Research Paper No. 2093

Sharing the Future: Financial Innovation and Innovators in Solving the Political Economy Challenges of Development

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January 2012

RESEARCH PAPER SERIES

STANFORD
GRADUATE SCHOOL OF BUSINESS

Sharing the Future: Financial Innovation and Innovators in Solving the Political Economy Challenges of Development

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October, 2011

Abstract

The failure to align the incentives of self-interested groups in favor of beneficial reform is often considered a major cause of persistent underdevelopment around the world. However, much less is known about strategies that have been successful at overcoming such political economy challenges. One approach that holds much promise, and in fact appears to have had some historical success, is the provision of financial assets that align the interests of winners and potential losers from reform by providing claims on the future.

This paper analyzes the role of financial instruments as a means for fostering broad political coalitions that favor beneficial reforms. It takes as a departure point the benchmark theory of portfolio choice, in which all agents hold the same (market) portfolio and thus all beneficial reforms are adopted. It then analyzes a range of historical cases in which innovative financial assets, often introduced by technocratic reformers, have succeeded at making politics less conflictual over time, focusing on three revolutionary states that subsequently led the world in economic growth: England, the early United States and Meiji Japan. The paper draws upon the theory and the historical cases to assess the promise of finance in solving political economy challenges in contemporary settings.

JEL codes:G00, N20, O10
Keywords: finance, shares, bonds, reform, revolution, growth

*Address: saumitra@gsb.stanford.edu. This is a version of a paper presented at the July 2011 International Economic Association World Congress at a session on "Institutions and the History of Economic Development". I would like to thank Susan Athey, Jon Bendor, Michael Bordo, Gary Cox, Alex Debs, Jim Fearon, Avner Greif, Justin Grimmer, Steve Haber, Chad Jones, Keith Krehbiel, Timur Kuran, Philip Lipscy, Debin Ma, Helen Milner, Kris Mitchener, Dan Posner, James Robinson, Gerard Roland, Dick Sylla and Barry Weingast for very useful discussions. I am grateful to Nick Eubank and Fiona Wilkes for terrific research assistance.

1 Introduction

It is a familiar story. A new leader assumes authority in a country that has recently discovered that it has fallen behind its neighbours in economic development. He brings in foreign expertise, announcing a series of modernizing reforms that adopt what is perceived as best development practice and promises much in the way of social benefits. These include the establishment of schools and competitive exams based upon a modern curriculum, the abolition of sinecure positions in government, and the expansion of a system of railways and banks. However the reforms threaten the interests of existing elites. Within four months of the start of the reforms, these elites stage a coup, imprison the executive and rescind the changes. The country faces years of political unrest, civil war and revolution, at great human cost, before reforms occur.

Though the failure of the "Hundred Days Reforms", attempted by the Guangxu Emperor of China in 1898 (Emperor Kuang Hsu, 1900), does not occupy a prominent place in most modern development economics textbooks, the outcome would not come as a surprise to many. In fact, much blame for persistent under-development around the world has been attributed to a failure to align the incentives of disparate interest groups in favour of political reform and broadly beneficial public policies (Acemoglu, Johnson, and Robinson, 2005a, Rajan, 2006). From Latin America, where interests forming around wealth disparities are blamed for weak contemporary institutions (Engerman and Sokoloff, 2000), to African and other developing countries, where polarization along ethnic lines leads to lower growth and greater conflict (eg Montalvo and Reynal-Querol, 2005), to reduced public goods provision in ethnically diverse jurisdictions in the United States (eg Alesina, Baqir, and Hoxby, 2004), to restrictions on financial market development by incumbents seeking to protect their rents (eg Benmelech and Moskowitz, 2010, Haber and Perotti, 2010), a common theme of historical political economy is that within-society differences in endowments– of wealth, ethnicity or of political rights– can lead to conflicting interests that shape the patterns of economic growth and development we see today.

These works have greatly deepened our understanding of the importance of political economy to impeding development. Yet the policy prescriptions are less clear. Since differences in endowments create the conflicts of interests central to political economy, then in order to change incentives, one often has to change the endowments of the agents– in fact, to homogenize them. Two homogenizing policies are often suggested in policy and academic circles: partition along ethnic lines as a solution for development in areas facing ethnic conflict, and redistributive policies that foster a "middle class" in areas with inequities in wealth. However, there is some debate about whether ethnically-based partitions actually do lower conflict (eg Sambanis and Schulhofer-Wohl, 2009), and only recently has empirical research begun to shed light on the conditions under which partition may occur peacefully or result in ethnic cleansing (Jha and Wilkinson, 2011). Further, even in ethnically homogeneous societies, the redistribution of endowments to create a middle class will likely be blocked by the potential losers from such redistributive changes. In the political economy tradition, therefore, the policy outlook is grim. It is often historical accidents or external shocks that change endowments that are credited with changing support for beneficial reform.

Yet, the problem of aligning the incentives of disparate groups in favour of broad reform and less conflictual politics is very old. Understanding how these problems have been solved in the past may have much to tell us about developing effective prescriptions for contemporary policy. This paper highlights the role that innovations in finance can play and have played in making endowments fungible and aligning interests. The paper takes as a departure point the benchmark theory of portfolio choice, in which all agents hold the same (market) portfolio and thus all beneficial reforms are adopted. It then analyzes the role of finance, deployed often by technocratic problem-solvers, in fostering reforms in three revolutionary states that subsequently led the world in economic growth: England, the early United States and Meiji Japan. In doing so, the paper seeks to draw conclusions for contemporary policy.

2 Complete markets solve the political economy problem.

It is useful to begin with two theoretical benchmarks. First consider an environment with no functioning markets. Let us consider a society with $j \in J^{(1\times N)}$ agents, each choosing to support or oppose a reform. Each agent possesses endowments of $i \in I$ different assets, $W^j = \{\omega_{j1} \dots \omega_{jI}\}$. These "assets" are broadly defined to include physical assets (e.g. land, physical capital), financial assets (e.g. shares in firms or bonds) and human capital characteristics (e.g. endowed social ties, skills and education or ethnicity). Assume that each individual places an initial value of v_{ji} on each endowment i, and that she is risk averse and cares only about ex post utility. Let utility increase in the mean rate of return but decrease in the variance (i.e. the risk). The ex post proportional rate of return for individual j on asset i is given by $\tilde{R}^{ji}$. A simple characterization of this is a slightly modified Markowitz-Tobin utility specification:

$$U_j = E(\sum_i \tilde{R}^{ji}\omega_{ji}v_{ji}) - \frac{\delta_j}{2V^j}Var(\sum_i \tilde{R}^{ji}\omega_{ji}v_{ji}) \tag{1}$$

V^j denotes the total value of the individual j's initial endowments in different types of assets: $V^j = \sum_i \omega_{ji}v_{ji}$, and $\delta_j > 0$. For simplicity, let us define a socially beneficial reform r as improving a weighted utilitarian social welfare function $\sum_j \alpha_j U_{j|r} > \sum_j \alpha_j U_{j|-r}$, with some welfare weights $\alpha_j, \sum_j \alpha_j = 1$.

Each individual will support the reform only if $U_{j|r} \geq U_{j|-r}$. Furthermore, an individual will support reform if the overall rate of return to an individual's endowment increases for a given level of risk, or if the riskiness of the individual's portfolio of endowments falls for a given rate of return. Whether the reform is adopted will also depend on the allocation of political decision rights to each individual. Let us define a subset of decisionmakers $g \in \{0,1\}^N$ such that the reform passes if $\sum_N g \geq \frac{1}{2}$. Thus, in a pure dictatorship, $g = \{0,1,0\ldots0\}^N$, while in a majoritarian democracy under universal franchise $g = \{1,\ldots,1\}^N$. The classic political economy problem then stems from the differences in rates of return to individuals' endowments and the structure of political decisionmaking. For an arbitrary allocation of political decision rights, unless at least half of the decisionmakers g are made better off by the reform, the socially-beneficial reform will not be adopted for the broader population.

In the benchmark case above, with no markets, individuals' interests are shaped entirely by their endowments. Now let us consider the opposite extreme: there are markets for all assets– in other words, there are no uninsurable risks. Now, individuals' subjective value of endowments are pinned down by their ex ante equilibrium prices p_i, i.e. $v_{ji} = p_i, \forall i, j$. The problem above then reduces to the familiar Markowitz portfolio selection problem of choosing that asset portfolio that minimizes the overall variance for a given level of expected return. The efficient portfolio will be the one that eliminates risk unique to each asset. The variance of the overall portfolio can be reduced by diversification: choosing negatively correlated assets. In fact, if individuals are aware of all assets, and there are no transaction costs, each individual will choose to hold the same (market) portfolio of risky assets (Merton, 1987). Depending on risk preference (which may change with wealth), individuals may also hold a greater or small proportion of risk-free assets, but the composition of the risky asset portfolio will not change.[1]

Consider what happens to a beneficial political reform in these circumstances. Now,

[1] Risk-free assets, if they exist, would by definition not be contingent on the outcome of the political reform, and thus will not affect the cutoff values to support reform defined by $U_{j|r} - U_{j|-r} = 0$.

for *any* allocation of ex ante political decision rights, from dictatorship to democracy, *all* beneficial reforms will pass. This is because all individuals, including all decisionmakers, will have the same allocations of state-contingent assets in their portfolio.[2] Thus, complete markets can guarantee the enactment of socially beneficial reforms.[3]

Naturally, the assumptions underlying our modification of the canonical model of portfolio choice are extreme. Not only do we assume the absence of transaction costs, we are expanding our notion of assets beyond those commonly considered financial, such as common stocks, to a broad set of individual characteristics, including ethnicity and other forms of human capital, that are often considered uninsurable (Guiso, Haliassos, and Jappelli, 2003). Yet, this is where financial innovation may help. What is important is not that an endowment can be traded– you may ask, "how would one trade ethnicity?"– but rather a claim on the returns on that endowment can be traded– in other words, is it possible to sell or share the returns on having a particular ethnic identity? We will provide examples of historical situations in Japan and India where it appears that it was.

Fundamentally, the theoretical analysis above suggests that we can re-cast what seem like insuperable political economy challenges into potentially solvable problems of reducing transaction costs and creating means for broad groups to invest in shared objectives. This works by giving political decisionmakers the same portfolio of risky assets as the broader population. The creation of financial assets that make fungible the future returns on endowments naturally reduces the political conflicts of interests that may have otherwise formed around differences in those endowments. Thus there can be a *political economy multiplier* to the more direct effects of financial innovation and the development of financial markets on economic growth (Jha, 2008a).

A further reason that financial mechanisms may be even more effective than strategies that stress redistribution or partition is that they can be used to align the incentives of disparate groups by enabling them to share the future. As we shall see, because financial contingent claims allow a sharing of future returns for new opportunities, without necessarily requiring the politically more difficult redistribution of *existing* assets, financial mechanisms may be easier to implement even in politically contentious environments.

Even while financial mechanisms can make politics less conflictual in theory, a ques-

[2] $\sum_j \alpha_j U_{j|r} > \sum_j \alpha_j U_{j|-r} \equiv NU_r \sum_j \alpha_j > NU_{-r} \sum_j \alpha_j \equiv U_r > U_{-r}, \forall j.$

[3] Note that there may remain conflictual interests on policies that are *not* Pareto improving– such as straight redistribution. The discussion resonates with important work exploring the role of complete financial markets in allowing agents to perfectly hedge the risks of pro-redistribution political candidates by writing insurance contracts (eg Matozzi, 2010) as well as the role played by privatization in fostering opposition to redistributive politics (see Haber and Perotti (2010) for a useful overview). It also resonates with emerging work on the value of having policymakers hold financial assets in making sovereign debt credible (Cox, 2011).

tion that still remains is whether policymakers will implement such financial reforms in reality. In fact, often financial mechanisms have been designed or restricted by incumbents to benefit themselves (Haber and Perotti, 2010). Yet, there are also key examples where financial innovation has been harnessed successfully by technocratic reformers faced with similar problems of aligning incentives of disparate groups and with social welfare objectives in mind. It is to draw lessons from these examples for contemporary policymakers seeking to achieve socially beneficial objectives, whether or not these are in the policymakers' own short-term interests, to which we now turn.

3 Three Revolutions

Since at least the seventeenth century, the leading nations of the world– the Dutch Republic, England, the United States and Japan– have been economies where a financial revolution preceded economic growth (Sylla, 2002). In each of these cases, the expansion of finance coincided with a period of remarkable, even revolutionary, political development. In this section we will draw up on the historical examples of the latter three to examine the generalizable lessons that can be drawn from the role played by financial innovation in solving three tough political economy problems: to create a broad coalition in favour of parliamentary control of government in the case of revolutionary England, to align the interests of armed groups and investors against disunity and violent conflict in the aftermath of the American revolution, and to align the interests of the main potential losers of Meiji Japan's push towards modernization- the samurai. While in England's case, the alignment of political interests caused by financial innovation may have been an unintended consequence, in the US and Japan, financial innovation was an avowed policy of technocratic reformers (Sylla, 2002). Respectively learning from the experience of first England and then the US, these reformers sought to align the incentives of disparate groups towards the support of national, rather than sectarian, goals.

3.1 Innovation and aligned interests in Revolutionary England

In 1552, inspired by the discovery of the New World and learning from organizational ideas developed in Italy, the English created their first joint stock company: *the mysterie and companie of the Merchants adventurers for the discoverie of regions, dominions, islands and places unknown.* Initially motivated by the high degrees of risk associated with oceanic exploration, the joint stock company was innovative for England in a number of ways. First, large numbers of individuals, particularly non-merchants, could invest in shares and overseas opportunities for the first time. Second, unlike the 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. The agency problems of such a governance arrangement were somewhat mitigated by the fact that managers were often those most heavily invested themselves.

The ships of the first joint stock company, having sailed North rather than South in their search for the Indies, ended up in Russia. Rechristened the Muscovy Company, it and other early joint stock companies later switched back to the regulatory company form once it was established the new trade was profitable and less risky. It was unclear whether the joint stock company would survive as a form of organization. Yet enthusiasm for overseas joint stock ventures in England received a nationwide boost due to the unlikely circumnavigation of the world by Sir Francis Drake (1577-80) and his later successful raid on the Spanish silver fleets (1585) (Jha, 2008a, Rabb, 1967). Though initially small as a proportion of the total English population, joint stock investment was considerably more commonplace among political elites: close to half of the members of parliament that sat between 1575 and 1640 were investors in joint stock companies. The majority of these investors did not come from mercantile backgrounds.

However, despite widespread belief in the new opportunities posed by the New World and Asia, England's joint-stock companies virtually all failed to make profits for their investors before the English Civil War, as the Crown was able to use its rights over customs and over charters to extract much of the benefits from England's overseas expansion. Overseas customs went from insignificant levels to more than half of the Crown's revenue on the eve of the English Civil War in 1642 (Jha, 2008a)). It is arguable that the Civil War resulted in large part from conflict over the king's rights over these new opportunities, rights which would alter the future distribution of bargaining power (Fearon, 1996, Jha, 2008a).

Using novel data on the asset holdings of each Member of Parliament and their decisions during the English Civil War, as well as the exogenous shock to the propensity to hold shares among the cohort that came of age at the time of Drake's return, Jha (2008a) finds that shares in these joint stock ventures appear to have played an important role in aligning incentives of non-merchant members of parliament with existing mercantile interests in favour of parliamentary control of government. Under a lower bound estimate of a 12.5% increase in the propensity to support parliament due to shares, the introduction of shares led to a swing from a majority of 58.6% of MPs supporting continued monarchical rule to 59.0% supporting parliamentary control. Among those who were the "compliant switchers"– those that supported Parliament because of their share investments– were three of the 'Five Members' singled out by the king as the ringleaders of the Parliamentary opposition (Jha, 2008a). Rather than extremists, the leaders of the Parliamentary cause during the Civil War were only moderately inclined to revolution and might have actually supported the King in the absence of shares.

These shares did not provide wealth, but they did provide the opportunity for future wealth from a common expansionist national policy in support of England's colonization and trading ventures overseas. Indeed, upon seizing power, the Rump Parliament of the victors of the Civil War, in which previous investors in overseas shares held prominent roles, began to invest heavily in England's Navy, which grew from unremarkable to the largest in the world (Figure 1, reproduced from Jha (2008a)).

A remarkable feature of England's post-Civil War history was that Britain was to push both political power and joint-stock company holdings beyond the confines of monarchical and oligarchic government. By creating companies that encompassed both merchants and non-merchants, joint stock companies in England aligned disparate interests in a manner arguably different from the large overseas ventures of the Dutch Republic and Italian states on one hand and Spain on the other, where merchants and courtiers respectively were sufficiently wealthy not to need to accommodate new social groups in order to share risks. Instead, because the coalition that took power from the king depended on its strength on the alignment of interests and the contributions of a large group that encompassed merchants and non-merchants, not only were there no individuals who were powerful enough to act unilaterally to return to the pre-Civil War state of executive control, the decisionmakers in power had interests that were broadly aligned with those of other wealth holders, and thus broadly lacked the incentive to do so.[4] Thus the new coalition of rulers did not face as severe a 'executive moral hazard' problem with respect to their own wealth.[5]

Instead, a broad consensus spanning both non-merchant and merchant circles appears to have emerged both that England should pursue an aggressive (and expensive) naval and foreign policy expansion and that ultimate control over national policy should remain under the control of the majority of wealthholders, as represented by Parliament, not the

[4]Even the one possible exception, Oliver Cromwell, was highly constrained in his ability to act unilaterally. The constitution of the Protectorate would in fact form the basis for the Revolutionary Settlement following the Glorious Revolution.

[5]Expropriation of the disenfranchised, in contrast accelerated in this period, with a rise of Enclosure and Clearance Acts.

monarch. The 1688 Revolution was later called "Glorious" precisely because it was virtually uncontested and bloodless in England.

Why then did English politics become less conflictual after the Civil War? Not only were the incentives of England's new ruling coalition aligned with that of other wealth holders, even those who were not initially part of the ruling coalition could benefit from its policies through finance. It is likely that the development of active asset markets that occurred between the Civil War and Glorious Revolution allowed both the winners and losers of the reforms to reallocate their portfolios in favour of those investments benefiting from an assertive foreign policy, and thus new coalitions that spanned a large number of initially disparate interests could be amassed. Thus, England's government remained that of the wealthy, but not a stable subsection of the wealthy, nor was it closed to entrants.In fact, companies successively issued new stock to accommodate new MPs to Parliament (Scott, 1912). 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). The consolidation of Parliamentary control and stability of foreign policy following the Glorious Revolution led to a boom in public finance of England's wars (Stasavage, 2003). Holding bonds in the national debt became an accepted asset class, likely further consolidating national support for policies that would finance that debt. By 1718, close to 5% of England's wealth may have been held in financial assets (Scott, 1912). Though debate was heated, particularly over the burdens of state finance, it was much less conflictual than before. As suggested by the theory, it is likely that the emergence of secondary markets in shares weakened the link between endowments and opposition to political reform. Thus, rather than becoming an oligarchy of overseas investors, post-Civil War England began a gradual process towards broadly representative government and, ultimately, democracy.

What else do we learn from England's experience? First, 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" group (Acemoglu, Johnson, and Robinson, 2005b, Moore, 1966), it instead appears that shares aligned incentives by providing a means through which potentially anyone could avail of *future* opportunities.

The remarkably asymmetric weight that people place on losses versus gains is commonplace in behavioural economics. Yet even abstracting from behavioural phenomena, the challenges of taxation in environments, like seventeenth century England, and many contemporary developing countries, where individuals have hidden information about their extent of their resources are of first order importance. With the spread of assets, both stocks and bonds, that would gain in value with the success of England's post-Civil War expansionist national policies and wars, however, the incentive to cooperate with taxation also was likely higher. The seizure of control by the majority of wealthholders, rather than by a single, potentially capricious, individual, of England's foreign policies is likely to have generated a more credible willingness to fund the fiscal-military state, both through current taxation and future taxation (i.e. bonds), that was to secure England's naval and colonial preeminence in the 18th century. With parliamentary control of government, England also enjoyed a remarkable increase in compliance over taxes.

A further lesson from England's experience may be found in the timing of the opening of secondary markets. The lack of secondary markets until the 1660s for most overseas shares and assets may have been a reason that a broad coalition was able to develop. These assets, from trade rights to the Guinea coast to land rights in Virginia– though of great possible future value, were of little value at the time, and also difficult to sell. The constraints on secondary sales and forward contracts of these assets may have been important for reducing overly-concentrated ownership. This may have broadened initial support for reform and policy change, with the subsequent development of secondary markets then allowing to losers from England's reforms to also invest and benefit from its new policies. In contrast, the timing of some modern privatizations, that allowed the immediate presence of secondary markets (as in Russia) (Boycko, Shleifer, and Vishny, 1997) or restricted the secondary market but permitted the ability to make forward contracts (as in the Czech Republic) may have undermined attempts to use privatization to create constituencies favouring the strengthening of general property rights in those countries.

3.2 Innovators: post-Revolutionary US and Japan

England's metamorphosis from monarchical to parliamentary control of government, and the accompanying changes in its financial system took a century of experiment and revolution to effect. However, England's subsequent military successes in the long eighteenth century at challenging nations, such as France, that were considerably larger, more populous and resource-rich, made its system of finance one of great interest to technocratic problem-solvers, such as Alexander Hamilton, seeking to implement and consolidate revolutionary reforms elsewhere (Wood, 2009)[p.103].

Though historical accounts of the US and elsewhere credit the foresight of national "founding fathers", many benchmark models of political economy and institutional change have no role for leadership in institutional design. Those endowed with political decisionmaking capabilities or with wealth are often designated "elites", and defined by their shared endowments. Yet, a parallel empirical literature suggests that many of the most important changes in policies that affect economic growth and development have been implemented by leaders, often dictators with limited constraints on their ability to make policy (Jones and Olken, 2005). Ironically, the role of policymakers and leaders as institutional mechanism designers has been relatively neglected, despite the fact that aligning the incentives of disparate groups is arguably the central problem in the political economy of development.

A key reason for this is that the political economy tradition holds that policymakers should be expected to act in their own best interest. Given that a policymaker's best interest will often lie in maintaining her position, it is only when reforms benefit her personally will reforms occur. Similarly, other elites, anticipating the actions of a reforming policymaker who might undermine their interests, would act to prevent such a person from gaining authority in the first place. Once again, rather than leadership, shocks to endowments are required to effect political change.

To escape the policy straitjacket placed by the logic of political economy, it is useful to recall that innovative ideas can themselves act as shocks. Though technological change is often the crucial driver of neoclassical models of growth, innovation has not occupied a prominent role in historical political economy. Along with technological change, the discovery of a new opportunity– such as those in the New World– or the introduction of a new method of organization– such as the joint stock company– can itself alter political interests. Sometimes, as in England, these new ideas and opportunities have unanticipated consequences that result in a change in interests and thus in reform. At other times they are actually old ideas, adopted and adapted by institutional designers from elsewhere. In the United States and Japan, the very unfamiliarity of innovative ideas may have constituted an opportunity for innovative leadership– as potential losers may not be able to accurately predict the outcome and act to block reforms.

3.3 Revolutionary America, 1790

Mistakes do happen, even when the most foresighted founding fathers are confronted with new ideas. For example, Thomas Jefferson would lament his role in orchestrating the "Compromise of 1790" between James Madison and Alexander Hamilton as the biggest political mistake of his life (Ellis, 2000)[p.51]. According to his own account, Jefferson invited the two to dinner to resolve

> two of the most irritating questions that can ever be raised among [the Congress]: 1. The funding of the public debt; and 2. The fixing on a more

> central residence... And, in time it has become probable that unless they can be reconciled by some plan of compromise, there will be no funding bill agreed to; our credit ... will burst and vanish, and the States separate, to take care every one of itself.[6]

Indeed, Jefferson's fear that the individual states might separate loomed large for good reason. Levi Allen, one of the two brothers who helped establish Vermont, sought to make a separate commercial treaty with the British in Canada and to assist in Vermont's secession (Wood, 2009)[p.112]. There were similarly active discussions by a number of New Englanders who had pre-Revolutionary trading ties with Britain to secede. Spanish attempts to secure the Western hinterland involved closing the Mississippi at New Orleans and offering trade licenses and bribes to settlers in Kentucky and Tennessee, including the commander of the US Army, James Wilkinson (Wood, 2009)[p.113-114]. Anti-Federalists like James Winthrop of Massachusetts considered the difficulties faced by the nascent republic in overcoming the classic political economy challenge of governing such diverse, dispersed interests, and reached a grim conclusion:

> The idea of an uncompounded republick, on an average, one thousand miles in length, and eight hundred in breadth, and containing six millions of white inhabitants all reduced to the same standard of morals, or habits, and of laws, is in itself an absurdity, and contrary to the whole experience of mankind. The attempt made by Great-Britain to introduce such a system, struck us with horrour, and when it was proposed by some theorist that we should be represented in parliament, we uniformly declared that one legislature could not represent so many different interests for the purposes of legislation and taxation. [7]

Yet looking to England's example of a funded public debt, the pro-federalist Hamilton saw an opportunity where many others saw a liability: the 25 million dollars of debt incurred by the states during the Revolutionary war, and owed mainly to Revolutionary war veterans. While the representatives of the main debtor states such as Massachusetts, Connecticut and South Carolina, saw an opportunity to share the burdens of this debt with taxpayers elsewhere, Virginia, Maryland and Georgia had already paid much of their war obligations (Wood, 2009)[pg141]. Over the famous dinner at Jefferson's in 1790, Hamilton agreed to support the permanent settlement of the capital in the South on the Potomac and compensate for Virginia's additional tax burden in exchange to a weakening of Madison's objections over the assumption of state debt.

[6] Thomas Jefferson to James Monroe, June 1790, (Foley, 1900)[p. 59]".

[7] Agrippa, no. 4, 3. December 1787, in Herbert Storing (1981), ed. *The Complete Anti-Federalist*, Vol 1, Chapter 8, Doc. 21, University of Chicago Press.

Whether or not the Compromise of 1790 was actually critical to the passage of both bills is subject to some debate (Clinton and Meirowitz, 2004). Regardless, it appears that Hamilton's victory on Assumption in 1790 may have created a coalition critical for the success of his further reforms, including the creation of the Bank of the United States.[8] The Bank of the United States and its branches stimulated the competitive chartering of other banks and joint stock companies by the legislatures of individual states. The number of chartered joint stock companies experienced a boom, rising from seven in the entire colonial history of the United States (1607- 1776) to 28 between 1781-91 and 295 between 1791-1800. Between 1800 and 1830, the ten northeastern US states alone issued more than 3,500 corporate charters (Sylla, 2008). In New York City, the proportion of households holding stock may have risen from 6% in 1790 to 11% by 1826, despite a period of rapid population growth (Hilt and Valentine, 2011).

While the empirical link between Assumption and the generation of a coalition of support for Hamilton's other reforms is a subject of ongoing research (Jha, in progress), there are reasons to believe that it was Assumption that created a coalition that provided support for Hamilton's Federalist program. Federal and state war debts totalled $67 million, mostly owed in the form of backpay to war veterans, an important organized group with the geographical coverage and resources to likely to play an important role in the subsequent legislative politics or disunion of the United States. At the same time, speculators had bought up the war bonds from a number of veterans, creating some concentration of ownership of the new US public debt (Wright, 2008). While both groups previously would have depended on state legislatures for their payments, now many, particularly in the erstwhile debtor states, had an interest in support the funding and the policies of a Federal government that backed (and could also default) on this debt. In particular, it is likely that the interests of the war veterans became aligned in reducing political conflict and in supporting the integrity of the union. Once again, two important but very different constituencies thus gained similar interests. The fact that these debts could be traded in the emergent market for US securities may have expanded these constituencies beyond veterans and first movers. Indeed preliminary results reveal a robust relation between a Congressman's decision to vote for the Bank Bill and the proportion of bondholders in his district, even comparing Congressmen from the same state, with the same party affiliation and similar ideal points.

To Hamilton's legislative opponent, Thomas Jefferson, the causal effect of Assumption was clear. Writing three years after the Compromise, Jefferson argued that Assumption:

[8] For excellent discussions of Hamilton's reforms, see Sylla, Wright, and Cowen (2009) and Sylla (2008).

> was unjust in itself, oppressive to the States, and was acquiesced in merely from a fear of discussion. While our government was still in its most infant state, it enabled Hamilton so to strengthen himself by corrupt services to many that he could afterwards carry his bank scheme, and every measure he proposed in defiance of all opposition. In fact it was the principal ground whereon was reared up that speculating phalanx, in and out of Congress, which has since been able to give laws to change the political complexion of the United States"[9]

Jefferson's mistake and Hamilton's innovative use of financial instruments to generate a political constituency for reform arguably had lasting and profound effects on the unity and the financial development of the United States. The Federalists' control over American government would not last, but Hamilton's change of the "political complexion" of the United States, particularly in the creation of a "speculating phalanx" of financial institutions and interests appears to have persisted, surviving Jefferson's terms as president and even Andrew Jackson's veto of the charter of the Bank of the United States in 1832.[10]

Hamilton's reforms did not result in a dominant central government- in fact the competitive chartering of state banks to compete with the branches of the Bank of the United States may have instead acted ultimately to also strengthen within-state interests (Haber, North, and Weingast, 2008). Regardless, what the veterans, speculators and local state elites that became the assetholders of both the Federal and the state banks were likely to share was a natural interest in lowering the threat of local violent conflict and in peaceful, legislative resolution of disagreements between the states.

3.4 Revolutionary Japan, 1867-1880

The assumption of debts owed to war veterans in the democratic context of the post-revolutionary United States was to be a strategy also used in the feudal dictatorship of post-revolutionary Japan. The fall of the Tokugawa Bakufu in 1867-68, precipitated in large part by attempts by the US and other countries to 'open Japan', brought about the end of over seven hundred years of warrior rule. Though often considered highly

[9]Thomas Jefferson (1793), in Foley (1900) (page 61).

[10]Jefferson would remain convinced of the importance of Assumption, writing near the end of his life:

> ...and so the Assumption was passed, and twenty millions of stock divided among the favored States, and thrown in as pabulum to the stock-jobbing herd. This added to the number of votaries to the Treasury and made its Chief the master of every vote in the Legislature which might give to the government the directions suited to his political views.– Thomas Jefferson (1818) The Anas. ix, 92, Ford edition, i, 161

homogeneous today, Japan, like the early US republic, had strong regional differences, divided into feudal domains, some of which enjoyed a large range of local autonomy from the Shogunate. The Boshin War of 1868, though fought to "restore" the rule of the Meiji emperor, was largely a domainal war between Tokugawa feudatories in the north-east and an alliance of domains, mainly from the Southwest. It was unclear whether the Meiji restoration would simply replace the Tokugawa-led shogunate with a shogunate led by the domains of Satsuma and Choshu, or whether Japan would once again disintegrate (Jansen, 2000).

Where Japan also differed from the American Republic and England, was the presence of a hereditary caste system. At the bottom of the hierarchy, ritually unclean professions were the exclusive domain of an untouchable caste, while the samurai atop enjoyed the exclusive right to administrative and military positions in exchange for hereditary stipends of rice. Samurai were legally and custom-bound not to accept other professions or to inter-marry with commoners (*heimin*) (Jansen, 2000).

Lower-ranking samurai, once more urban bureaucrats than men-at-arms, had begun to remilitarize in response to the forced opening up by the United States and other countries. A number had returned from action in the Boshin War. Instead of being rewarded, however, the 1,800,000 samurai would be the likeliest losers of the modernization of Japan. General conscription off all male Japanese was introduced in 1873, abolishing the exclusive rights of the samurai to the military. Large numbers of samurai retainers became unemployed. As Figure 2 suggests, soon afterwards began a series of armed rebellions by declassed samurai, the largest of which, the Satsuma Rebellion of 1877-78, often considered a civil war, cost ¥42 million, or 80% of the government's budget, required the mobilization of 68,000 troops and led to the loss of life of 20,000 ex-samurai and 6,000 government soldiers (Vlastos, 1989).

Despite the presence of a class of elite and militarized potential losers and despite the strong regional cleavages, Japan did not disintegrate. Instead, as the historian Marius Jansen (2000)[pg. 335] concludes: "Japan, which began the Meiji period as one of the modern world's most fractured polities, emerged within a generation as one of its most centralized states". Japan's caste distinctions too rapidly diminished. It is further commonly accepted that the reforms of the early Meiji period– including the abolition of samurai privileges, the development of a modern banking system and introduction of private ownership of land– also laid the basis for Japan's remarkable catch up in economic growth. How then did the administrators of the Meiji era build support for their reforms?

Jha and Mitchener (in progress) explore the role played by a series of reforms, in addition to a novel use of deflationary monetary policy in aligning the incentives of the most dangerous potential losers to reform with that of the Meiji state: the declassed samurai. In 1871, the central government abolished the domains, pensioning off their feudal lords, and, like the US republic, took over responsibility for paying the samurai stipends. However, these stipends absorbed close to a third of the government's budget. Amidst the period of violent samurai protest (Figure 2), the government responded by an innovative package of reforms. First, the samurai's rice stipends were compulsorily commuted into interest-bearing bonds in 1876. 310,971 ex-samurai received public bonds worth ¥113 million (Harootunian, 1960). At the same time, the National Bank Regulations were modified so that samurai bonds could be exchanged for stock in newly-opening branches of the National Bank. Bank owners were required to capitalize the bank using 80% government (i.e. samurai) bonds. The remaining 20%, in currency, could come from the *heimin* (commoner) class. Subsequent to these reforms, Matsukata Masayoshi was appointed to the post of Finance Minister in September 1881. He reversed a long-period of inflation that had eroded the value of the 7% samurai bonds to less than two-thirds of their face value by instead implementing a dramatic period of monetary and fiscal tightening known as the "Matsukata Deflation" (Figure 2), with 36% of paper yen taken out of circulation (Vlastos, 1989, Jansen, 2000). This macro policy led to a transfer of wealth from debtors (mainly farmers) to bondholders (mainly samurai). Matsukata was clearly aware of the threat to the Meiji state posed by the declassed samurai even after the failure of the Satsuma Rebellion. As he noted in 1883, "If the government remained an onlooker to the plight of the samurai, it would have certainly meant that the government did not understand the relationship between peace and rebellion."[11]

Jha and Mitchener (in progress) perform a difference-in-difference analysis, exploiting idiosyncratic pre-Meiji heterogeneity in the average stipend level per samurai in domains and the timing of the Deflation to examine the role played by the Meiji reforms on bank formation, the reduced propensity for samurai rebellion, rises in "debtor" protests, and for the change from violence towards to peaceful political mobilization (*juyu minken* "popular rights" parties) in favour of representative government.

Though there is much empirical work that remains to be done, the qualitative evidence suggests that there was a strong relationship between the reforms and the alignment of samurai interests in favour of modernization and commercial development. The change in banking regulations in 1876 led to a dramatic expansion of bank branches, increasing from seven to around 150 new banks within two years- so many, in fact, that the govern-

[11]Masayoshi, Matsukata (1883) "Memo Explaining the Way to Eliminate Bank Notes", cited in Harootunian (1960)[pg.440].

ment called a halt to future expansion (Yamamura, 1967). In 1878, 29,360 samurai and nobles controlled ¥30, 580, 000 in bank stock, compared to ¥8, 870, 000 held by 4,730 commoners (Harootunian, 1960)[pg.440]. Though commoners would play an increasing role in the banks (Yamamura, 1967), in 1882, samurai still owned three-quarters of the stock of Japan's banks (Harootunian, 1960). As one might expect among a class of newly-minted bankowners, political risk in the form of violent samurai rebellions appear to have ceased. Instead the samurai played a central role in peaceful political protests (*jiyu minken*) that helped propel Japan towards the framing of a constitution and its first national elections in 1890. The reforms and the Deflation was not without losers– "debtor's parties" emerged, and there were 108,850 bankruptcies in 1885 alone (Vlastos, 1989). Though Japan's reforms appear to have succeeded by using financial instruments and monetary policy to allow the group most likely to impede reforms to share in the future, this may have been at the expense of those who posed less of a threat.

4 Discussion

Our two examples of technocratic leadership using financial innovations to solve political economy problems– the early US republic and Japan– are interesting not just because these became among the fastest growing states of their time following their financial development, but also because they show that financial innovations can work in both a democratic environment, where the challenges faced by technocratic leaders were on building legislative support for reform, and in an emergent caste-ridden dictatorial state, where the threats posed were mainly of violent resistance. In fact, the effect of financial innovation in aligning incentives of groups by allowing them to share in the future, in the case of both England and Japan, may have played an important role in their movement towards representative government.

In seventeenth century England, the introduction of the joint stock company allowed non-merchants to share in the opportunities available to overseas merchants through their accumulated human capital– access to overseas trade and skills at navigation. In the early US, the assumption of state debts may have aligned the incentives of a "speculating phalanx" of individuals opposing violent inter-state conflict that became broader as finance expanded. In Japan, shared stock investment by declassed samurai and non-samurai in banks may have played an important role in aligning interests in favour of broader political representation and economic growth. The failure of the Hundred Day's Reforms in China may in contrast have been, in part, due to failure by Chinese reformers to realize the importance of finance as a means to reconcile the interests of incumbent elites to reform.

The social heterogeneity in the Japanese example is particularly useful to consider in contemporary developing societies. Though the status of the samurai as an endogamous caste or "ethnicity" had been legally abolished during the first generation of the transition, the Japanese explicitly provided ethnically-based financial assets and an opportunity for samurai and non-samurai to share in the future through the capitalization of long-lived institutions- Japanese banks. In doing so, Japanese reformers appear to have implemented, rapidly and at a large scale, the creation of long-lived institutions that parallel those that supported small inter-ethnic equity partnerships and sustained inter-ethnic cooperation among Hindus and Muslims for centuries.[12] However, the Japanese use of financial claims on a shared future instead of ethnic specialization as a means of aligning interests towards cooperation may have been more effective at undermining social and ethnic distinctions.

More broadly, there are three useful ideas to consider when attempting to develop policies that may successfully address the gravest political economy challenges of development. First to escape the policy straitjacket of political economy, it is useful to recall that innovative ideas can also act as shocks. Along with technological change, the discovery of a new opportunity or the introduction of a new method of organization or an innovative process to a society can itself alter political interests. Sometimes these new ideas have unanticipated consequences that result in a change in interests and thus in reform. At other times they are actually old ideas, adopted and adapted from elsewhere. As we saw in the cases of revolutionary England, the United States and Japan, the very unfamiliarity of innovative ideas may constitute an opportunity– as potential losers may not be able to accurately predict the outcome and act to block reforms.

Beyond the indirect role of technological change in changing interests that lead to political reforms, a particular class of ideas and approaches may be particularly valuable in generating new and broader pro-reform constituencies: those that improve the ability of disparate groups to share the value of future opportunities. Financial mechanisms– shares, bonds and their derivatives– can allow individuals to share ownership claims on both current and future revenue streams, not just of asset classes we commonly consider financial, but even of human capital and ethnicity. In fact, since with complete markets and no transaction costs, agents all hold the same (market) portfolio, we can reduce the

[12]Though Indian attempts to develop joint-stock companies go back as early as Tipu Sultan's in the late 18th century, most trade in the Indian Ocean continued to be done, often in large convoys, but through relatively small partnerships until modern times (Kuran and Singh, 2010). This may explain why long-lived Indian institutions supporting inter-ethnic cooperation tended to take different and often non-financial forms (Jha, 2008b).

gravest challenges of political economy to the challenge of creating markets and reducing transaction costs.

There is much work to be done: theoretically on the most politically viable path to implement such reforms, and empirically and experimentally, on the effect that the introduction of novel financial instruments, such as those that share ethnic risks, might have on making politics less conflictual and consolidating reform. However, this paper has sought to provide important examples where reforms *were* consolidated, even in the face of strong opposition, by technocratic leaders who tried new (and sometimes old) financial approaches to political development. By facilitating the process through which individuals can credibly share the gains of a broadly beneficial post-reform future, financial innovations, done right, hold much promise for leaders seeking to solve the political economy problems of development.

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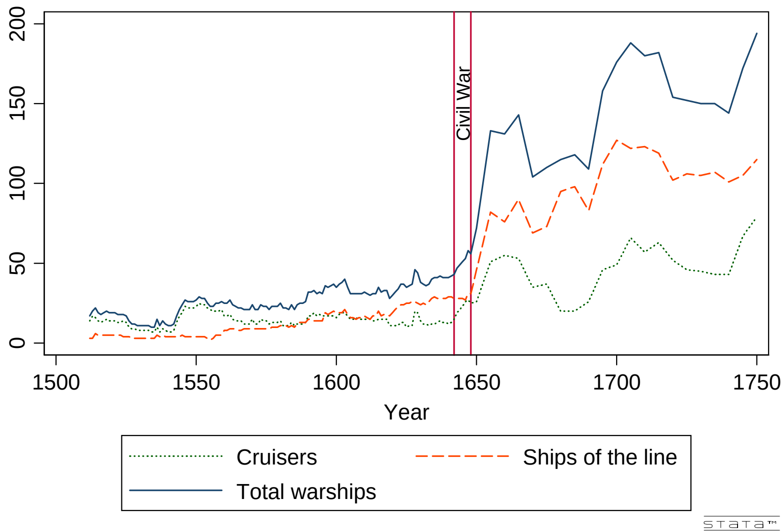
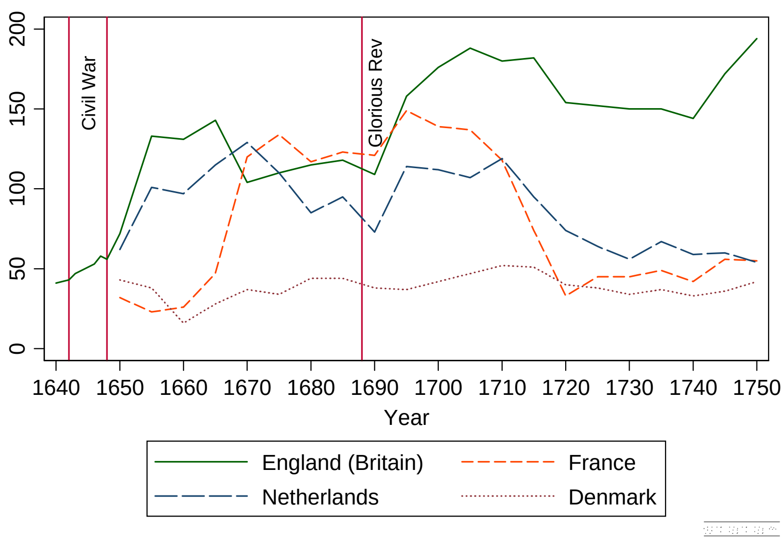


(a) Warships in the Royal Navy, 1518-1750



(b) The Royal Navy and its rivals, 1640-1715

Figure 1: **The emergence of the Royal Navy following the Civil War.**
source: own calculations from ship lists compiled by N.A.M. Rodger. *Cruisers*: ships > 100 tons burthen; *Ships of the line*: > 500 tons & 50+ guns. The naval classification of “ships of the line” was introduced midway through this period, so ships from the preceding period are classified using the definition above.

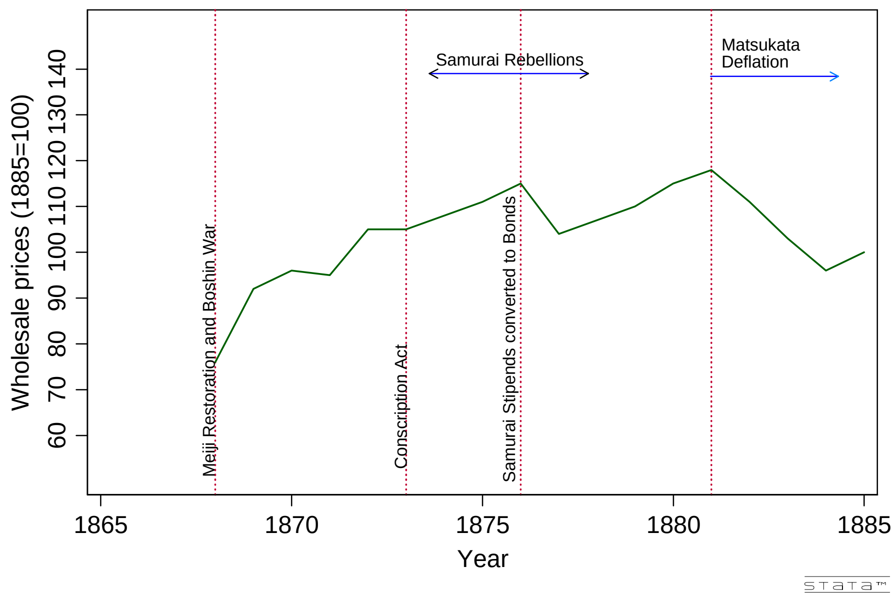


Figure 2: **Price levels and samurai policies in early Meiji Japan.** (source: the Asahi Shimbun, as cited in (Goldsmith, 1983)[pg 21]).