited land	529	0.756	0.430	234	0.769	0.422	295	0.746	0.436	0.533	438	0.760	0.427	91	0.736	0.443	0.628
Heir	529	0.728	0.446	234	0.744	0.438	295	0.715	0.452	0.468	438	0.731	0.444	91	0.714	0.454	0.751
Father knight or baronet	529	0.318	0.466	234	0.342	0.475	295	0.298	0.458	0.286	438	0.315	0.465	91	0.330	0.473	0.786
Father noble	529	0.091	0.288	234	0.124	0.330	295	0.064	0.246	0.018	438	0.098	0.298	91	0.055	0.229	0.192
Experienced wardship	529	0.098	0.298	234	0.111	0.315	295	0.088	0.284	0.379	438	0.096	0.295	91	0.110	0.314	0.684
Century prior to the Tudors	529	0.376	0.485	234	0.427	0.496	295	0.336	0.473	0.031	438	0.386	0.487	91	0.330	0.473	0.315
Inherited court ties	529	0.391	0.489	234	0.487	0.501	295	0.315	0.465	0.000	438	0.386	0.487	91	0.418	0.496	0.573
Log. min. dist. father's residence to London	528	10.852	2.091	234	10.960	2.119	294	10.767	2.069	0.291	437	10.974	2.032	91	10.268	2.277	0.003
# Father's addresses	529	1.535	0.832	234	1.594	0.880	295	1.488	0.790	0.146	438	1.527	0.833	91	1.571	0.832	0.646
Attended Puritan seminary	529	0.144	0.351	234	0.103	0.304	295	0.176	0.382	0.016	438	0.144	0.351	91	0.143	0.352	0.981

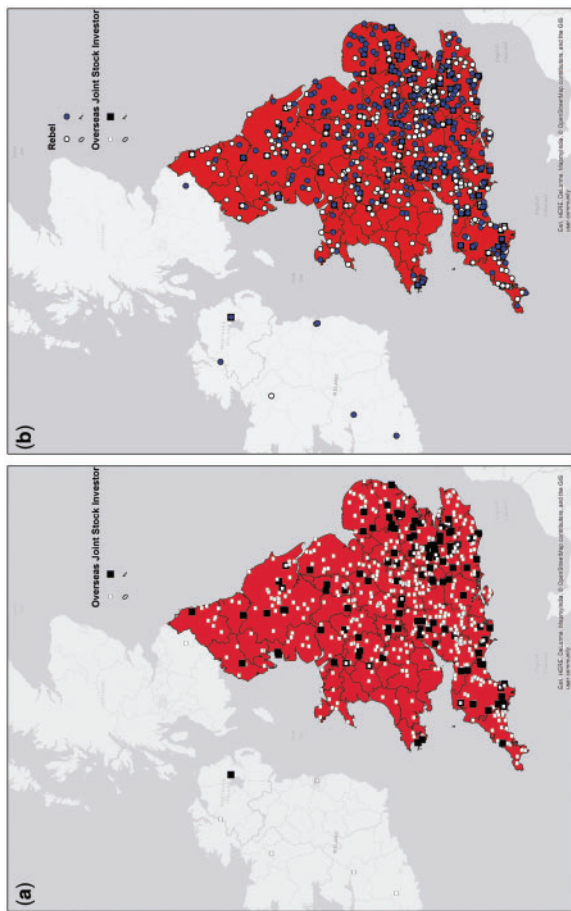


FIGURE I

Overseas Investment and Civil War Rebellion by Father's Address

MPs with parental addresses across the country both invested and rebelled. Pooled sample including all MPs that sat in the 1628 (and were alive in 1641) and the Long Parliament.

of others.²⁰ Of investor-MPs still alive, 34.4 percent sat in the Rump Parliament of Civil War victors that implemented many of England's changes in foreign policy from 1648 to 1653, compared with 23.7 percent of noninvestors. Online Appendix Figure A1.3 breaks these proportions down by mercantile background at critical moments in the struggle. Even in the raw proportions there appears to be an alignment effect of shares: nonmerchants were more likely to be royalists in the absence of shares, whereas nonmerchant shareholders joined merchants in rebellion.²¹

Table I reveals important similarities and significant differences between royalists and supporters of parliamentary supremacy in other dimensions as well. In particular, notice that virtually all measures of endowed wealth appear similar among both populations, suggesting that the Civil War was not fought to protect domestic wealth.²²

In addition, 42.7 percent of MPs from pre-Tudor gentry backgrounds were royalists, rather than 33.6 percent of other MPs. However, as I show later, although there is some evidence that older gentry appear to support the royalists relative to other MPs, new gentry—those who inherited manors from families that attained manorial status during or after the Tudor era—are not any more likely to rebel than the rest of MPs. Thus differences that seem to be consistent at first with the newly commercialized gentry hypothesis (e.g., Tawney 1941; Moore 1966; Rajan and Zingales 2003) instead appear to reflect the relative conservatism

20. In June 1642, claiming that the “King (seduced by wicked Counsel) intends to make War against his Parliament,” the Long Parliament passed an ordinance soliciting a loan to “uphold the Power and Privileges of Parliament.” Lists survive of the subscribers who were promised the return of their funds with 8 percent interest, and that “no Man’s affection [to Parliament and its privileges] shall be measured by the Proportion of his offer,” but by the act of participation (Firth and Rait 1911, pp. 6–9).

21. However, these are not the “new merchants” credited by Brenner (1993) for supporting reform, as these MPs were apprenticed in traditional merchant companies or had fathers who were merchants, and thus were from more established mercantile lineages. In fact, the effect of old mercantile endowments, which finds validation across specifications (Table IV) appears inconsistent with Brenner’s view that established mercantile groups supported the king. As I argue, while these groups had definite interests in courting the king to protect their property rights under the existing regime, they also had incentives to reduce political risk by supporting parliamentary supremacy.

22. There do appear to be some differences: of the 48 MPs who were children of nobles, two-thirds supported the king. We will discuss this below.

of older gentry in supporting the Crown rather than the initiative of newer gentry in supporting representative government to protect newly acquired property rights.

The Reformation in the sixteenth century also brought the Crown broad constitutional discretion over the Anglican Church and an expansion of the Crown bureaucracy and patronage system. Both religious endowments and the value of inherited ties to the court were deeply affected by regime change, and my framework implies that they should both have greater influence on an MP's propensity to support the monarchy or to rebel.²³ These suggest useful falsification tests, jointly of the framework and the precision of the data, if such effects are lacking. As Table I previews, these tests are rejected: MPs with inherited court ties were significantly more likely to be royalists, whereas MPs that attended Puritan seminaries were more likely to rebel.

V.A. Lower Bound Estimates of Financial Assetholding

Table II presents regression results on the propensity to invest in overseas shares among MPs. In this and subsequent tables, I begin by providing a regression with a small number of controls to help build intuition (column (1)). These include dummy variables for whether an MP's father was an overseas investor, whether the MP was apprenticed to a merchant guild or was the son of a merchant, and whether the MP inherited or stood to inherit a manor—an indicator of gentry status. I next match on other wealth, geographical, and other individual endowments (column (2)). I progressively match on constituency characteristics (column (3)), county of constituency, and franchise type (column (4)) and restrict the sample to MPs representing core constituencies that paid taxes in the Tudor lay wealth

23. Some see the so-called Puritan Revolution as a religious conflict, part of the broader Wars of Religion (Morrill 1993). This interpretation appears incomplete. Many considered Puritans were labeled as such *ex post*, often for actions not clearly motivated by endowed religious preferences. As the Grand Remonstrance suggests, reformers favored a “profitable” war in the Spanish West Indies instead of direct conflict with Catholic Spain. Religion also was useful propaganda. As the Long Parliament MP John Selden wrote: “the very *Arcanum* of pretending religion in all wars is that something may be found out in which all men may have interest. In this the groom has as much interest as the lord. Were it for land, one has one thousand acres and the other but one; he would not venture so far as he that has a thousand. But religion is equal to both. Had all men land alike, then . . . all men would say they fought for land” (Hill 1961, p. 105).

TABLE II
DETERMINANTS OF DECISION TO HOLD OVERSEAS SHARES (1575-1640) AMONG MEMBERS OF PARLIAMENT

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Regression: investor in overseas joint stock (0/1)	Probit, dF/dX	Probit, dF/dX	Probit, dF/dX	OLS	OLS	OLS	OLS	OLS	OLS
Father investor in overseas joint stock	0.079** [0.040]	0.066 [0.054]	0.080* [0.048]	0.071 [0.054]	0.055 [0.049]	0.055 [0.049]	0.067 [0.044]	0.054 [0.042]	0.045 [0.045]
Father merchant or apprenticed merchant	0.213*** [0.059]	0.204*** [0.064]	0.172*** [0.063]	0.155** [0.073]	0.141 [0.084]	0.137 [0.084]	0.127** [0.062]	0.108 [0.074]	0.140 [0.086]
Inherited a manor	0.038 [0.029]	0.043 [0.046]	0.037 [0.043]	0.033 [0.039]	0.051 [0.041]	0.062 [0.041]	0.048 [0.037]	0.071 [0.043]	0.053 [0.042]
Inherited land		-0.013 [0.053]	-0.015 [0.051]	0.004 [0.048]	-0.004 [0.050]	-0.026 [0.047]	-0.024 [0.043]	-0.043 [0.047]	-0.058 [0.049]
Heir		-0.018 [0.039]	-0.018 [0.039]	0.004 [0.040]	0.017 [0.045]	0.020 [0.046]	-0.007 [0.034]	0.006 [0.038]	0.028 [0.044]
Father knight or baronet		0.000 [0.040]	-0.019 [0.037]	-0.018 [0.039]	-0.009 [0.044]	-0.006 [0.046]	-0.010 [0.034]	0.000 [0.044]	0.026 [0.047]
Father noble		-0.087* [0.048]	-0.096*** [0.033]	-0.076 [0.057]	-0.053 [0.061]	-0.050 [0.061]	-0.081 [0.055]	-0.044 [0.065]	-0.012 [0.065]
Experienced wardship		0.023 [0.049]	0.033 [0.055]	0.056 [0.054]	0.029 [0.062]	0.036 [0.062]	0.031 [0.053]	0.006 [0.062]	0.044 [0.063]
Gentry prior to the Tudors		0.016 [0.031]	0.009 [0.032]	0.018 [0.034]	0.022 [0.044]	0.020 [0.044]	0.023 [0.032]	0.028 [0.043]	0.014 [0.047]
Inherited court ties		0.032 [0.043]	0.053 [0.043]	0.043 [0.047]	0.037 [0.057]	0.034 [0.058]	0.028 [0.037]	0.014 [0.047]	0.042 [0.059]
Log. min. dist. father's residence to London		-0.100 [0.009]	-0.111 [0.009]	-0.017 [0.012]	-0.020 [0.016]	-0.016 [0.016]	-0.013 [0.010]	-0.009 [0.014]	-0.009 [0.014]
Attended Puritan seminary		0.038 [0.064]	0.024 [0.047]	0.026 [0.056]	0.043 [0.062]	0.056 [0.062]	0.026 [0.053]	0.045 [0.062]	0.040 [0.066]

TABLE II
(CONTINUED)

	(1) Probit, dF/dX	(2) Probit, dF/dX	(3) Probit, dF/dX	(4) OLS	(5) OLS	(6) OLS	(7) OLS	(8) OLS	(9) OLS
Regression: investor in overseas joint stock (0/1)									
Port constituency			0.080* [0.045]	0.109** [0.050]	0.129* [0.063]	0.099* [0.056]	0.103* [0.053]	0.101* [0.056]	0.096 [0.057]
Log. distance to constituency from London			0.001 [0.031]	-0.198*** [0.071]	-0.182*** [0.088]	-0.201** [0.103]	-0.201** [0.077]	-0.210* [0.113]	-0.216* [0.125]
Puritan ministers per 10,000 in county, 1600			0.027 [0.034]						
Log. population density in county			0.125** [0.062]						
Log. # voters 1628			0.012 [0.013]	-0.001 [0.012]	-0.014 [0.022]	-0.007 [0.024]	-0.014 [0.012]	-0.011 [0.018]	-0.018 [0.023]
Log. lay subsidy 1524-25, pds.					0.003 [0.020]	-0.007 [0.020]		-0.005 [0.017]	-0.003 [0.020]
Sample	LP	LP	LP	LP	LP	LP	LP+1628 (alive)	LP+1628 (alive)	LP+1628 (partisan)
Indiv. wealth and other endowment controls	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constituency controls	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Franchise (1628) FE and county of const. FE	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Log lay subsidy control and sub-sample	No	No	No	No	Yes	Yes	No	Yes	Yes
Omit Middlesex?	No	No	No	No	No	Yes	No	Yes	Yes
Observations	528	528	528	528	418	409	699	530	437
(Pseudo) R ²	0.05	0.07	0.14	0.30	0.30	0.28	0.24	0.24	0.27

Notes: This table provides regression estimates of the determinants of the decision to hold overseas shares between 1575 and 1640 among MPs. Columns (1)–(6) are the Long Parliament (LP) sample. Columns (7)–(8) pool MPs from the 1628 Parliament still alive in 1642. Column (9) restricts the pooled 1628 MPs to those whose Civil War allegiance was known. Robust standard errors clustered at the county of most recent constituency. *10%, **5%, ***1%. *Individual controls* include: father-JS investor, apprenticed or father merchant, gentry before Tudors, inherited court ties, log. minimum distance of father's address to London, number of father's addresses, attended a Puritan seminary. *Wealth endowments* include: inherited a manor, inherited land, heir, father knight or baronet, father noble and experienced wardship. *Constituency controls* add: Puritan ministers per capita in county 1600, Catholic recusants per capita in county 1600, borough, port, log. population density, constituency in Royal Demesne 1415, Constituency contains castle 1415, log distance: constituency to London, constituency experienced contest in LP election, constituency experienced contest in 1603–1628 elections, log. # voters 1628 (estd). Columns (6), (8)–(9) add a control for the log. lay subsidy *wealth assessment* of the constituency in 1524–1525, and restricts the sample to a core set of taxpaying constituencies. Columns (6) and (9) drop the county of Middlesex, which includes London.

assessment (1524–1525), upon which I also match (column (5)). I also drop MPs that represent constituencies within Middlesex County, the environs of London (column (6)). I pool the data to include MPs in both the Long Parliament and those still alive from the 1628 Parliament (column (7)), again restricting to the core constituency sample (column (8)). Unlike the Long Parliament MPs, members of the 1628 Parliament could sit on the fence and avoid choosing a side, so for comparability I also restrict the pooled MPs to those for whom a Civil War allegiance was known (column (9)).

As Table II suggests, sons of shareholders and those with mercantile endowments are more likely to invest. However, apart from some nonrobust evidence for a relative lack of investment among the children of nobles, a range of measures of individual domestic wealth endowments appear to have little effect on an MP's propensity to hold shares.²⁴ Religious endowments also do not influence the propensity to hold shares. Nor do investor MPs come from constituencies with higher numbers of voters or greater wealth, as measured in the lay subsidy.²⁵

In contrast, the raw mean differences of 24.2 percentage points in support for parliamentary supremacy between overseas shareholders and other MPs (Table I) appears to be robust to matching MPs over a range of endowed characteristics (Table III). Comparing MPs with similar gentry status, parental mercantile endowments, and parental share ownership, overseas share ownership raises an MP's probability of supporting parliamentary supremacy over monarchical dictatorship during the Civil War by around 21.7 percentage points (column (1)). Matching MPs across a range of wealth and geographical endowments has little effect on this coefficient (column (2)). It could be

24. Online Appendix Table A.11 provides mean comparisons among members of the House of Lords in 1642 and shows that, 48 percent of overseas shareholders rebelled, a proportion significantly higher than the 29.7 percent levels among nonshareholders. Further, 56.3 percent of those nobles that came of age in an IPO year rebelled, relative to 30.1 percent in other years.

25. Investor MPs do appear to be more likely to come from port constituencies, constituencies closer to London, and from counties with greater population density. These correlations are again consistent with the literature on local biases of investors (Coval and Moskowitz 1999; Zhu 2002): that shareholding occurred among groups more familiar with opportunities overseas, not just in London but across the country. I control for these factors explicitly and show that they do not appear to change the effect of shareholding on an MP's propensity to rebel and do not appear themselves to have a direct effect on propensity to rebel (Table III).

TABLE III
DETERMINANTS OF DECISION TO REBEL (1642-1648) AMONG MEMBERS OF PARLIAMENT

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Regression: parliamentary rebel (0/1)	Probit, dF/dX	Probit, dF/dX	Probit, dF/dX	OLS	OLS	OLS	OLS	OLS	OLS
Investor in overseas joint stock	0.217*** [0.050]	0.215*** [0.055]	0.185*** [0.056]	0.186*** [0.062]	0.218*** [0.073]	0.229*** [0.077]	0.124*** [0.048]	0.142*** [0.061]	0.225*** [0.075]
Father investor in overseas joint stock	-0.063 [0.053]	-0.020 [0.077]	0.022 [0.071]	-0.025 [0.070]	-0.007 [0.081]	-0.004 [0.082]	-0.059 [0.061]	-0.051 [0.064]	-0.034 [0.074]
Father merchant or apprenticed merchant	0.175*** [0.072]	0.097 [0.084]	0.084 [0.083]	0.065 [0.082]	0.087 [0.087]	0.088 [0.089]	0.088 [0.065]	0.141* [0.072]	0.094 [0.087]
Inherited a manor	0.026 [0.043]	0.051 [0.054]	0.030 [0.057]	0.048 [0.060]	0.019 [0.063]	0.020 [0.064]	0.055 [0.063]	0.021 [0.075]	0.006 [0.066]
Inherited land		0.054 [0.081]	0.070 [0.082]	0.050 [0.093]	0.080 [0.096]	0.094 [0.099]	0.079 [0.077]	0.124 [0.098]	0.107 [0.098]
Heir		-0.083 [0.055]	-0.078 [0.056]	-0.089 [0.055]	-0.039 [0.063]	-0.045 [0.064]	-0.046 [0.055]	0.015 [0.061]	-0.062 [0.066]
Father knight or baronet		-0.024 [0.055]	-0.052 [0.058]	-0.056 [0.054]	-0.045 [0.064]	-0.050 [0.065]	-0.065 [0.051]	-0.066 [0.057]	-0.041 [0.061]
Father noble		-0.137 [0.095]	-0.154* [0.093]	-0.115 [0.109]	-0.123 [0.114]	-0.125 [0.115]	-0.035 [0.069]	-0.041 [0.079]	-0.102 [0.104]
Experienced wardship		-0.075 [0.060]	-0.080 [0.075]	-0.029 [0.073]	-0.017 [0.099]	-0.022 [0.098]	-0.028 [0.066]	-0.009 [0.085]	-0.036 [0.099]
Gentry prior to the Tudors		-0.057 [0.040]	-0.052 [0.041]	-0.057 [0.042]	-0.082* [0.048]	-0.083* [0.048]	-0.049 [0.038]	-0.090** [0.039]	-0.063 [0.048]
Inherited court ties		-0.185*** [0.044]	-0.186*** [0.049]	-0.155*** [0.050]	-0.190*** [0.058]	-0.197*** [0.059]	-0.110*** [0.043]	-0.143*** [0.052]	-0.183*** [0.057]
Log. min. dist. father's residence to London		-0.036*** [0.015]	-0.012 [0.016]	-0.017 [0.017]	-0.005 [0.019]	-0.009 [0.019]	-0.009 [0.014]	0.002 [0.014]	-0.011 [0.019]
Attended Puritan seminary		0.179*** [0.084]	0.152* [0.081]	0.127 [0.091]	0.093 [0.088]	0.081 [0.089]	0.148* [0.077]	0.118 [0.081]	0.074 [0.086]
Port constituency			-0.039 [0.058]	-0.014 [0.074]	-0.041 [0.089]	-0.022 [0.088]	0.029 [0.064]	0.026 [0.072]	-0.011 [0.079]

TABLE III
(CONTINUED)

	(1) Probit, dF/dX	(2) Probit, dF/dX	(3) Probit, dF/dX	(4) OLS	(5) OLS	(6) OLS	(7) OLS	(8) OLS	(9) OLS
Regression: parliamentary rebel (0/1)									
Puritan ministers per 10,000 in county, 1600			0.097*** [0.036]						
Log. distance to constituency from London			-0.099** [0.041]	0.104 [0.073]	0.129 [0.098]	0.139 [0.117]	-0.002 [0.073]	0.019 [0.103]	0.130 [0.114]
Log. lay subsidy 1524-25, pds.					0.033 [0.021]	0.039* [0.022]		0.007 [0.021]	0.024 [0.021]
χ^2 F-test (β wealth endowments = 0)		5.98	5.34	0.78	0.34	0.41	1.19	1.29	0.40
Prob > χ^2 F		0.43	0.50	0.59	0.91	0.87	0.33	0.29	0.87
Sample	LP	LP	LP	LP	LP	LP	LP + 1628 (alive)	LP + 1628 (alive)	LP + 1628 (partisan)
Indiv. wealth and other endowment controls	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constituency controls	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Franchise (1628) FE and county of const. FE	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Log lay subsidy control and subsample	No	No	No	No	Yes	Yes	No	Yes	Yes
Omit Middlesex?	No	No	No	No	No	Yes	No	Yes	Yes
Observations	528	528	528	528	418	409	699	530	437
(Pseudo) R^2	0.04	0.08	0.14	0.30	0.31	0.30	0.26	0.27	0.28
Lower bound treatment effect (Oster 2014)				0.05	0.17	0.20	0.124	0.142	0.225
							<0.29>	<0.35>	<0.63>

Notes: This table presents regression estimates of the effects of overseas shareholding on the decision to rebel among MPs. Columns (1)–(6) are the Long Parliament (LP) sample; a decision not to rebel implies being a royalist. Columns (7)–(8) pools MPs from the 1628 Parliament still alive in 1642; for these 1628 MPs, rebel = 0 indicates “did not rebel.” Column (9) restricts the pooled 1628 MPs to those whose Civil War allegiance was known: rebel = 0 again indicates royalist. Robust standard errors clustered at the county of most recent constituency. *10%, **5%, ***1%. *Individual controls* include father JS investor, apprenticed or father merchant, gentry before Tudors, inherited court ties, log. minimum distance of father’s address to London, number of father’s addresses, attended a Puritan seminary. *Wealth endowments* include inherited a manor, inherited land, heir, father knight or baronet, father noble and experienced wardship. *Constituency controls* add Puritan ministers per capita in county 1600, Catholic recusants per capita in county 1600, borough, port, log. population density, constituency in Royal Demesne 1415, constituency contains castle 1415, log distance: constituency to London, constituency experienced contest in LP election, constituency experienced contest in 1603-1628 elections, log. # voters 1628 (estd). Columns (5)–(6), (8)–(9) add a control for the log. lay subsidy wealth assessment of the constituency in 1524–1525, and restricts the sample to a core set of taxpaying constituencies. Columns (6) and (9) drop the county of Middlesex, which includes London. The lower bound treatment effect uses method in Oster (2014), assuming $\delta = 1$, $\max R^2 = 1$. Observable controls strengthen coefficient in columns (7)–(9), so the OLS coefficient is the implied lower bound (the estimated adjusted treatment effect is reported in angle brackets).

that MPs' support for parliamentary supremacy was shaped more by the interests of their constituency than by their individual investments in shares. However, the effect of overseas shareholding is robust to adding a range of controls for constituencies of representation (column (3)). Comparing MPs representing constituencies from within the same historic county, with similar franchise rights and historic wealth levels among core taxpaying constituencies actually strengthens the effect from 18.6 to 22.9 percentage points (columns (4)–(6)). The effects of shareholding do diminish in magnitude (to 12.5 percentage points) when I include the MPs of the 1628 Parliament who were alive during the Long Parliament (columns (7)–(8)), though this includes members that could choose to sit on the fence. Restricting the data only to those MPs for whom the decision not to rebel also implies royalist allegiance yields an effect of 22.5 percentage points, remarkably similar to the Long Parliament sample (column (9)).

In contrast, a range of measures of endowments of domestic wealth appear to have little effect on support for parliamentary supremacy, including the MP's status as an heir or the inheritance of a manorial estate that indicates membership in the gentry. Other wealth endowment measures appear to have no effect, either individually or in a joint *F*-test. As the theoretical framework suggests, the lack of any effect of domestic wealth endowment measures, despite the fact that these were strong determinants of contemporary income (Online Appendix Table A1.3), and were likely to influence large proportions of an individual's asset portfolio, suggests that individuals' expected falls in expropriation risk that accompanied parliamentary supremacy to be almost precisely zero. Support for parliamentary supremacy appears unaffected by endowments of wealth, and thus it is unlikely the Civil War was fought primarily to defend domestic property.

As I have shown, the effect of overseas shareholding appears largely invariant to adding wealth and geographical controls chosen to address the main sources of selection suggested by the literature on the stockholding puzzle. However there still might be an unobserved driver of share ownership, such as a different ideological view of the world, that might affect both share ownership and the propensity to support parliamentary supremacy. Furthermore, as Oster (2014) suggests, coefficient stability may reflect robustness or may be a result of the lack of explanatory power of observables. The bottom panel of Table III estimates

the lower bound treatment effect using her approach, allowing all the variation in rebellion to be explained (i.e., $\max R^2 = 1$) and that the unobservable of concern—such as ideology—to have the same level of explanatory power as my expanding set of controls in columns (4)–(9). Notice that since the coefficient on shareholding actually strengthens with controls, and the controls raise the explanatory power of the regression to around 30 percent of the variation in rebellion, the implied lower bound estimate of around 20 percentage points is very close to the conventional estimates of around 22.9 percent, particularly in the preferred lay subsidy sample of core constituencies (column (6)). For similar reasons, in the pooled regressions, the bias-adjusted treatment effect actually exceeds the conventional estimate (columns (7)–(9)).

Online Appendix Figure A1.7 provides a complementary approach to assessing the sensitivity of the results to selection bias, following Imbens (2003). The figure compares the partial correlations between the observed covariates, share ownership, and support for Parliament, relative to the thresholds necessary for an omitted binomial variable to reduce the effect of shareholding to insignificance at conventional levels. As the figure reveals, no observable covariate is sufficiently correlated with either share ownership or support for Parliament to eliminate the effect of shares at the conventional 5 percent significance level. Even at the more stringent 1 percent level, only the positive correlation between shareholding and inherited court connections (which would conversely imply stronger support for the Crown) is strong enough to have that effect.

It might appear from Table III that mercantile endowments also played little robust role in shaping support for parliament in the Civil War. Table IV estimates equation 6, adding an interaction term between shareholding and mercantile endowments to the specifications in Table III. Although the point estimates on shareholding show a slight increase with the addition of this interaction term, there is also a robust, strongly significant, and offsetting negative interaction effect between shareholding and existing mercantile interests. These results are consistent with an alignment effect: by providing nonmerchants with the opportunity to benefit from overseas trade and expansion, the effect of shares on support for parliamentary control should be greater relative to those with established mercantile endowments, who already enjoyed such opportunities

TABLE IV
 DIFFERENTIAL EFFECTS OF HOLDING OVERSEAS SHARES ON THE DECISION TO REBEL AMONG MPs WITH AND WITHOUT MERCANTILE ENDOWMENTS

Regression (OLS):	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
parliamentary rebel									
Investor in overseas joint stock	0.302*** [0.049]	0.298*** [0.053]	0.243*** [0.060]	0.275*** [0.065]	0.310*** [0.076]	0.316*** [0.077]	0.165*** [0.052]	0.189*** [0.063]	0.315*** [0.074]
Investor × apprenticed or father merchant	-0.307*** [0.105]	-0.329*** [0.102]	-0.301*** [0.110]	-0.323*** [0.115]	-0.334*** [0.122]	-0.327*** [0.136]	-0.158 [0.113]	-0.189 [0.136]	-0.332*** [0.121]
Apprenticed or father merchant	0.260*** [0.057]	0.180*** [0.064]	0.159*** [0.060]	0.151*** [0.066]	0.177*** [0.066]	0.176*** [0.066]	0.128*** [0.061]	0.190*** [0.065]	0.184*** [0.069]
Inherited a manor	0.021 [0.041]	0.043 [0.051]	0.023 [0.052]	0.054 [0.062]	0.026 [0.065]	0.025 [0.067]	0.057 [0.064]	0.023 [0.076]	0.009 [0.067]
Father investor in overseas joint stock	-0.060 [0.050]	-0.019 [0.071]	0.012 [0.064]	-0.026 [0.071]	-0.009 [0.082]	-0.009 [0.083]	-0.058 [0.062]	-0.054 [0.064]	-0.036 [0.076]
Joint <i>F</i> -test β (overseas joint stock variables) = 0	19.67	16.78	8.29	9.57	8.62	8.8	5.12	4.47	9.58
Prob > <i>F</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.00
Sample	LP	LP	LP	LP	LP	LP	LP + 1628 (alive)	LP + 1628 (alive)	LP + 1628 (partisan)

TABLE IV
(CONTINUED)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Regression (OLS): parliamentary rebel	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Indiv. wealth and other endowment controls	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constituency controls	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Franchise (1628) FE and county of const. FE	No	No	No	No	Yes	Yes	No	Yes	Yes
Log lay subsidy control and subsample	No	No	No	No	No	Yes	No	Yes	Yes
Omit Middlesex?	No	No	No	No	No	Yes	No	Yes	Yes
Observations	528	528	528	528	418	409	699	530	437
R ²	0.06	0.12	0.18	0.31	0.32	0.31	0.26	0.27	0.3

Notes: This table provides OLS estimates of the effects of overseas shareholding on the decision to rebel among MPs. It includes an interaction term between overseas investor and whether an MP was apprenticed a merchant or whose father was a merchant. Columns (1)–(6) are the Long Parliament (LP) sample: a decision not to rebel implies being a royalist. Columns (7)–(8) pools MPs from the 1628 Parliament still alive in 1642; for these 1628 MPs, rebel = 0 indicates “did not rebel.” Column (9) restricts the pooled 1628 MPs to those whose Civil War allegiance was known: Rebel = 0 again indicates royalist. Robust standard errors clustered at the county of most recent constituency. *10%, **5%, ***1%. Individual controls include father JS investor, apprenticed or father merchant, gentry before Tudors, inherited court ties, log. minimum distance of father’s address to London, number of father’s addresses, attended a Puritan seminary. Wealth endowments include inherited a manor, inherited land, heir, father knight or baronet, father noble and experienced wardship. Constituency controls add Puritan ministers per capita in county 1600, Catholic recusants per capita in county 1600, borough, port, log. population density, constituency wardship. Constituency controls add Puritan ministers per capita in county 1600, Catholic recusants per capita in county 1600, borough, port, log. population density, constituency in Royal Demesne 1415, constituency contains castle 1415, log. distance: constituency to London, constituency experienced contest in LP election, constituency experienced contest in 1603–1628 elections, log. # voters 1628 (std). Columns (9)–(6), (8)–(9) add a control for the log. lay subsidy wealth assessment of the constituency in 1625–1626, and restricts the sample to a core set of taxpayer constituencies. Columns (6) and (9) drop the county of Middlesex, which includes London.

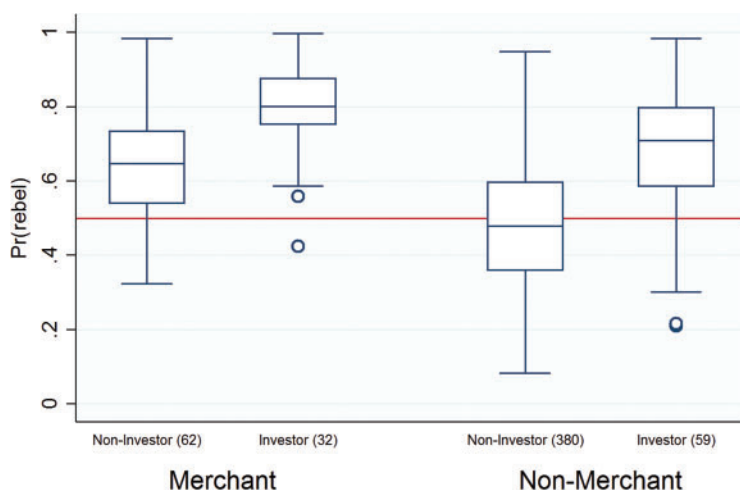


FIGURE II

Probability of Rebellion by Shareholding among Merchants and Nonmerchants

These boxplots depict the distribution of predicted probabilities of rebellion by overseas shareholding and mercantile endowments, based on a probit regression of rebel (1) or royalist (0) on the set of individual endowment and constituency controls in Table III (column 2), (with the number of members in each group in brackets). The central line depicts the median, the box depicts the interquartile range. Notice that while individuals with mercantile endowments were highly likely to rebel regardless of shareholding, but there were only 97 of these in Parliament. Shareholding aligns the political allegiance of nonmerchants. In fact, the median nonmerchant who did not hold shares was actually more likely to be a royalist.

and a relatively strong propensity to support Parliament (see also Figure II).

Even though there is no significant effect of a range of measures of domestic wealth on support for political reform, it still might be the case that insecure domestic property rights were crucial in the decisions of agents to support political reform and that the effect of shareholding occurs not through the alignment of interests across groups in favor of control over sovereignty rights but due to a desire to protect newly acquired wealth from investments in profitable overseas companies (as in Acemoglu, Johnson, and Robinson 2005). However the accumulation of new wealth does not appear to be driving these results. Table V (Panels A and B) compares shareholders who invested in overseas companies that were unprofitable prior to the Civil War with

TABLE V
DIFFERENTIAL EFFECTS OF HOLDING SHARES IN UNPROFITABLE AND CROWN-PREDATED OVERSEAS COMPANIES ON THE DECISION TO REBEL AMONG MPs

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
OLS regression:									
parliamentary rebel (0/1)									
Panel A: Unprofitable JS companies									
Investor in unprofitable OJS	0.301*** [0.047]	0.304*** [0.052]	0.244*** [0.061]	0.270*** [0.062]	0.309*** [0.071]	0.317*** [0.071]	0.158*** [0.057]	0.199*** [0.067]	0.324*** [0.074]
Investor in unprofitable OJS x F or A. merchant	-0.315*** [0.097]	-0.316*** [0.096]	-0.280*** [0.098]	-0.277*** [0.107]	-0.302*** [0.108]	-0.303*** [0.124]	-0.113 [0.113]	-0.152 [0.138]	-0.320*** [0.116]
Father merchant or apprenticed merchant	0.260*** [0.060]	0.168*** [0.069]	0.145** [0.064]	0.133* [0.072]	0.160*** [0.071]	0.162*** [0.071]	0.112* [0.059]	0.172*** [0.061]	0.170*** [0.072]
Joint F OJS investor variables	21.31	17.49	8.34	9.76	10.10	10.63	3.80	4.36	10.28
Prob > F	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.02	0.00
R ²	0.06	0.12	0.17	0.31	0.32	0.31	0.26	0.27	0.29
Panel B: Investors in unprofitable companies relative to other investors									
Investor in unprofitable OJS	0.029 [0.186]	0.142 [0.157]	0.099 [0.163]	0.127 [0.188]	0.115 [0.227]	0.105 [0.277]	0.067 [0.166]	0.192 [0.217]	0.137 [0.186]
Investor in overseas joint stock	0.187 [0.180]	0.072 [0.156]	0.069 [0.161]	0.069 [0.198]	0.110 [0.237]	0.131 [0.284]	0.064 [0.154]	-0.032 [0.207]	0.099 [0.190]
Joint F OJS investor variables	9.77	8.32	5.17	5.37	4.92	4.88	3.45	3.09	4.8
Prob > F	0.00	0.00	0.01	0.01	0.01	0.01	0.04	0.06	0.01
R ²	0.05	0.11	0.17	0.30	0.31	0.30	0.26	0.27	0.29
Panel C: Investors in unprofitable companies facing predation by the Crown									
Investor in unprofitable OJS predated by crown	-0.004 [0.114]	-0.020 [0.124]	-0.019 [0.126]	0.136 [0.164]	0.107 [0.183]	0.135 [0.198]	0.185 [0.136]	0.234 [0.173]	0.122 [0.186]
Investor in unprofitable OJS	0.03 [0.183]	0.151 [0.160]	0.107 [0.165]	0.077 [0.191]	0.080 [0.223]	0.070 [0.270]	0.008 [0.174]	0.130 [0.219]	0.103 [0.178]
Investor in overseas joint stock	0.187 [0.180]	0.072 [0.156]	0.068 [0.161]	0.068 [0.198]	0.105 [0.237]	0.117 [0.288]	0.059 [0.154]	-0.048 [0.206]	0.087 [0.193]
Joint F OJS investor variables	6.94	6.03	3.75	3.72	3.79	3.76	2.40	2.05	3.96
Prob > F	0.00	0.00	0.02	0.02	0.02	0.02	0.08	0.13	0.02
R ²	0.05	0.11	0.17	0.31	0.31	0.30	0.27	0.27	0.29

TABLE V
(CONTINUED)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
OLS regression:									
parliamentary rebel (0/1)									
Panel D: East India Company investors									
East India Co investor	-0.041 [0.149]	-0.122 [0.139]	-0.154 [0.152]	-0.175 [0.156]	-0.074 [0.147]	-0.045 [0.168]	-0.173 [0.116]	-0.119 [0.163]	-0.083 [0.152]
Investor in overseas joint stock	0.222*** [0.055]	0.228*** [0.058]	0.190*** [0.056]	0.221*** [0.066]	0.232*** [0.081]	0.237*** [0.083]	0.162*** [0.052]	0.164*** [0.067]	0.240*** [0.082]
Joint F OJS investor variables	9.97	8.17	5.87	5.60	4.40	4.45	4.79	3.02	4.55
Prob > F	0.00	0.00	0.01	0.01	0.02	0.02	0.01	0.06	0.02
R ²	0.05	0.11	0.17	0.31	0.31	0.30	0.27	0.27	0.29
Sample	Long Parl	Long Parl	Long Parl	Long Parl	Long Parl	Long Parl	Long Parl + 1628 (alive)	Long Parl + 1628 (alive)	Long Parl + 1628 (partisan)
Indiv. wealth and other endowment controls	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constituency controls	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Franchise (1628) FE and county of const. FE	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Log lay subsidy control and subsample	No	No	No	No	Yes	Yes	No	Yes	Yes
Omit Middlesex?	No	No	No	No	No	Yes	No	Yes	Yes
Observations	528	528	528	528	418	409	699	530	437

Notes: This regression table provides estimates of the effects of overseas shareholding on the decision to rebel among MPs. Panel A includes an interaction term between investor in an unprofitable overseas company and whether an MP was apprenticed a merchant or whose father was a merchant. Panel B includes dummies for whether an MP invested in unprofitable companies and in other overseas companies. Panel C adds a further dummy for whether the unprofitable company had experienced Crown predation. Panel D includes a dummy for whether the MP was an investor in the East India Company. Columns (1)–(6) are the Long Parliament (LP) sample; a decision not to rebel implies being a royalist. Columns (7)–(8) pools MPs from the 1628 Parliament still alive in 1642; for these 1628 MPs, rebel = 0 indicates “did not rebel.” Column (9) restricts the pooled 1628 MPs to those whose Civil War allegiance was known: rebel = 0 again indicates royalist. Robust standard errors clustered at the county of most recent constituency. *10%, **5%, ***1%. Column (1) includes controls for father JS investor, apprenticed or father merchant and inherited a manor. Column (2) includes *individual controls*: father JS investor, apprenticed or father merchant, gentry before Tudors, inherited court ties, log. minimum distance of father’s address to London, number of father’s addresses, attended a Puritan seminary. *Wealth endowments* include inherited a manor, inherited land, heir, father knight or baronet, father noble and experienced wardship. *Constituency controls* add Puritan ministers per capita in county 1600, Catholic recusants per capita in county 1600, borough, port, log. population density, constituency in Royal Demesne 1415, constituency contains castle 1415, log distance: constituency to London, constituency experienced contest in LP election, constituency experienced contest in 1603–1628 elections, log. # voters 1628 (estd). Columns (6) and (8)–(9) drop the county of Middlesex, which includes London.

otherwise similar MPs. The effect of shares on investors in unprofitable overseas joint stock companies appears to be stronger than before—around 31.4 percentage points with full controls (column (6))—and once again, as the almost precisely offsetting interaction term suggests, the effect stems from those without preexisting mercantile interests.

Panel B adds controls for the main effect of overseas investment to this regression. Adding up the point estimates in the lay subsidy sample with full controls (column (6)) reveals that though investors in profitable joint stock companies were around 13.1 percentage points more likely to rebel, those in unprofitable joint stock companies were around 23.6 percentage points more likely to rebel than otherwise similar nonshareholder MPs. Though this result may appear somewhat counterintuitive, it is in fact consistent with the theoretical framework: those with profitable overseas investments under the existing regime have something to lose (i.e., $-\beta_{jIR}$ is higher) with constitutional change relative to those with nonperforming investments under the existing regime.

Firms could be unprofitable for many reasons beyond political risk, such as bad luck or mismanagement. Panel C compares the propensities to rebel among those MPs that invested in shares in companies that were both unprofitable and that had faced Crown predation (see Online Appendix Table A1.2). The point estimates suggest investors in unprofitable companies preyed upon by the Crown were 32.2 percentage points more likely to rebel than otherwise similar MPs. In contrast, though members of the (initially) profitable East India Company were around 19.2 percentage points more likely than noninvestors to rebel, they were 4.5 percentage points less likely than the average investor overseas to do so (Panel D).²⁶

It is possible to implement further tests of three key alternative channels—unobserved components of domestic income, ideology and risk—that have been mooted as explanations for the successful development of a coalition in favor of parliamentary supremacy and which might also explain the effects of shareholding. Online Appendix Table A1.3 tests whether these endowment

26. These results nuance Brenner's (1993) claims that East India Company investors were more likely to be royalists. Instead, East India investors in Parliament were also more likely to rebel than noninvestors, but had lower propensities to rebel than other investors.

measures have any effect on that subsample for which measures exist of a Long Parliament MP's income at the time of the Civil War. Notice that there are no robust differences in income between shareholder and nonshareholder MPs. In contrast, Table A1.3 reveals that inheritances of landed estates and titles are individually and jointly significant determinants of contemporaneous income and alone explain 21 percent of the variation in contemporaneous income for those Long Parliament MPs for which contemporaneous income data survives (Table A1.3, column (1)). Furthermore, adding a richer set of constituency controls, franchise type, and county fixed effects explains up to 67 percent of the variation in log income. These results suggests that my measures of endowed wealth do capture (and control for) important variation in contemporary income, and it is not imprecision that is leading to a lack of a domestic wealth effect. As the theoretical framework implies, the lack of effect of wealth endowments that also strongly predict contemporary income suggests that domestic assets were not perceived to be likely to change in their expected returns (discounted by expropriation risk) with changes in political regime.

Another possibility, as discussed already, is that the effect of shareholding is capturing unobserved preexisting differences in views of the world or political allegiances. Such a preexisting ideology story would suggest that in the years before the Civil War, antimonarch shareholders would be also less likely to attend court or work for the Crown. In contrast, if the theoretical framework is correct, then prior to the stark decision to support or oppose constitutional reform in the Long Parliament, individuals with endowments most subject to executive control, including shareholders, would paradoxically face a greater incentive to secure their property by seeking favor and influence at court.

Online Appendix Table A1.4 examines the effect of shareholding on the acquisition of royal office or court positions prior to the Long Parliament. Controlling for inherited court ties, nonmerchant shareholder MPs were between 8 and 14 percentage points more likely to acquire court offices than other MPs (columns (1)–(9)). Thus, it appears that shareholders did attempt to work within the existing constitutional system to secure overseas property: prior to the Long Parliament, shareholders were not consistently opposed to the court, and many assumed court roles.

Another alternative story might be that even controlling for wealth, overseas shareholder MPs are selected by risk preference, and even though both supporting the Crown and supporting Parliament was inherently risky, they had lower status quo bias. One approach to addressing this is to check for differences in political allegiance of investors in joint stock companies that were created to share risks, but did not face the political risk of overseas expropriation by the Crown. Online Appendix Table A1.5 examines the propensities to rebel among MPs who had invested in joint stock companies involved in domestic ventures that were risky because of environmental risk rather than Crown expropriation.²⁷ As the table suggests, both with and without controls for overseas investment, there is no effect of joining these companies on the propensity to rebel.

Online Appendix Tables A1.6, A1.7, and A1.8 present results using the same sets of controls to estimate the effect of shares on other indicators of support for parliamentary control of government over the life cycle of the struggle, including the legislative attainder of the Earl of Strafford (1641), subscribing to the Defence of London on the eve of the war (1642) and membership of the Rump Parliament of postwar victors (1648–1653). The broad picture that emerges is that at least as early as the peaceful legislative push for reform in 1641–1642, shareholders were consistently more likely than nonshareholders to oppose executive authority. This continued across the life cycle of the struggle. Furthermore, where merchants exhibit significant differences to nonmerchants, shares appear to align nonmerchant choices with merchants. The fact that both nonmerchant shareholders and merchants were significantly more likely to sit in the Rump Parliament suggests a direct link between the genesis of the coalition for reform and the dramatic changes in England's public investments in the navy and its foreign policy that would occur on its success.

27. I define "domestic" to be within the British Isles and its territorial waters. Examples of these companies include infrastructure companies such as the New River Company; natural resource companies like the Mines, Minerals and Battery Works; fen drainage companies such as the Great Bedford Level; and companies investing in the Fisheries, Ireland and wastelands in Wales.

V.B. *Adulthood in an IPO Year as an Exogenous Driver of Shareholding*

As in all quasi-experimental settings, the possibility that some residual unobserved selection process might bias the OLS results remains. However, it may also be the case that the OLS estimates, rather than being upper bounds, are actually underestimates. This is due to the presence of a classic hold-up problem. With the Crown able and willing to expropriate the returns from overseas investments (Online Appendix Table A1.2), some individuals may have been motivated by the new access to overseas opportunities provided by shares to support reform, who also faced incentives to wait until after the reform to actually invest. Indeed, a number of MPs who later gained prominence in the Civil War, most famously Oliver Cromwell, actively considered but postponed joining ventures to the New World. The omission of those motivated by these new opportunities would lead to a downward bias in the measured effect. The results could also be attenuated by the measurement error induced by using names and biographies to match individual MPs to joint stock companies.²⁸

To assess whether this is the case, I exploit a series of shocks to the feasibility and enthusiasm to invest in overseas shares that took place over this period, in combination with a feature of English common law that granted individuals the right to control their finances, sell their property, or write legally enforceable contracts—including share contracts—at age 21 but not at age 20. I compare individuals who invested in overseas shares because they turned 21 in the year when an IPO of shares was being made for a new overseas joint stock company to individuals who would have invested had they attained adulthood in such a year. Some context may be useful for understanding the legal implications of adulthood.

As discussed already, because share contracts lacked limited liability and secondary markets, investors incurred both long-term financial and legal obligations. Thus the age at which individuals became able to write legally enforceable contracts and

28. Online Appendix Table A1.10 shows that my main effects are robust to alternative codings of overseas joint stock investors, including a more restrictive definition based only on those explicitly identified as investors by the *History of Parliament* and Keeler (1954), and a broader definition that includes all feasible name matches from the lists in Rabb (1967).

dispose of their inheritances—known as the age of majority—was particularly relevant for an individual’s ability to invest in shares. In his canonical *Commentaries on the Laws of England*, Blackstone (1769, p. 453) states: “It is generally true, that an infant can neither aliene his lands, nor do any legal act, nor make a deed, nor indeed any manner of contract, that will bind him.” The full age of majority for both men and women was “twenty one years, which age is completed on the day preceding the anniversary of a person’s birth; who till that time is an infant, and so stiled in law” (Blackstone 1769, p. 451).²⁹

MPs that sat in Parliaments from 1603 to 1628 and turned 21 around Drake’s voyages and during years in which subsequent overseas ventures issued stock were around 7 percentage points more likely to invest in overseas ventures (relative to a baseline of 15 percent) (Online Appendix Figure A1.5).³⁰ Members of the Long Parliament naturally were younger at the time of Drake’s voyages, but those who came of age during subsequent IPO years also showed spikes in their propensity to invest in overseas joint stock companies (Figure III). In fact, of the 110 Long Parliament MPs that came of age in an IPO year, 22.7 percent invested in overseas joint stock companies (compared with 15.8 percent of other MPs) and 62.7 percent—or 69 MPs—rebelled in the Civil War (compared with 53.9 percent). Reassuringly, individuals that came of age in IPO years also appear very similar along a range of other endowed observable dimensions to those that came of age in other years (Table VI).³¹

29. Though contracts were not legally binding below the age of 21, some individuals, particularly sons of nobles and the children of some prominent merchants, were able to buy shares based on family or individual reputation even before they turned 21. However, even for these categories of individuals, turning 21 in the year of an overseas IPO tended to increase the propensities for investment (see Online Appendix Table A1.11 for members of the House of Lords and Figure V and Table VIII for those from mercantile backgrounds).

30. Of those still alive in 1641, a baseline of 13.0 percent invested while those of age in an IPO year were 12.7 percentage points [4.50, 21.04] more likely to invest.

31. There are two exceptions: they appear more likely to have mercantile endowments and less likely to have fathers who were nobles. I will show that the results are robust to controlling for these factors and that, once again, the effect is coming from nonmerchants.

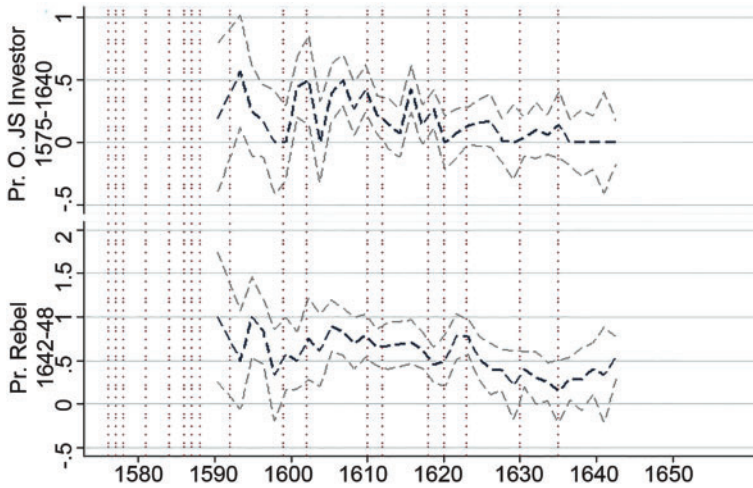


FIGURE III

Proportions Investing in Overseas Shares and Later Rebelling in Civil War by Age of Majority in Calendar Time: Long Parliament MPs

This graph presents the proportion of MPs that turned 21 in a particular year who (A) invested in overseas joint stock companies prior to 1640 and (B) rebelled during the Civil War (1642–1648), drawing on MPs who sat in the Long Parliament, with the mean proportions smoothed locally across nearby years using weights from an *epanechnikov* kernel with bandwidth 0.3 ($N=533$ MPs). MPs who came of age just before or during IPO years for overseas joint stock companies (vertical dotted lines) often appear more likely to invest that those that come of age just after, and are often also more likely to rebel.

I estimate regressions of the following form:

$$\begin{aligned}
 Rebel_i &= \sum_j \gamma_j x_{ij} + \kappa OverInv_i \\
 &+ \sum_{\tau=-5, -1, +1, +5} a_\tau OfAge_\tau yrsfromIPO + e_i \\
 OverInv_i &= \sum_j g_j x_{ij} + \alpha_0 OfAgeIPOyr_i \\
 &+ \sum_{\tau=-5, -1, +1, +5} \alpha_\tau OfAge_\tau yrsfromIPO + v_i,
 \end{aligned}$$

where $OfAgeIPOyr_i$ indicates whether an individual turned 21 in an IPO year, and in some specifications, I control for potential cohort differences by including a set of dummy variables for

TABLE VI
MEAN COMPARISONS BETWEEN MPs WHO TURNED 21 IN AN IPO YEAR AND OTHER LONG PARLIAMENT MPs

Outcomes	Long Parliament			Of age other years			Of age IPO year			Prob > t
	N	Mean	Std. dev.	N	Mean	Std. dev.	N	Mean	Std. dev.	
Parliamentary rebel	529	0.558	0.497	419	0.539	0.499	110	0.627	0.486	0.099
Log income, ca 1640-1650	265	6.798	1.165	211	6.869	1.135	54	6.521	1.249	0.050
Held court/patronage office before 1640	529	0.301	0.459	419	0.294	0.456	110	0.327	0.471	0.493
Contributed to London's Defence 1642	529	0.384	0.487	419	0.379	0.486	110	0.400	0.492	0.694
Supported Crown advisor (Strafford) 1640	529	0.123	0.329	419	0.115	0.319	110	0.155	0.363	0.256
Sat in Rump Parliament 1648-1653	516	0.256	0.437	406	0.241	0.428	110	0.309	0.464	0.149
Variable of interest										
Investor in overseas joint stock co	529	0.172	0.378	419	0.158	0.365	110	0.227	0.421	0.085
Individual endowment controls										
Father investor in overseas joint stock	529	0.193	0.395	419	0.196	0.397	110	0.182	0.387	0.743
Father merchant or apprenticed merchant	529	0.174	0.379	419	0.158	0.365	110	0.236	0.427	0.052
Gentleman (inherited a manor)	529	0.548	0.498	419	0.547	0.498	110	0.555	0.499	0.881
Inherited land	529	0.756	0.430	419	0.752	0.432	110	0.773	0.421	0.650
Heir	529	0.728	0.446	419	0.740	0.439	110	0.682	0.468	0.224
Father knight or baronet	529	0.318	0.466	419	0.332	0.471	110	0.264	0.443	0.173
Father noble	529	0.091	0.288	419	0.105	0.307	110	0.036	0.188	0.026
Experienced wardship	529	0.098	0.298	419	0.093	0.291	110	0.118	0.324	0.432
Gentry prior to the Tudors	529	0.376	0.485	419	0.379	0.486	110	0.364	0.483	0.761
Inherited court ties	529	0.391	0.489	419	0.384	0.487	110	0.418	0.496	0.517
Log. min. dist. father's residence to London	528	10.852	2.091	418	10.881	2.071	110	10.744	2.174	0.541
# Father's addresses	529	1.535	0.832	419	1.556	0.849	110	1.455	0.762	0.255
Attended Puritan seminary	529	0.144	0.351	419	0.141	0.348	110	0.155	0.363	0.715

TABLE VII
 WALD IV ESTIMATES OF EFFECT OF SHAREHOLDING AMONG MPs ON DECISION TO REBEL
 IN CIVIL WAR

	(1)	(2)	(3)	(4)
			Lay subsidy constituencies	
Panel A: OLS (first stage): overseas joint stock investor				
Attained adulthood in IPO year	0.071*	0.057*	0.117**	0.070*
	[0.038]	[0.030]	[0.046]	[0.035]
<i>F</i> -test (excluded)	3.46	3.49	6.47	3.93
Prob > <i>F</i>	0.07	0.07	0.02	0.06
<i>R</i> ²	0.01	0.02	0.01	0.02
Panel B: OLS (reduced form): parliamentary rebel				
Attained adulthood in IPO year	0.084	0.071**	0.111**	0.068**
	[0.051]	[0.032]	[0.050]	[0.033]
<i>R</i> ²	0.00	0.19	0.01	0.23
Panel C: IV-LIML (Wald estimator): parliamentary rebel				
Investor in overseas joint stock	1.173	1.258*	0.954**	0.969**
	[0.735]	[0.693]	[0.468]	[0.476]
Long Parliament intercept	No	Yes	No	Yes
Sample	LP	LP + 1628	LP	LP + 1628
Observations	533	896	423	703

Notes: Panel A provides estimates of the first stage effect of turning 21 in an IPO year on an MP's decision to invest in overseas shares. Panel B provides the reduced-form effect of turning 21 in an IPO year on a MP's decision to rebel in the Civil War. Panel C provides the Wald IV estimates of effect on shareholding on the decision to rebel among MPs who invested because they turned 21 in an IPO year and otherwise would not have invested. Robust standard errors, clustered at most recent county of representation level. *10%, **5%, ***1%. Columns (1) and (3) are Long Parliament MPs only. Columns (2) and (4) pool all Long Parliament and 1628 Parliament MPs. Columns (1) and (2) are the full sample; columns (3) and (4) restrict only to MPs representing the core lay subsidy constituencies.

coming of age in each of the five years before or after an IPO year, and a set of endowment controls x_j .

Table VII (Panels A and B) shows the simplest reduced-form relationships between investment and rebellion and whether an MP comes of age in an IPO year, over the Long Parliament sample, the pooled sample with the 1628 Parliament and among the core lay subsidy constituencies (columns (1)–(4)). The regressions leave out any controls other than an intercept for being in the Long Parliament in the pooled specification. Observe that MPs that come of age in an overseas IPO year are between 5.7 and 11.7 percentage points more likely to invest in overseas joint stock companies (Panel A). They are between 6.8 and 11.1 percentage points more likely to

subsequently rebel (Panel B). This yields a Wald IV estimate of the effect of shareholding in overseas joint stock on the probability of rebellion of those that invested because they came of age in an overseas IPO year of more than 95.4 percentage points (Panel C).³²

Table VIII, Panel A compares MPs who came of age during an IPO year only to a sample of other MPs that came of age within five years of an IPO year, including indicator variables for whether an MP came of age each of a minimum of one to five years before or after an IPO year. The comparison is local in the sense that the sample is restricted to MPs who came of age within a five-year window on either side, with the excluded category therefore being MPs who came of age five years after an IPO. Figure IV plots the OLS coefficients on the indicator variables of columns (1) and (5). Notice that there is a spike in the probability of investment in the IPO year: MPs who come of age in an IPO year were 25.5 percentage points more likely to invest in this local comparison. There is also some increase in propensity to invest for those who came of age a year before (-1) or two years before (-2) as well (not surprising given that these cohorts were also old enough to invest), but MPs who come of age in subsequent years are not significantly more likely to do so. This translates into an increased probability of rebellion of around 88.9 percentage points among those who invested in shares because they came of age in an IPO year (column (9)). Table VIII, Panel A shows that the reduced-form relationships are robust to adding individual and wealth controls (columns (2), (4), (6), (8)), and pooling MPs from the 1628 Parliament (columns (3)–(4), (7)–(8)). This yields IV estimates of the effect of shareholding on the propensity to rebel among those who invested because they came of age in an IPO year that range between 55.7 to 99.1 percentage points (columns (9)–(12)). *F*-tests of the instrument in the first-stage regressions are sufficient to avoid weak instrument pathologies across these local specifications (columns (1)–(4)).

Panels B and C further subset the data by mercantile endowment. Consistent with the presence of an alignment effect of

32. In the Wald comparison in the general sample, the relatively low *F*-statistics on the instrument raises the possibility of biases due to weak instruments. I therefore report the reduced form (Panel B), which is unbiased, and LIML coefficients and standard errors, which are less subject to weak instrument pathologies. The bias, if it exists, should lead LIML to be biased toward OLS. The 2SLS estimates are similar but more precise.

TABLE VIII
FIRST-STAGE, REDUCED-FORM, AND LOCAL IV ESTIMATES OF EFFECT OF SHAREHOLDING ON DECISION TO REBEL

Outcome	(1) OLS investor	(2) OLS Overseas investor	(3) OLS Overseas investor	(4) OLS Overseas investor	(5) OLS Rebel, Civil War	(6) OLS Rebel, Civil War	(7) OLS Rebel, Civil War	(8) OLS Rebel, Civil War	(9) IV-LIML Rebel, Civil War	(10) IV-LIML Rebel, Civil War	(11) IV-LIML Rebel, Civil War	(12) IV-LIML Rebel, Civil War
Panel A: All MPs												
Investor in overseas joint stock									0.889** [0.369]	0.557 [0.378]	0.991** [0.404]	0.712* [0.387]
Attained adulthood in IPO year	0.255*** [0.068]	0.235*** [0.071]	0.235*** [0.063]	0.223*** [0.065]	0.223*** [0.081]	0.123 [0.094]	0.233*** [0.081]	0.159* [0.088]				
F-test instrument	14.2	11.09	13.78	11.69								
Prob > F	0.000	0.000	0.000	0.000								
R ²	0.03	0.10	0.02	0.09	0.02	0.11	0.02	0.10				
Observations	482	479	518	514	482	479	518	514	481	478	518	514
Panel B: Non-mercantile MPs												
Investor in overseas joint stock									1.387* [0.830]	0.857 [0.606]	1.715* [0.996]	1.160* [0.670]
Attained adulthood in IPO year	0.144** [0.065]	0.152*** [0.072]	0.126** [0.061]	0.140** [0.065]	0.195*** [0.094]	0.120 [0.094]	0.216*** [0.094]	0.162* [0.091]				
R ²	0.02	0.06	0.02	0.05	0.02	0.10	0.03	0.10				
Observations	397	395	428	425	397	395	428	425	396	394	428	425
Panel C: MPs apprenticed merchant or father merchant												
Investor in overseas joint stock									0.161 [0.541]	0.108 [0.554]	0.169 [0.525]	0.175 [0.585]
Attained adulthood in IPO year	0.502*** [0.208]	0.548* [0.320]	0.515*** [0.205]	0.513 [0.309]	0.081 [0.285]	0.059 [0.351]	0.087 [0.284]	0.090 [0.337]				
R ²	0.17	0.29	0.18	0.27	0.06	0.18	0.06	0.19				
Observations	85	84	90	89	85	84	90	89	85	84	90	89

TABLE VIII

(CONTINUED)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Outcome	OLS Overseas investor	OLS Overseas investor	OLS Overseas investor	OLS Overseas investor	OLS Rebel, Civil War	OLS Rebel, Civil War	OLS Rebel, Civil War	OLS Rebel, Civil War	IV-LIML Rebel, Civil War	IV-LIML Rebel, Civil War	IV-LIML Rebel, Civil War	IV-LIML Rebel, Civil War
Wealth and other individual controls	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Sample: year of adulthood w/in 5 years of IPOs in:	Long Parl Long Parl LP + 1628 LP + 1628 Long Parl Long Parl LP + 1628 LP + 1628 Long Parl Long Parl LP + 1628 LP + 1628											

Notes: Columns (1)–(4) provide estimates of the first stage effect of turning 21 in an IPO year on an MP's decision to invest in overseas shares. Columns (5)–(8) provide the reduced-form effect of turning 21 in an IPO year on a MP's decision to rebel in the Civil War. Columns (9)–(12) provides the IV-LIML estimate. The sample is restricted to those MPs that turned 21 within 5 years of an overseas IPO, and all regressions include dummy variables for coming of age for each of 1–5 years before and 1–4 years after. Therefore the excluded category is five years after a IPO. Robust standard errors clustered at the county of most recent constituency. *10%, **5%, ***1%. Individual controls include father JS investor, apprenticed or father merchant, gentry before Tudors, inherited court ties, log. minimum distance of father's address to London, number of father's addresses, attended a Puritan Seminary, and wealth endowments that included inherited a manor, inherited land, heir, father knight or baronet, father noble, and experienced wardship. "Long Parl" implies the Long Parliament sample of MPs only, while "LP + 1628" pools MPs from the 1628 Parliament.

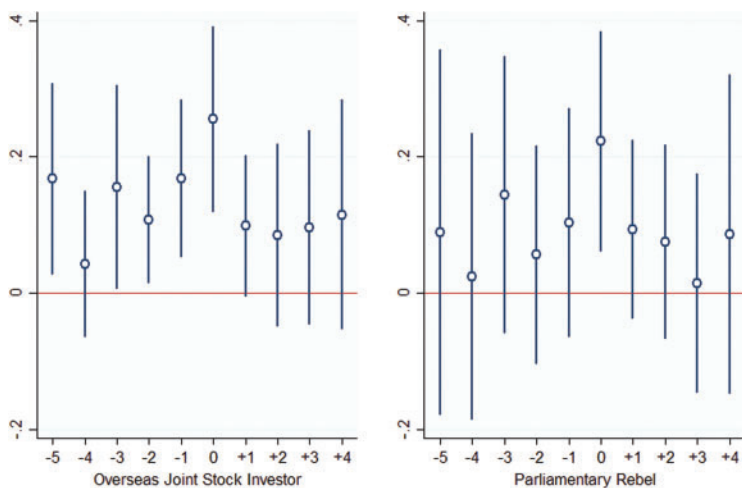


FIGURE IV

Overseas Share Investment and Rebellion by Age of Adulthood before and after an IPO year: Long Parliament MPs

OLS coefficients of probability of investment and rebellion on indicator variables for whether a Long Parliament MP turned 21 in the year of an overseas IPO (0) or the least number of years came of age before an overseas IPO (-1 to -5) and after an overseas IPO (+1 - +4). The comparison is restricted only to MPs that fall within the five-year-before and -after window, and thus the excluded category is those who came of age five years after an IPO. Standard errors clustered at the county level. Notice that MPs that come of age in an IPO year (0) are more likely to invest and to rebel than those that come of age after (+1). Those that come of age before an IPO year (e.g., -2, -1) also could legally invest but did so at lower rates.

shares, the results suggest that though both MPs with mercantile and nonmercantile endowments invest more if they come of age in an IPO year (columns (1)–(4)), the effect of shareholding is to increase the propensity to rebel among nonmerchants only. This is true in both the reduced form (columns (5)–(8)) and the IV estimates (columns (9)–(12)). Figure V once again plots the OLS coefficients of indicators of the year an MP came of age relative to an IPO year, this time subsetting by mercantile endowment. Notice that while both groups were more likely to invest in an IPO year than in other years (top panel), a spike in the propensity to rebel among those who come of age in an IPO year is only discernible for nonmerchants (bottom panel). The combination of an increase in the propensity to invest

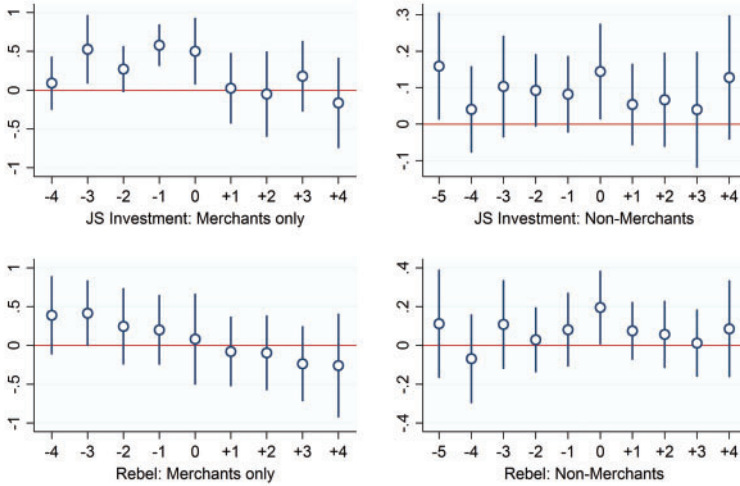


FIGURE V

Overseas Share Investment and Rebellion before and after an IPO year, by Mercantile Endowment

OLS coefficients of probability of investment and rebellion on indicator variables for whether a Long Parliament MP turned 21 in the year of an overseas IPO (0) or the least number of years came of age before an overseas IPO (-1 to -5) and after an overseas IPO (+1 - +4), separating MPs who were apprenticed merchants or whose fathers were merchants (L) and others (R). The comparison is restricted only to MPs that fall within the five-year-before and -after window, and thus the excluded category is those who came of age five years after an IPO. Standard errors clustered at the county level. Notice that while merchants and nonmerchants were more likely to invest if they came of age in an IPO year, only nonmerchants are more likely to rebel.

among merchants who came of age in an IPO year, coupled with a lack of effect on their political allegiance, is inconsistent with the possibility that all those that came of age in an IPO year were antimonarchical in general, but remains consistent with the alignment effect of shares specifically on nonmerchants.

One may be concerned that adulthood in an IPO year might happen to coincide with other characteristics that also might influence shareholding. Online Appendix Figure A1.8 shows that in the same local reduced-form comparison, and consistent with the covariate balance in means in Table VI, there are no spikes in a range of placebo endowments for MPs that come of age in an IPO year, including whether the

MP's father invested in joint stock and a range of wealth endowments.³³

Online Appendix Figure A1.9 further examines whether there are spikes among MPs who come of age in an IPO year in other channels (top row) and outcomes (bottom row). The figure shows that MPs that come of age in IPO years are not any more likely to invest in domestic joint stock (an indicator of risk preference), to hold or avoid holding royal office (an indicator of preexisting ideology), or to have higher income at the time of the Civil War. However, consistent with the OLS matching results, there do appear to be spikes in measures of political allegiance just prior and just following the Civil War, particularly the probability of subscribing to the loan of 1642 in defense of London and of serving in the Rump Parliament of victors.

As a further robustness check, instead of looking only at MPs who came of age within a five-year window around IPO years, Online Appendix Table A1.9 presents a regression of Long Parliament MPs who came of age at any time, with the full set of individual and constituency controls and county fixed effects, and adding global quadratic and quartic polynomial controls for the MP's age. To increase precision, I include as a second instrument the interaction of whether an MP came of age in an IPO year and the minimum distance of the MP's father's residence to London. As columns (1)–(4) suggest, individuals who turned 21 in an IPO year are even more likely to invest if their fathers had lived closer to London. However, the proximity of an MP's father's residence to London has no separate direct effect beyond this. The effect of shareholding on rebellion is also robust to including quadratic and quartic controls for the age of the MP, which also appears to have no robust direct relationship on the propensity to invest or rebel (columns (1)–(8)). These comparisons yield IV-LIML estimates of the effects of shareholding on the propensity to rebel among those who invested because they came of age in IPO years of between 58.7 and 66.9 percentage points, which are reassuringly in line with the estimates based on the local comparisons.

33. The one possible exception is that MPs who come of age in IPO years are less likely to have fathers who were nobles. As discussed, Online Appendix Table A1.11 uses corroborative data from the House of Lords to show that nobles also appear more likely to invest and rebel in IPO years.

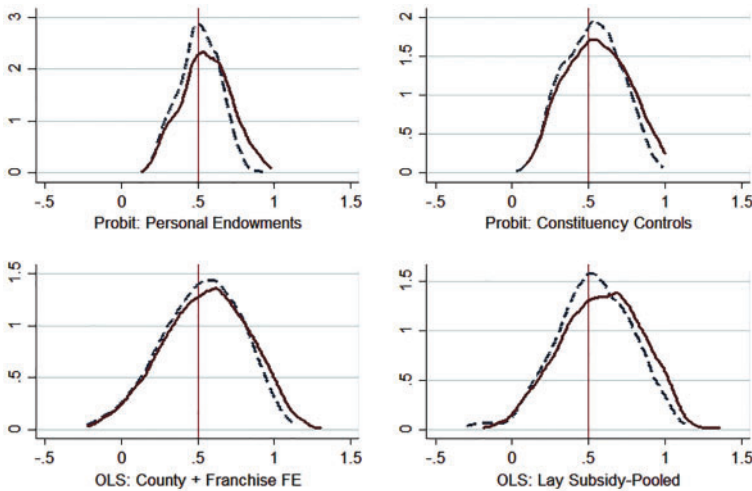


FIGURE VI

Probability Distributions of Rebellion with and without Share Effects on Shareholders

The bold probability distribution provides the predicted probability of rebellion for each specification. The dashed probability distribution subtracts the estimated effect of shareholding on shareholders to generate a counterfactual distribution. Beginning with the top left, each figure sequentially adds controls. Observe that, across specifications, shareholding appears to shift moderates in favor of rebellion.

V.C. Assessing Economic Significance

I can use the conventional, lower bound, and LATE estimates of the effect of shares to perform a counterfactual exercise. As discussed, MPs were faced with the stark choice of supporting the Crown or Parliament during the Civil War. Since this choice is symmetric—not making a choice is not an option—those pushed over the 50 percent probability threshold of supporting Parliament due to holding shares can be thought of as likely switchers of allegiance from the Crown.

With 56 percent of Long Parliament MPs choosing to rebel in the Civil War, and thus 44 percent who chose to be royalists (Table I), the margin of the majority favoring parliamentary supremacy was a slim 31 members. Figure VI shows the distribution of predicted probabilities of rebellion among MPs, as well as a counterfactual distribution had shares not shifted the allegiance of shareholders. As the figures suggest, across specifications,

overseas share investment shifted the affiliations of MPs who were moderates, *ex ante*, rather than inframarginal extremists. I can further exploit the fact that individuals had to choose between king and Parliament and use the 50 percent threshold on the probability of rebellion to examine who these switchers were likely to be. Online Appendix Tables A1.12 and A1.13 exploit both the OLS and IV estimates to generate a list of compliant switchers: shareholder MPs who ultimately supported Parliament but, all else equal, were actually more likely to have supported the Crown in the absence of shares. The MPs are ordered by allegiance, with those predicted most likely to have been royalists in the absence of shares at the bottom. In the basic specification with personal endowment controls, 39 MPs who rebelled were more likely to have been royalist in the absence of shares, an effect sufficient to push support for Parliamentary supremacy from a minority position to the majority (Online Appendix Table A1.12). As Table A1.12 and the expanded set of potential switchers in Table A1.13 suggest, the full set of controls in the lay subsidy subsample yields 14 compliant switchers, whereas the local IV and Wald estimates yield 10 and 20, respectively. Thus, shareholding appears to have consolidated majority support for Parliament among moderate MPs and may in fact have been pivotal in its creation.

The majority of these compliant switcher MPs came from gentry, rather than mercantile, backgrounds. A number also assumed important court offices prior to the Civil War. Eight of the 39 switchers were knights of the shire—the holders of the county seat—that tended to have the largest franchises and the most prestige among rural landowners (see also Online Appendix Table A2.3). While a few were involved in the profitable new trading companies, like the East India Company, a large majority were invested in unprofitable colonization projects, with shares bringing acres of land in the New World, but whose charters and investments were subject to Crown expropriation. A remarkable feature of Online Appendix Table A1.12 is that despite looking at members who otherwise would have supported the Crown in the absence of shares, the table contains all of the famous Five Members that were identified by the king to be ringleaders of Parliament's legislative challenges to his prerogative rights. The king's illegal armed entry into Parliament to arrest the Five for treason in January 1642, which later led to the mobilization of the London militia in defense of Parliament, is often

seen as a major step toward the outbreak of violent conflict (Hexter 1941). Three of the Five Members—Denzil Holles, John Pym, and William Strode—are among those predicted most likely to be royalists in the absence of shares. The table also includes four of the six members of the subcommittee that framed the Grand Remonstrance, which laid down the reforms that Parliament demanded for the king. Of those on both lists, John Pym in particular is seen by historians as a major figure in initially organizing the coalition in favor of Parliamentary control (Hexter 1941; Hill 1961).³⁴ Yet these results suggest these leaders of the opposition might have actually favored support for the Crown in the absence of shares. Instead of being radical extremists, it may be that the leaders of the push for constitutional reform were instead effective at creating a coalition precisely because their interests were aligned, through both their endowments and their share investments, with both landowners and overseas traders.³⁵

VI. DISCUSSION

The Civil War was a tragedy for England, with an estimated 100,000 deaths in battle and a further 100,000 civilian deaths (out of England's population of five million) attributed to war

34. Recent historical work downplays the role of the leadership in the Commons in the Long Parliament, pointing to social and client ties between these individuals and the nobility in the House of Lords (e.g., Adamson 2007). Though insightful, these studies do not address the issue that just as court ties were seen as effective means to secure property rights, such client ties with the nobility were also endogenous and may have been strategically developed. In the *House of Lords during the Civil War*, Firth (1910, p. 60) describes how the "future leaders of the popular party in the two Houses of the Long Parliament were brought together and learned to cooperate" in overseas joint stock companies. As Online Appendix Table A1.11 shows, members of the House of Lords also invested more in IPO years and appear more likely to rebel as a result.

35. Online Appendix Table A1.14 shows those shareholder MPs who were pushed above 50 percent probability of rebellion as a result of shares but did not ultimately rebel (based upon the probit regression with personal endowment controls in Table III (column (1))). As the table suggests, of these 16 royalists, 11 held court offices or customs farms. These MPs appear to have adopted the parallel strategy of cultivating court ties to secure their property rights. However, the list also includes some of the surprise turncoats of the Civil War, like Robert, Lord Rich, an investor in the Providence Island Company, whose father, the Earl of Warwick, was an important leader of the rebel faction in the House of Lords but who himself defected to the royalists.

and war-related famine and disease (Clodfelter 2008). Yet England since then has not experienced a major violent conflict aimed at seizing political control of the state.³⁶ This is in sharp contrast even to other contemporary consolidated Western European nation-states, such as France, that experienced mass civil upheavals in the 1790s and Spain, which experienced such conflict as late as the 1930s, in both cases ending up with military dictatorships. Furthermore, though strong disagreements existed between the Parliamentary victors of the Civil War, there would be little fratricidal bloodletting between rival revolutionary groups, a sadly common aspect of revolutions that followed.

Not surprisingly, then, the question of how a novel, broad, and ultimately stable coalition in favor of parliamentary supremacy in government emerged in England has proved to be among the most enduring in political economy and institutional economics. What do we learn from England's experience? Nuancing a number of important political economy interpretations of England's revolution, that have hypothesized that changes to the existing distribution of wealth drove political change by creating a newly enriched middle class (Moore 1966; Rajan and Zingales 2003; Acemoglu, Johnson and Robinson 2005), it instead appears that the introduction of shares aligned incentives by providing a means through which potentially anyone could avail of future opportunities. Reformers not only possessed a majority in Parliament, but as I have shown, even when individuals were forced to pick a side, reformers enjoyed a broad coalition of wealthholders that spanned initial social distinctions between merchants and nonmerchants, devout and worldly. The formation of such an encompassing coalition appears to have raised reformers' expectations that future majorities would choose policies more akin to their own than a single, potentially capricious individual, and explains why they pushed for an institutional commitment device—the establishment of parliamentary control

36. The 1688 Revolution was later called "Glorious" precisely because it was virtually uncontested and bloodless in England. Similarly other political uprisings aimed at constitutional change in 1685, 1714, and 1745 failed to attract support within England. Monmouth's rebellion in 1685 led to 1,384 rebel dead in battle, with 333 executed in the Bloody Assizes, and 400 royalist losses (at most). The Jacobite rebellion in 1715 mobilized 7,000 Scots and at most 3,000 English Jacobites but was driven out of Preston by a force of 2,000. The "45" mobilized 8,000 Scots at peak (Clodfelter 2008).

of government—rather than fighting for narrower sectarian or class objectives.³⁷

Because they depended on their strength on the alignment of interests of a broad coalition of wealthholders, it is perhaps not surprising that the parliamentary victors of the Civil War did not radically alter domestic property rights (see Online Appendix Figure A1.3). However, England's overseas policies did change dramatically. Consistent with the importance of shared exposure to overseas constitutional risk in shaping the coalition, England's new rulers invested heavily in a particular set of public goods—the Royal Navy—with the number of naval warships rising from 56 at the end of the English Civil War in 1648 to 133 within seven years (Rodger 2004). These investments laid the basis for British naval supremacy (Online Appendix Figure A1.2) and accompanied a series of mercantilist wars fought to protect overseas expansion and redirect commerce from rivals. Naval supremacy helped ensure London's emergence as the most important trading hub of Europe by the early eighteenth century and Britain's acquisition of an empire that spread the influence of its institutions—including the common law, parliamentary paramountcy in government, and the Bill of Rights—around the world (Ferguson 2002; Ormrod 2003; de la Escosura 2004). Shareholders holding assets overseas benefited from a dramatic rise in the relative value of land in the New World after the Civil War, even while the return on land in England remained relatively unchanged (Online Appendix Figure A1.3).

37. Some see England as entering a military dictatorship when the Rump Parliament was dismissed by Oliver Cromwell in 1653. In fact, this dismissal occurred because the Rump was seeking to establish itself in perpetuity without allowing fresh elections. Instead, according to Schama (2001, p. 232), “the [constitution of Cromwell's Protectorate] corresponded to the proposals set out by the most advanced parliamentarians of the 1640s, and for that matter to what would actually come to pass after the next round of revolution in 1688–90” (see also Woolrych 2003). The Cavalier Parliament ceded its right to call and dismiss itself back to the king shortly after the restoration of the monarchy in 1660, but retained enhanced control over state finances that dramatically limited the king's ability to act independently (see also Murrell (2009)). Indeed, unlike prior to the Civil War, Parliament met in virtually every year following the Restoration (Online Appendix Figure A1.1). Charles II was able to reassert limited monarchical power, but only by adopting policies he did not personally favor but had the support of the High Tories who had replaced the Whigs as a new majority in Parliament (Harris 2005). In contrast, James II's attempts to impose policies that lacked support even from High Tories precipitated the Glorious Revolution in 1688 and consolidated parliamentary supremacy (Harris 2006; Pincus and Robinson 2011).

England's post-Civil War government remained that of the wealthy, but not a stable subsection of the wealthy, nor was it closed to entrants. The first political parties (Whig and Tory) transcended traditional cleavages (town versus country, landed versus merchant) and instead coalesced around investments in emergent joint stock companies (Carruthers 1999). It is possible that the development of active secondary asset markets that occurred between the Civil War and Glorious Revolution may have allowed both the winners and losers from the Civil War to reallocate their portfolios in favor of those investments benefiting from an assertive foreign policy, allowing a further broadening of the coalition in favor of rule by the majority of wealthholders in Parliament, rather than by the king (Carlos and Jha 2015). Though debate was heated, particularly over religion and the burdens of state finance (Stasavage 2003), it was much less violently conflictual than before. Rather than becoming an oligarchy of overseas investors, the introduction of financial assetholding and the subsequent development of secondary markets may have helped align disparate interests that led post-Civil War England on a trajectory toward ministerial responsibility (Cox 2012), domestic peace, and broadly representative government.

More broadly, the failure to align the incentives of self-interested groups in favor of beneficial reform is often considered a major cause of civil conflict and persistent underdevelopment around the world. In England, the introduction of shares allowed individuals possessing mercantile human capital to sell the stream of benefits and the risks of their human capital to nonmerchants, even though human capital was (and remains) conventionally seen as nontradable. Furthermore, this exposure appears to have had important benefits in mitigating class conflict and fostering broader-based political reform. The English example suggests the possibility for a political multiplier of financial market development on economic growth.

Indeed, like in revolutionary England, financial revolutions preceded economic development in two other revolutionary states—the United States and Japan—that subsequently led the world in GDP growth (Sylla 2002). In fact, partly inspired by the English example, reformers in first the postrevolutionary United States and later Meiji Japan introduced banking systems that similarly provided share ownership and common exposure to political risk to groups that might have otherwise resisted further reforms (Jha 2012). Potential losers likely to violently resist

modernization, like members of the samurai caste, instead became the shareholders of banks and thus credible beneficiaries of reduced political risk and future growth (Jha 2012; Jha, Mitchener, and Takashima 2015). Indeed, the introduction of new financial assets may be successful in mitigating contemporary ethnic conflict (Jha and Shayo 2015). The question of how a broad coalition in favor of parliamentary supremacy emerged in revolutionary England is among the oldest and most famous in political economy. There may yet be new lessons it can teach us.

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SUPPLEMENTARY MATERIAL

An Online Appendix for this article can be found at QJE online (qje.oxfordjournal.org).

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