

FINANCIAL VULNERABILITY: HOW EXPOSURE TO THE WORLD ECONOMY INFLUENCES DEBT  
SUSTAINABILITY AND RESPECT FOR HUMAN RIGHTS

By

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## **ABSTRACT**

### **FINANCIAL VULNERABILITY: HOW EXPOSURE TO THE WORLD ECONOMY INFLUENCES DEBT SUSTAINABILITY AND RESPECT FOR HUMAN RIGHTS**

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A defining feature of the post-World War II global order has been the continued integration of national economies, and much scholarship has investigated the general impact which this integration has had on national outcomes ranging from development (both economic and political) to security (whether it impacts the likelihood of war). In this dissertation, I examine not simply integration itself but the manner of integration which has an important influence on world affairs. Specifically, I investigate what conditions render a country vulnerable to international financial markets, and what impact this financial vulnerability has on important national outcomes such as debt sustainability, dealt with in chapters one and two, and human rights practices, in chapter three. In the first chapter, I examine a long-held theory of financial market discipline which argues that market exposure induces prudent fiscal policies by governments. To date, there has not been a clear and systematic demonstration that markets actually have this effect, and so here I theorize the most likely market conditions which may give rise to fiscal discipline. While I demonstrate that there is little evidence in favor of the market discipline hypothesis, I highlight alternate pathways of political competition which do lead to improvements in fiscal budgeting practices.

In the second chapter, I examine another widely held theory, that democratic institutions foster the credibility of debt repayment, the so called “democratic advantage”. Focusing on developing countries, I show that democracies under financial stress – countries with high

levels of debt and low levels of foreign exchange reserves – actually have worse sovereign credit ratings than their autocratic counterparts. I argue that this occurs because democratic institutions can inhibit or slow a policy response when there is a pressing need for economic adjustment. Further illustrating the causal mechanism, I show that high debt levels reduce credit ratings, but only in more democratic countries. I therefore show that when debt commitments are most difficult uphold, in the developing world autocracies actually fare better than democracies, offering an important theoretical advance in how we understand democratic institutions relate to economic stability.

In the last chapter, I examine an important dilemma in economic statecraft – that the use of human rights sanctions has the perverse effect of worsening a countries' human rights practices. Drawing on a similar conception of financial vulnerability, I argue that countries with high levels of financial vulnerability will more closely approximate the ability of the ruling elite to suffer financial hardship as a consequence of the sanctions, in ways unexplained simply by economic wealth alone. As a consequence, I show that, contrary to the literature, financially vulnerable countries actually improve their human rights practices when sanctions are imposed. This therefore demonstrates that sanctions can have a positive impact even in difficult cases which aim to coerce national use of repressive strategies. It further highlights the types of sanctions tools which are most like to be efficacious given a countries exposure to the world economy.

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## CHAPTER 1: The Effectiveness of Fiscal Institutions: International Financial Flogging or Domestic Constraint?

Many have argued that financial markets are able to exert pressure on governments to maintain sustainable budget balances (i.e. smaller deficits), in what has been known as the market discipline hypothesis. Since investors charge higher interest rates on debt for countries who have accumulated large debt burdens, scholars have suggested that governments will feel compelled by these rising interest rate costs to reduce deficit spending. Recently, it has been argued that two important fiscal institutions – fiscal rules (such as a balanced budget requirement law) and fiscal transparency (how observable the budgeting process is) – are crucial to enable financial markets to exert this disciplining pressure on governments. This idea, that financial markets can effectively pressure governments in the presence of these fiscal institutions, is what I call the Financial Flogging Hypothesis. Despite the prominence of this market discipline hypothesis, however, studies of fiscal rules or fiscal transparency have not actually demonstrated that financial markets play a causal role in the effectiveness of these fiscal institutions. Instead of showing that market prices augment the effectiveness of fiscal institutions at reducing deficit levels, studies have tended to show the reverse: how fiscal institutions influence debt prices (Kelemen and Teo 2014; Lowry 2001; Iara and Wolff 2011; Afonso and Guimarães 2013). As a result, the emphasis has been only on one-half of this theorized relationship, and therefore it is not clear whether fiscal rules and fiscal transparency are effective *because of financial markets*, as the financial flogging hypothesis suggests, or due to other mechanisms.

In this paper, I redress the empirical shortcoming of the literature by specifying direct tests of the financial flogging hypothesis. In addition, I suggest that an alternative causal mechanism – political competition and public pressure – is a more likely mechanism for the effectiveness of fiscal institutions in reducing fiscal deficits. As a result, I both test the financial flogging hypothesis in a more systematic way than has previously been done, but also test this hypothesis against an alternative causal pathway of domestic politics. And while these are not mutually exclusive possibilities – markets or political competition – the framework that I articulate here allows us to begin to understand more concretely the existing evidence for each mechanism. Contrary to expectations from the literature, I show that there is little support for the financial flogging hypothesis: markets do not seem to have a significant impact on fiscal spending. However, there is robust support for the role of various domestic political actors. Theoretically, the literature on market discipline does not fully specify a causal chain explaining why we should expect financial markets to effectively flog governments into better fiscal performance. While they argue that costs should pressure governments, it is never clear why such market-based costs should translate into meaningful political action. Governments which are deficit spending at unsustainable levels are likely doing so because they see a rational political benefit to the policy. This may arise, as an example, if political leaders use fiscal policy to support their constituents but also believe that they are insulated from the risk of blame for such deficit spending. In order to compel fiscal discipline, therefore, the economic costs faced by governments running fiscal deficits need to be large enough to generate substantial political pressures. Small changes to debt costs would likely be insufficient to coerce political leaders to enact unpopular deficit control measures, such as spending cuts or tax increases. Since it has

been shown that higher debt only leads to small increases in interest rate costs (Mosley 2003; Lowry and Alt 2001), and that deficit spending is not electorally punished in the developing world (Brender and Drazen 2008), it is not clear exactly how financial markets supposedly generate strong enough political pressure to impact fiscal policies.

I argue that, rather than financial markets, a more likely mechanism by which fiscal rules and fiscal transparency generate political pressure is domestic political competition (competitive opposition parties and veto actors) and public pressure (by active civil society organizations and in democracies). First, fiscal transparency enables the public to more easily monitor the fiscal performance of the government, thereby subjecting the executive to greater scrutiny of its budget. In a situation of high transparency, the political opposition is then able to use a fiscal rule, such as a balanced budget law, as a means of gaining political leverage against the incumbent. Where the government is not living up to its fiscal commitments, opposition parties stand to benefit by using fiscal rules as a rhetorical weapon against the regime, alleging recklessness and endangerment of the economy. In this way, in politically competitive environments, these fiscal institutions may lead to smaller fiscal deficits because incumbents may fear the political backlash associated with policies of excessive spending. This implies, then, both that political opponents will fight back against government fiscal policies, but also that the public cares enough to facilitate the political backlash. Empirically, I will show both that political competitors (elites) matter, and that a vibrant civil society is another manifestation of political power which augments the effectiveness of fiscal institutions.

This is a novel contribution, first because much of the existing market discipline literature has neglected to strongly consider the role of political competition as a causal mechanism. For

instance, Kelemen and Teo (2014) suggest that the literature of fiscal institutions has explored only judicial mechanisms or financial markets, with no mention of political competition. By examining the financial flogging hypothesis systematically alongside these political competition channels, it helps to highlight a deficiency in the market discipline research while at the same time advancing our understanding of how these fiscal institutions can succeed via political competition. In short, we gain a clearer understanding of what causal pathways are actually at play. Furthermore, while an existing literature has examined the effectiveness of certain fiscal institutions due to political competition (Hallerberg, Strauch, and von Hagen 2009; Hallerberg and Yläoutinen 2010; Hallerberg and Wolff 2008), such studies have almost exclusively focused on the European Union or the EMU and have emphasized institutional features often particular to parliamentary democracies<sup>1</sup>. Consequently, it is a very open question how fiscal institutions function in contexts without an overarching supranational body (EU), a currency union, or in diverse political regimes. By contrast, I examine fiscal institutions - fiscal rules and fiscal transparency – which are not particular to any regime type. More importantly, I emphasize aspects of political contestation which apply globally and help to illuminate the specific features of domestic politics which make such institutions binding constraints.

As an example of the importance of fiscal rules and political competition, the US “debt-ceiling negotiations” of late 2011<sup>2</sup> are illustrative of this logic. In this case, the US has a “debt ceiling rule”, which caps the legally allowed amount of borrowing the US government is able to issue.

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<sup>1</sup> See, for instance, Hallerberg’s many excellent co-authored works and emphasis on the “contracting approach” and the strength of spending ministers.

<sup>2</sup> This experience of political brinksmanship led the credit rating agency Standard and Poor’s to downgrade the rating quality of US debt.

Every few years the US Congress must increase this debt ceiling or the US government would no longer be able to issue new debt, which would then trigger a debt default. In 2011, the political opposition in the US House of Representatives (the Republican Party led by Representative John Boehner) insisted that President Obama agree to drastic spending cuts, or they would not pass an increase to the US debt-ceiling limit. While failing to achieve a comprehensive debt reduction agreement, in the end a compromise known as sequestration was passed which has improved the US fiscal position for the remainder of President Obama's full term in office<sup>3</sup>.

What we see from this example is that an improvement in the US fiscal position was achieved as a consequence of the opposition party leveraging the existence of a form of fiscal rule (the debt ceiling law) in order to extract fiscal concessions from the president. At the same time, the financial flogging hypothesis would predict that political actors were motivated by the cost of debt. In the US episode, however, it is clear that interest rate costs of US issued debt (both in terms of 10 year and two-year nominal treasury bonds)<sup>4</sup> were *declining* from 2010 throughout these debt-ceiling negotiations. So while this highlights the role of fiscal rules and political competition, it also shows that the costliness of US debt was not a driving force of the subsequent improvement in the US fiscal budget, contrary to financial flogging expectations. To directly test the financial flogging hypothesis, I propose a series of hypotheses regarding where we would be most likely to observe financial markets influencing government deficits. Given the presence of fiscal institutions – fiscal rules and transparency – I posit that we are likeliest to observe smaller deficits for countries who are most financially vulnerable to the risk

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<sup>3</sup> See the Congressional Budget Office webpage for historical budget data – discretionary outlays.  
<https://www.cbo.gov/about/products/budget-economic-data#2>

<sup>4</sup> This is according to data publicly available at [www.treasury.gov](http://www.treasury.gov)

of economic shocks. For some countries, large deficits do not just mean more expensive debt financing but indicate a significant escalation in the risk of a negative economic shock. For these countries, deficit spending is arguably much more deleterious than for countries with a more stable financial position. Therefore, *if* the financial flogging hypothesis is correct, then we should observe that fiscal deficits are smaller for financially vulnerable countries who have adopted fiscal institutions. Comparatively, I argue that fiscal institutions are effective not primarily due financial markets, but due to domestic political competition and public pressure. In this case, we should expect that fiscal institutions lead to smaller deficits where political opponents have the most leverage against the executive, and therefore have the greatest means of restraining fiscal deficits. I suggest that countries with divided government and more politically competitive environments represent such cases of increased political leverage. Specifically, these are countries with more veto players, in democracies, and countries with a higher opposition party vote share in elections. Additionally, I argue that countries with higher participation levels from civil society organizations are another manifestation of political pressure on the government which enhances the effectiveness of these fiscal institutions. As a final note, these competing hypotheses certainly are not mutually exclusive, and reality could lie somewhere in between. Nonetheless, a fruitful starting point for such an investigation begins with a clear exposition of the conditions under which both mechanisms could present themselves. If one set of hypotheses finds clear support while the other does not, this would be evidence which helps us begin to distinguish whether both theories have support or whether it causes us to reflect more deeply on the absence of evidence for a long-held theory such as market discipline.

Using global data on 69 countries from 1990 to 2008<sup>5</sup>, I test these hypotheses and find that fiscal institutions do lead to smaller fiscal deficits, but do not appear consistent with the financial flogging hypothesis. Rather than finding significant results where international financial pressures are the greatest, we see a significant effect of these institutions in settings of greater political contestation. As a result, we have the clearest test of the financial flogging mechanism to date, and we fail to find support for this long-held theory. Moreover, we can take these findings as suggestive of the importance of political competitors underlying the effectiveness of these fiscal institutions. I further show that these results are robust to controlling for possible selection bias among countries who choose to adopt these fiscal institutions. Lastly, I also demonstrate that these institutions are effective even excluding Eurozone countries, who arguably have stronger incentives than most to maintain fiscal discipline.

These findings have noteworthy implications for financial stability and helps inform the design of international economic policy. Understanding the causal mechanisms of fiscal rules is important, because a mistaken understanding of why such institutions seem to be effective can lead financial markets to price the riskiness of debt incorrectly. Consequently, a better causal understanding can mitigate the negative economic consequences of a financial shock because markets could hedge against such risk. A misplaced understanding of the role of financial markets could also lead to the adoption of policies which will do little to address fiscal shortcomings and could plausibly be harmful. For instance, it could incorrectly inform an emphasis on capital account liberalization where it may not be optimal. While sometimes

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<sup>5</sup> The data ends in 2008 due to data constraints in the fiscal transparency (MTF) variable.

positive, recent literature has found that for some countries liberalization of the capital account can increase risk to the banking sector (Klomp and de Haan 2009; Vasicek et al 2017; Hamdaoui et al 2016; Qin and Luo 2014). As a result of these issues, this paper advances a research agenda which informs our understanding of risk and development strategies with respect to fiscal stability.

### **Literature: The Market Discipline Hypothesis**

Much work has been done examining the role for fiscal rules or fiscal transparency as possible solutions to the problem of excessively spending governments, with the general finding that these institutions are an effective means of promoting more stable fiscal policies. The key issue in the present context is *why* these fiscal institutions are effective.

The conventional mechanisms are suggested to be either judicial enforcement or financial markets (Kelemen and Teo 2014). Here I overview the literature arguing in favor of the market discipline hypothesis, after which I discuss the newer financial flogging hypothesis and its emphasis on fiscal institutions. Most do not explicitly test whether markets influence fiscal policies, and the few who do either fail to find supportive evidence or present mixed results. As noted, the 'financial flogging hypothesis' is a term I employ to distinguish the Kelemen and Teo (2014) argument about market-based discipline from its antecedent, the simpler 'market discipline hypothesis' (Bayoumi, Goldstein, and Woglom 1995). The market discipline hypothesis argues that international lenders (the financial markets) exert meaningful pressure on governments to restrain spending because they charge higher prices for government debt the larger the debt becomes. In this literature, scholars most commonly show the effects of debt or fiscal rules on two main measures. The first is sovereign bond rates, which are interest



rate costs of debt (higher interest rates reflecting greater risk). The second is a sovereign credit rating<sup>6</sup>, which is a 21-point rating scale which assesses the risk of a national default on debt obligations, and are given by agencies such as Moody's Analytics or Standard & Poor's (the highest rating of which would be the "AAA" rating). These studies assess these financial market costs with the direct implication that higher sovereign financing costs will be onerous for governments and therefore can compel a change in behavior.

While there are a few exceptions, most of this literature does not actually demonstrate that markets have changed the course of fiscal policy *due to market costs*. Bayoumi et al (1995a) is an early example, examining US State governments and estimating how much more expensive sovereign debt becomes given an increase in fiscal deficits (they find an upper range estimate of 35 basis points). Kumar and Baldacci (2010) and Mosley (2003) undertake similar analysis to estimate the effect of deficits on bond prices and find comparable results - higher deficits do increase bond prices, although this effect is small in magnitude. Hallerberg and von Hagen (1999) also directly examine the effect of debt costs on fiscal deficits, finding that debt-service costs are not significantly related to deficits, contrary to market discipline expectations.

Similarly, research has examined how credit rating *downgrades* influence fiscal behavior. If countries responded to a rating downgrade (signaling an increase in default risk) by improving their fiscal balances, then it would seem to validate the theory of market discipline. Duygun et al (2016) come close, although they do not show that downgrades influence fiscal policy; rather, only after rating *upgrades* do countries improve their fiscal behavior. As such, it is not

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<sup>6</sup> "Sovereign in this case indicates a 'national' government credit rating, but credit ratings can be applied to other debt-issuing governments as well. For instance, since US state governments can themselves issue debt, ratings agencies have long issued credit ratings for state government bonds as well.

clear that governments respond to *financial market pressure* or that they feel coerced by markets to adjust their spending preferences, according to market discipline expectations<sup>7</sup>. Hanusch and Vaaler (2015) show that ratings downgrades reduce the likelihood of incumbent reelection, which is noteworthy, but fail to find that downgrades or negative outlooks have an effect on government *fiscal spending*. Specifically, when restricting the analysis to countries with poorer ratings, they show not that countries threatened with a negative outlook spent less<sup>8</sup>, but that countries with a positive outlook did. Soudis (2014) also examines whether ratings downgrades influence government policy, showing that ratings downgrades *do not* lead to the adoption of neo-liberal market-friendly reforms. This is noteworthy because, presuming market discipline, we would expect downgraded countries to “course correct” with policies that financial markets would find favorable, although Soudis did not find it to be the case. We can therefore see that there is a relative dearth of studies who actually observe an influence of financial market pressure on government spending decisions.

### **Literature: The Financial Flogging Hypothesis**

Kelemen and Teo (2014) depart from the previous market discipline literature by essentially agreeing that markets, on their own, are not able to discipline governments effectively. If they did, they suggest, then bond yields would rise approximately linearly as an increasing function of debt. As a result, governments often do not face much pressure from markets, and there is

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<sup>7</sup> Caution seems warranted here since reverse causality could also be at play – that, upgrades don’t *cause* better behavior but merely that ratings agencies sense a positive improvement in budgeting practices and therefore upgrade because *they already sense* a shift in discipline. For instance, as Duygun et al do not include fiscal institutions, it could be that countries have adopted a balanced budget law, receive a rating upgrade, and then subsequently the budget law is what is successful in suppressing deficit spending rather than the rating upgrade.

<sup>8</sup> In fact, while the variable is not significant, the coefficient is actually negative – suggesting that negative outlook countries still deficit spend in election years.

little to prevent them from reaching a fiscal crisis. And at such a point, I argue, markets have clearly failed to fiscally “discipline”. Yet Kelemen & Teo argue that financial markets *do discipline* governments, but are only able to do so when there are fiscal rules (such as a balanced budget law, which can act as a focal point to coordinate financial market punishment) and fiscal transparency is high (such that markets can independently and clearly discern the fiscal performance of governments). This argument, that financial markets can impose fiscal discipline only when there are these *combined* fiscal institutions, is what I call the financial flogging hypothesis to distinguish this innovation from the earlier strand of market discipline research.

Since Kelemen and Teo emphasize the role of fiscal institutions, they follow much of the earlier market discipline literature by showing that for US states, strict fiscal rules and high fiscal transparency increases the states’ credit ratings. However, it is not clear in this case that financial markets really impose more severe debt costs given the presence of fiscal institutions. Like much of the literature, they do not actually establish that government’s spending policies vary at all contingent on such ratings differences<sup>9</sup>. Earlier, Alt and Lowry (2001) made a similar argument by suggesting that a specific type of fiscal rule<sup>10</sup> could enable markets to "extract information from noisy signals," arguing that bond markets will be able to more effectively discipline governments in such cases. Like Kelemen and Teo, they show that for the US states fiscal rules reduce interest rates on debt, but this effect is small in nature<sup>11</sup> and they do not

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<sup>9</sup> Additionally, since virtually all US states have some form of fiscal rule, their study is not able to demonstrate rating differentials between units with and *without* such fiscal institutions.

<sup>10</sup> This is a “no carry-over” rule, prohibiting deficits from rolling into the next annual budget cycle.

<sup>11</sup> They find a reduction of interest rate costs of 7.5 basis points.

explore any impact on government fiscal policy. This finding that fiscal rules can reduce debt-financing costs is similar to Afonso and Guimarães (2013), who show that expenditure rules in the EU also reduce interest rates on government debt. And in another study Iara and Wolff (2011) demonstrate that fiscal rules with a stricter legal basis also reduce bond yields on debt. Taken collectively, then, we see from both the earlier market discipline literature and the specific literature on fiscal rules that much of this research shows what causes changes in debt costs (or credit ratings) without showing that debt costs actually influence government fiscal behavior. We see that fiscal rules reduce debt costs, but generally not that debt costs then influence deficits. This is still an interesting and noteworthy finding, but it is possible that financial markets charge less for debt from countries with fiscal rules simply because they perceive that such rules are effective debt management devices. It does support the idea that these fiscal institutions are effective, but it does not obviously suggest that markets themselves are causally related to governments spending decisions.

Moreover, in much of the literature above, the demonstrated effect on debt costs is only marginal, which is problematic for the expectation of market discipline or financial flogging. The key reason why we shouldn't expect marginal increases in debt costs to influence government fiscal policy is because countries who are running substantial deficits annually are likely doing so because they perceive a rational political incentive to doing so. The literature explaining why countries incur fiscal deficits is very large and links deficits to electoral incentives (Drazen 2001; Brender and Drazen 2005; Shi and Svensson 2006), partisan preferences (Eslava 2006), because divided governments are trying to force other parties to incur a larger share of the fiscal adjustment costs (Franzese 2002; Alesina and Drazen 1991; Roubini and Sachs 1989), or

because coalition governments obscure who is to blame for deficits (Perotti and Kontopoulos 1998). In order to force governments to change course, it would therefore seem that the economic costs associated with deficit spending would need to be large in order to generate sufficient political pressure to effectuate a change. In the next section, I expand upon this idea to generate predictions about when financial markets may be able to successfully flog governments into fiscal discipline.

### **When the Market Can Flog**

Financial markets are most likely to be able to flog governments when small or average increases in fiscal deficits could trigger significant economic costs. In these cases of heightened vulnerability, politicians are likely to feel significant pressure to change fiscal spending to hedge against the risk of such economic shocks, because excessive deficits in such a context would become politically and economically self-defeating. The political benefit of deficits – spurring the economy or giving more goods to supporters – is dubious when that very practice could trigger a crisis which could eliminate such gains. Even when numerous veto-actors make a fiscal adjustment a difficult bargain to achieve, large enough economic costs could compel government actors to calculate the risk of inaction (crisis) to be larger than action (adopting unpopular deficit control measures).

In this paper, I focus on several cases for which I argue we would be more likely to observe the influence of financial markets on fiscal discipline. These are when the country: (a) has fixed exchange rates, (b) has a credit rating near the threshold of being downgraded to “speculative quality”, (c) the country has a speculative quality credit rating, and finally (d) if the country is an emerging market country. While deficits are not always, *ceteris paribus*, a *negative* from the

perspective of the international investor, all of these cases represent instances of increased sensitivity to declines in the fiscal budget. Ahlquist (2006) notes that deficits are related to all 3 of the major forms of investor risk: inflation, currency, and default risk. Mosley (2003) discusses debt issuance in the context of a signaling game, such that large or persistent deficits (or, high debt levels) are taken as a signal of a governments unwillingness to repay their debts.

Unsurprisingly, Montes, de Oliveira, and de Mendonça (2016) find strong evidence along these lines that deficits have a consistent negative impact on sovereign credit ratings. Moreover, the financial flogging conditions I hypothesize here make large deficits significantly more likely to be viewed as a negative risk indicator to investors.

Countries maintaining a fixed exchange rate face the ever-present risk that, if international holders of their national currency think that the government will not be able to maintain the currencies fixed rate, then international investors will rapidly sell the currency, forcing the government to abandon the fixed rate. Such an episode would involve significant economic fallout, since a currency crash “puts upward pressure on inflation, increases countries’ foreign debt burden, and erodes economic growth” (O’Mahony and Nyblade 2014). Because the economic costs under fixed exchange rates can be so severe, causing governments to collapse (Bernhard and LeBlang 2008), governments should have strong incentives to guard against the risk that the currency would be devalued.

The idea that deficit spending is related to a countries ability to maintain its fixed exchange rate goes back to the canonical currency crash model of Paul Krugman, who argues that governments running sustained fiscal deficits make fixed rates unmanageable, leading to such currency crashes (Krugman et al 1999). To be clear, this argument that deficits make countries

more *vulnerable* was the very reason that it was initially supposed that fixed rates would make governments more *disciplined*. The reason is that excessive deficits would constantly erode a country's base of foreign exchange reserves, materially depleting a country's ability to maintain its peg. This is notable because evidence in favor would be an example of market discipline, as I posit, although the early evidence had been mixed (Tornell and Velasco 2000). The alternate and less conventional perspective is that flexible exchange rates would deter fiscal excesses because such policies would immediately filter through to the exchange rate and generate inflationary costs. It is thus argued that in the short run more discipline arises from flexible rates. A key pitfall exists, however, because much like the rest of the market discipline literature this contention only holds if one considers that politicians respond smoothly to increasing costs. This is an unlikely position because if this were true, then there would have been no need to insulate central banks from political pressures with greater independence (Cukierman et al 2012). Further, it is generally recognized that the mechanism by which fiscal spending influences exchange rates, via the purchasing power parity condition, is a long-run phenomena which is unlikely to react very quickly to fiscal changes in the short-run (Feenstra and Taylor 2018). As a consequence, politicians might easily exploit fiscal policy for short-run advantages under flexible exchange rates, even considering the impact of fiscal policy and inflation on exchange rates.

Regardless, the literature broadly supports the key contention for this flogging mechanism – that deficits under a fixed rate could be particularly harmful. Fixed exchange rates, to start, are more economically harmful in the event of economic shocks, since flexible exchange rates are “shock absorbers” against terms of trade or other external shocks (Broda 2004). A number of

other studies have confirmed the risks of deficits under fixed rates, by increasing the probability of a currency crash (Marini and Piersanti 2003), and by substantially increasing the risk of a crash when other economic shocks present themselves (Fratzscher 2011). In that sense, even if deficits do not *cause* a currency crash, it is significant crisis escalator. Moreover, even when deficits do not actually materialize, Gumus (2015) argues that simple *expectations* of deficits can be sufficient to spark a speculative currency attack. O'Mahony and Nyblade (2014) argue that the risks posed by fiscal deficits under fixed rates is exactly why governments only boost spending around elections when the government is sufficiently insulated from the risk of currency crashes. We therefore see from this literature that fiscal deficits are an inherent source of risk for countries who maintain a fixed exchange rate.

In the context of the financial flogging hypothesis, which emphasizes that markets should be more effective with fiscal institutions, we would then expect that countries with fixed exchange rates will have smaller deficits when they have fiscal rules and fiscal transparency. This leads us to the first hypothesis:

**Flogging H1:** Countries with fixed exchange rates will have smaller deficits when there are fiscal rules and fiscal transparency.

As previously noted, sovereign (country) credit ratings reflect the riskiness of government issued debt, spanning 21 different ratings from a high of "AAA" or "AA+" down to junk status of "CC" and "C"<sup>12</sup>. These ratings scales are comprised by two broad categories: investment grade and speculative grade securities, the cut-point threshold of which occurs roughly midway down

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<sup>12</sup> This rating scale is for Standard & Poor's. The Moody's Analytics analog would be: "Aaa" and "Aa1" as the two highest, with "Ca" and "C" the lowest.



the rating scale at the transition of BBB- to BB+. Once a country's credit rating crosses the threshold from Investment Grade to Speculative Grade, economic costs and risk begin to escalate. For instance, interest rate costs on government debt begin to increase much more dramatically as credit ratings decline within the speculative category (Gaillard 2011; Hanusch and Vaaler 2015). As a result, deficit financing at the speculative grade can much more quickly increase a country's debt burden than is the case for countries with an investment grade rating. Being *near* the "threshold" of the speculative grade – the point at which a country is one or two downgrades away from losing its investment grade status - could arguably be an even greater source of fiscal discipline. The reason this could plausibly induce fiscal discipline by the government is that many large-scale institutional investors as a rule are only allowed to hold investment grade securities. A rating downgrade below the threshold can therefore have large negative consequences, because it can cause substantial capital flight, reducing the pool of investors and further increasing the cost of raising capital (Kaminsky and Schmukler 2002). Beyond governments, ratings downgrades can also increase the cost of business finance, rather than strictly government, because government bond ratings often serve as a benchmark for bond risk within the country. As a result, routine business operations can become more costly even for businesses without sovereign debt holdings, which is why ratings downgrades can dampen stock markets and increase volatility (Hooper, Hume and Kim (2008); Kabadayi 2013). Since this cost isn't isolated to governments, this likely is a powerful motivator for business elites to lobby to ensure the sovereign credit rating remains investment grade. As a country nears the threshold of speculative grade quality, policymakers could arguably feel increasing pressure to reduce deficit spending to try and prevent crossing the threshold.

We therefore state the next two flogging hypotheses from these scope conditions:

**Flogging H2:** Countries with a speculative credit rating should have smaller deficits when there are fiscal rules and fiscal transparency.

**Flogging H3:** Countries near the threshold of a speculative credit rating should have smaller deficits when there are fiscal rules and fiscal transparency.

Additional research has shown that sovereign credit ratings have a larger financial sector impact on emerging market economies. Because emerging markets are less developed and generally have more opaque institutions, there tends to be more uncertainty regarding investment risk, and is why Christopher, Kim, and Wu (2012) and Kaminsky and Schmukler (2002) both argue that emerging markets face more severe consequences following ratings downgrades. Kabadayi (2013) validates this finding, demonstrating that negative credit ratings for Turkey depressed the Turkish stock market at select periods. Additionally, Mosley (2003) argues they are more sensitive to financial markets, and Gaillard (2011) shows they face much higher interest costs for issued debt. Thus, they may be especially likely to refrain from significant deficit spending, because the inherent costs and risks involved are so much more pronounced. This leads us to the final financial flogging hypothesis.

**Flogging H4:** Emerging market countries should have smaller deficits when there are fiscal rules and fiscal transparency.

It should be emphasized that these scope conditions represent a best case for financial markets to be able to pressure governments into better fiscal performance. If markets do pressure governments, I argue we would be likely to observe it in these cases. As a consequence of the analysis, I suggest that we have a clearer understanding of whether or how markets can flog

governments, as well as in understanding *why* fiscal rules and fiscal transparency are effective institutions. In the next section, I turn to discuss the alternate causal pathway. Rather than these fiscal institutions (rules and transparency) enabling *financial markets* to punish governments, these institutions enable *domestic political opponents* to pressure the regime into better fiscal performance.

### **Why Fiscal Institutions are Effective: Domestic Political Competition**

Kelemen and Teo (2014) criticize the literature on fiscal rules for presuming that judicial enforcement is the causal mechanism underpinning the success of fiscal rules. Because courts almost never have rendered a judgment against a US state governor (for state government bond issuance), they argue that courts are not a viable mechanism to enforce fiscal discipline. Instead, Kelemen and Teo argue that, with the aid of fiscal institutions, financial markets are the real means of fiscal discipline.

I argue, however, that the discussion of courts versus financial markets as enforcers of fiscal rules misses the likeliest source of fiscal discipline – political competitors. The reason why political competition matters for the success of fiscal institutions is due to several reasons.

Existing research on fiscal institutions within the EU and EMU has indicated that fiscal “rules” are more likely to be effective in environments with higher political contestation<sup>13</sup>. For instance, Hallerberg et al (2009) suggest that “in countries with high ideological distances and high office-seeking competition, the fiscal target and contract indices should be most

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<sup>13</sup> Fiscal “rules”, in the sense of a numerical fiscal target, are closest to Hallerberg et al’s (2009) discussion of the “contracting approach”. It is this approach that the authors identify as working best in competitive environments. While distinct in operationalization, conceptually their discussion maps very well onto a global framework examining numerical rules.

significant". In Hallerberg and Wolff (2008), they elaborate by stating that "in coalition governments a contract approach... helps to restrict profligate fiscal policy." While their operationalization of fiscal rules is different and specific to EU countries, the essential reasoning is that if a country has a single-party government (low competition in a parliamentary system), then such a government may easily remove a "contracting" approach, such as spending agreements or fiscal laws passed. Thus, when opposition parties are stronger or even share power in government, then this is a means by which the government may be bound to a fiscal rule.

While I agree with this reasoning, I argue that there are broader political connections between competition and fiscal institutions. For instance, it is not merely that shared power prevents the government from unilaterally removing unfavorable spending constraints, although that is part of the logic. Even when not strictly in power, political opponents to the government can use these institutions against the regime in the event of deficit spending, generating elite-driven blowback against spending policies. In a case where the government is spending recklessly such that fiscal deficits are exceeding budget targets, political opponents have strong incentives to utilize these fiscal rules as a rhetorical weapon against the regime, even if they cannot directly impact the budget process. Governments would be vulnerable to accusations of capriciousness, economic endangerment and possibly corruption. Thus, I argue that in the presence of fiscal institutions, the executive would be more likely to choose a path which minimizes such political blowback against the government when the political opposition is sufficiently strong. This may mean direct cases of shared government, or it may be present in cases where opposition parties and groups are large enough to pose a threat even from outside the government.

Beyond the direct blowback which the executive would likely experience from political elites, I also argue that fiscal rules more readily enable countervailing pressure from the public, in settings where the executive is more accountable. On the one hand, this may seem surprising because democratic accountability is also what supposedly leads government leaders to feel pressured to use electoral fiscal manipulation (Drazen 2000). However, I argue that the presence of fiscal institutions, such as a balanced budget law, may incentivize the public to mobilize against the executive in anticipation of fiscal abuses because rules clarify to political constituents what fiscal failure looks like. In this sense, political observers may not have a clear idea exactly how bad the fiscal outlook is or even whether the fiscal trajectory is unsustainable or not. Much like Lowry and Alt (2001) argued that balanced budget laws enable financial markets to "extract information from noisy signals," here too laws can help *voters* extract meaningful information from noisy signals. The cognitive and conceptual costs for citizens to assess the viability of fiscal policy may be prohibitively high and consequently, their ability to assess the ex-ante *need for incumbent punishment* may be quite low. But a clear balanced budget law makes it theoretically much easier for the public to determine if the government is employing fiscal policy in a socially harmful manner. As a result, a fiscal rule can animate political constituencies such that the executive feels constrained in their freedom to use fiscal policy as they please.

A direct and observable implication of this is that fiscal institutions should be more effective in countries with numerous and active civil society organizations (CSOs). If the public is animated by fiscal excesses when it may violate a national fiscal law, as I have argued, then such laws should be more effective where large numbers of social and professional groups are mobilized

to lobby for policy changes. Civil society has been key, for instance, in the funding and development of the Open Budget Index at the International Budget Partnership<sup>14</sup>, which is seeking to bolster dialogue between governments and the public regarding spending issues<sup>15</sup>. Higher participation of CSO's thus raises the ability of public mobilization in the event that the government is threatening economic stability with excessive deficit spending. CSO's also serve as "watchdogs" of government policy that other participants in society are unable to perform. For instance, while the literature argues that fiscal transparency is good because it enables monitoring of the government, a crucial question is – who will do the monitoring? Political opponents (elites) may be able to monitor, but CSOs are another public mechanism by which resources can be brought to bear to actually take advantage of the fiscal transparency. Thus, CSO's are a key means by which monitoring can take place, information is disseminated regarding country compliance, and the public may be mobilized. This leads me to state the first political hypothesis of the paper:

**Politics H1:** Fiscal Rules and Fiscal Transparency should lead to smaller deficits at higher levels of civil society participation.

Another important manifestation of political competition are instances of shared or divided government. While early literature emphasized that this can create a common-pool problem for fiscal policy (Kontopoulos and Perotti 1999), so long as a fiscal rule is a clearly defined numerical target, and the system is *transparent* enough such that the public can actually interpret this information, then even in the presence of a common-pool it can force a political

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<sup>14</sup> See <http://www.internationalbudget.org/why-budget-work/role-of-civil-society-budget-work/>

<sup>15</sup> <http://www.fiscaltransparency.net/giftaward/>

discussion on fiscal policy which otherwise would be easy to ignore. After all, if the government simply tried to renege on the rule, then the political opposition could use their power in government to force concessions on the issue. This was the motivation of Hallerberg et al (2009) and Hallerberg and von Hagen (1997) in their emphasis on features of shared or coalition governments, number of parties, and the ideological dispersion of involved parties (Franzese 2002). Of course, these issues may apply more broadly than to just parliamentary systems, since a divided congress can act as a restraint on presidential fiscal policy. These reasons are why veto-players are likely to be such a fundamentally important source of *political pressure* on the regime to abide by its commitments to fiscally sustainable policies. Veto-actors, similar to the argument advanced by Keefer and Stasavage (2003), make it more difficult for the executive to renege on budget commitments - both because they must also agree to reneging, but also because they face important political incentives *not to do so*. If the executive wishes to renege, it creates an opportunity for other political actors to attempt to assume the role of the responsible financial steward and attack the executive as endangering the countries' well-being. I therefore state the next political hypothesis:

**Politics H2:** Fiscal Rules and Fiscal Transparency should lead to smaller deficits as the number of veto-actors increases.

Additionally, fiscal institutions should be more effective in democracies partially because democracies will have higher and more routine levels of political contestation. They also tend to have other critical institutions such as media freedom and greater political liberties which also may facilitate popular political pressure against the governments' spending policies. In this view, democracies should augment the effectiveness of fiscal institutions not just because of

the electoral mechanism but because of the broader impact of a free society able to actively play a role in political outcomes. Consequently, a proper measure of democracy would not be a dichotomous measure, but one that is continuous and thus tracks these multiple democratic factors.

Opposition vote share in the legislature is also an important manifestation of political contestation which may causally link fiscal institutions to fiscal discipline. While related to democracies insofar as democracies will tend to have higher levels of opposition vote shares, it nonetheless captures a distinct aspect of political competition because even in countries which lack free and fair elections there can still be meaningful levels of political contestation. If incumbents are motivated by the political backlash associated with deficit spending, this pressure could still be felt in nondemocracies with meaningful levels of opposition party participation in politics. Additionally, as previously argued, a strong opposition need not necessarily be *in government* in order to exert pressure on the executive, and as such opposition vote share is able to capture the strength of political opponents without mandating a legal role in government. Thus, opposition vote share may capture a meaningful and distinct aspect of political fiscal constraints. I thus state the last two political hypotheses:

**Politics H3:** Fiscal Rules and Fiscal Transparency should lead to smaller deficits as the level of democracy increases.

**Politics H4:** Fiscal Rules and Fiscal Transparency should lead to smaller deficits as the opposition vote share increases.

Financial markets may exert pressure on governments, but it does not seem that markets can so clearly intervene to impede the incumbents' policies as political competitors can. Fiscal rules



raise the costs of fiscal imprudence in the presence of political competition in more direct ways than with financial markets, and it is for this reason I argue that while the financial flogging hypothesis is *plausible*, it seems *less likely* as a causal mechanism of fiscal institutions. Having laid out the flogging and competition hypotheses, in the next section I will test these hypotheses against each other in order to ascertain which causal pathway enjoys more empirical support. We will see that fiscal institutions (Fiscal Rules \* Fiscal Transparency) do significantly reduce fiscal deficits, but that financial markets do not significantly impact fiscal balances. Instead, fiscal institutions are effective in environments of increased political competition.

## **Data**

The main dependent variable for all of the models estimated is intended to capture if governments are improving their fiscal performance. As a consequence, central government fiscal balances (% of GDP) was chosen as the best representation of this concept. This variable comes from Bodea and Higashijima (2015), who updated the IMF's data for central government fiscal balances by using the IMF Article IV Consultation Staff Reports. In the regressions, a positive value for the independent variables thus means that deficits are smaller for these countries (or a surplus is present), so a positive value corresponds with improved fiscal performance conceptually.

To capture the essential concept of fiscal transparency, I employ the data from Vlaicu et al. (2014). Other data sources providing nuanced estimates of fiscal transparency have been fairly limited to either the US states, EU countries or a subset of OECD countries. Vlaicu et al. provide for a comprehensive coverage of countries using what are called Medium Term Budgeting

Frameworks (MTFs) and they examine the impact of these frameworks on fiscal performance. MTF's work in two ways, both by taking a longer-term budgeting perspective and by improving the transparency of the budget process. Since they take a medium-term budget perspective (typically between 3 to 5 years), it enables more prudent planning. But importantly, the process also involves forecasting economic variables, establishing budget objectives, often involve public forums for discussion, and publishing these forecasts. As a consequence, the budgeting process is more transparent<sup>16</sup>. The time sample for the regressions begin in 1990, as this denotes the beginning of the IMF fiscal rules data, and ends in 2008 as this is when the MTF database ends.

In the IMF's 2007 manual on Fiscal Transparency, MTFs are said to ensure, when rigorously applied, "a transparent basis for the accountability of the executive branch." Additionally, Hameed (2005) specifically examined MTFs as a fiscal transparency index, and demonstrated that MTFs have a very high correlation coefficient of 0.84 with the IMF's ROSC scores, which are arguably the "purest" of fiscal transparency variables (but is only available as a cross-section). He further compared MTFs against other indices of fiscal transparency and argues that it performed best among the available measures, and argued that MTFs may "indicate a major step toward policy accountability" and can make it easier to assess deviations from planned expenditures. Keefer and Vlaicu (2008) built on this concept to argue that MTFs should be expected to reduce the clientelism and corruption of states, since this heightened scrutiny of public finances may make it more difficult for politicians to get away with graft. Using MTF's as

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<sup>16</sup> MTFs vary in their sophistication. For the purposes of transparency, however, even if the forecasting in the MTF is not of high quality, the public nature of MTFs is what enables it to be a fiscal transparency concept.

a proxy for fiscal transparency is therefore well-established in practice and provides good leverage because then we are able to analyze the impact of fiscal transparency for a notably greater time sample than other available measures.

Data on Fiscal Rules comes from the IMF's Fiscal Rules Index, which codes the existence of a variety of types of fiscal rules for a sample of up to 78 countries. "Legal Basis" or "Rule Basis" captures the national level at which the fiscal rule is legally established. This is coded 1 through 4, with 1 representing a "political commitment", 2 is a coalition agreement, 3 is statutory based, and 4 is a constitutional law. For all estimations, the Legal Basis is used in the interaction with fiscal transparency because of the expectation that a higher legal commitment to a fiscal rule should mean that it would be increasingly difficult to circumvent, and should be a more visible rule to political elites. While this has not been done previously in the literature, this expectation is theoretically well-grounded. For instance, Alt, Lassen, and Wehner (2012) and Alt and Lassen (2006) have established fiscal transparency is an important complement with fiscal rules (see also IMF (2007)), since without transparency fiscal rules may induce the use of "fiscal gimmicks" in order to circumvent the rule. While these dual institutions are widely viewed as important complements by the IMF, data limitations for fiscal transparency variables have limited the ability of researchers to explore the interplay of fiscal rules and transparency. Theoretically, therefore, the proper specification is the interaction of transparency and fiscal rules.

The data on country credit ratings comes from Bodea and Hicks (2017), who have updated and expanded the data from Beaulieu, Cox, and Saiegh (2012b). Because other main independent variables for these models only begin coverage in 1985, I decided to limit the fiscal balance and sovereign ratings data to begin in 1985 as well. The sovereign credit ratings are used to

generate the variable "Threshold", which is a dummy variable capturing whether the sovereign rating is either (Baa2/BBB) or (Baa3/BBB-) from Moody's Analytics, which would place a country 2 downgrades away from crossing the threshold to the Speculative Grade investment quality. This would seem to theoretically capture the range around which market participants would exhibit greater fear of a downgrade (and therefore stronger incentive to lobby political leaders), since only one or two downgrades takes them out of the Investment Quality grade range. I then also create a dummy variable indicating whether a country is below the threshold and has a speculative grade credit rating. For both variables, Threshold and Speculative, there is a concern regarding simultaneity bias between these variables and fiscal balances, since large fiscal deficits should make it more likely a country will have poorer credit ratings. In the models, I therefore use the lags of Threshold and Speculative in order to mitigate this concern.

The variable for Civil Society Participation comes from the VDEM version 7 database, 2.12. It specifically measures both the number of CSO's and their regularity of involvement in public activities (or if they are suppressed), whether they are consulted in the process of policymaking, their involvement in candidate selection as well as female involvement and participation. Included can be a wide variety of interest groups, NGOs, labor unions, social movements or other professional organizations. The variable, along with many of the VDEM items, was estimated with Bayesian factor analysis, and is a continuous variable ranging from 0 to 1. The other domestic politics variables, including Opposition Vote Share and veto-players (Checks & Balances) come from the World Banks' Database of Political Institutions. Opposition vote share is the vote share of all opposition parties for the legislature. As a result, there are instances when vote share is larger than 50%, which is an indication of either divided or shared

government. For the Checks variable, low values indicate that there is no meaningful constraint on the executive. Legislatures are not elected and only the executive dictates policy. However, this increases as other actors gain influence. For instance, when the legislature is elected, and even moreso when the opposition party gains a majority in the legislature. Other conditions also increase the number of checks, such as in parliamentary systems it increases with additional parties in a government coalition. The democracy variable is the Polity2 score, scaled to range between 0 and 20.

"Fixed" comes from Reinhart and Rogoff (2002), which is a dummy variable taking a 1 when the country is on a *de facto* fixed exchange-rate. The variable for Judicial Independence, utilized only as a control for the polity model, comes from Linzer and Staton (2011). The economic control variables are taken from the World Bank WDI database. In the models, economic growth, Debt/GDP and inflation are lagged one-year to reduce the concern for endogeneity with fiscal balances. The Inflation variable is GDP Deflator Inflation, and is logged to manage the severe skewness of the variable. To deal with negative values, the absolute value of inflation was first taken, after which the log of (1+ inflation) was performed. I then added a negative sign for negative observations of the original inflation variable. Additionally, the full list of countries in the main regression sample is also available in the appendix, in Table 1.A.6.

## **Research Design**

Aside from the main theoretical variables, the model specification and control variables are largely inspired by Bodea and Higashijima (2015) and Vlaicu et al (2014) regarding the determinants of central government fiscal balances. The main estimation models are twostep System-GMM models with Windmeijer corrected robust standard errors, using orthogonal

deviations for unbalanced data with missing values as recommended by Roodman (2009).

System GMM is very common when estimating fiscal balance equations, because most such studies have "Large-N, Small-T" samples, in which there is serious concern for dynamic panel bias with fixed-effects. System GMM avoids the dynamic panel bias by estimating the parameters in both first-differences (thereby expunging the fixed effects) *and levels*, and instrumenting the lagged-DV in differences and levels. It is also preferable to other dynamic panel data estimators such as the Anderson-Hsiao (A-H) or the *difference GMM* estimator, as both the fiscal balance data and the main fiscal institutions variables are extremely persistent and thus suffer from significant inefficiency in an A-H or D-GMM framework<sup>17</sup>, which relies on the difference transformation of the data alone.

In the GMM models, I report the Hansen test of overidentifying restrictions as well as the Arellano and Bond (1991) test for AR(2) serial correlation, both of which are necessary to infer the consistency of the estimation and exogeneity of the instruments. In all GMM models, these statistics were insignificant, indicating that we fail to reject the null of exogeneity. Additionally, I estimated the baseline GMM model using pooled-OLS for the purposes of estimating a GMM credible bracketing range for the lagged dependent variable. Estimating the pooled-OLS model both without, and then with country fixed effects gives upper and lower bound estimates on the bias of the lagged-DV, and therefore GMM estimates where the lagged-DV fall outside this range "hint at specification error" (Roodman 2009a). Doing so yields a range of 0.68 to 0.81 on the lagged-DV. All of the GMM models estimated with the same fiscal balance dependent

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<sup>17</sup> In fact, this is what led to the development of the "system" GMM estimator, in order to improve the efficiency of dynamic models with highly persistent data (Wooldridge 2010; Roodman 2009a).

variable return a lagged-DV coefficient within the GMM credible range. Finally, I also use a collapsed instrument set to guard against the risk of overfitting bias with instrument proliferation (Roodman 2009b). However, in appendix Table 1.A.1, I also present the main GMM model but demonstrate that the results are consistent across various specifications, including instrumenting lags of 2, 4 or 6 periods and varying other estimation choices. Lastly, it is worth addressing the obvious fact that the mechanisms of political competition should all correlate with each other and could be considered alternate manifestations of democracy. It is thus crucial to include democracy in each model when analyzing the effects of opposition vote share, CSOs and veto players, because only then can we clearly distinguish that the mechanism is not simply a *proxy* for democracy. Thus, all models control for both democracy (polity) and veto players (checks and balances). Additionally, when investigating the role of democracy, I also control for judicial independence in order to isolate the other elements of democracy that theoretically are important.

## **Empirical Results**

The key independent variables for all of the analysis, mapped from the hypotheses stated earlier in the paper, are as follows:

Fiscal Institutions : Rule Basis \* MTF

Financial Flogging: Rule Basis \* MTF \* [Speculative Threshold / Speculative Grade / Fixed Exchange Rate / Emerging Market Economy]

Domestic Politics: Rule Basis \* MTF \* [Opposition Vote Share / Civil Society Participation / Veto Players / Polity]

All of the key theoretical variables are therefore either two-way or triple interaction models.

For interpretation, I follow Brambor, Clark, and Golder (2006) who argue that judging interactions only from their statistical significance (or lack thereof) can be very misleading. As a consequence, the interpretation comes mainly from the marginal effects plots of the interactions. All reported confidence intervals in the main marginal effects plots are 95% confidence intervals.

A key contention of the paper is that fiscal rules and fiscal transparency will interact to produce higher budget balances (i.e. smaller deficits). In Table 1.1, I report the main GMM results for the baseline specification. Model (1) is the baseline model and was used to produce the marginal effects plots in Figure 1.1. We see from Table 1.1 that the Rule Basis \* MTF interaction is significant and positive in line with theoretical expectations.

We also see in Figure 1.1 that both MTF and fiscal rules improve budget balances at higher values of the other. Rule Legal Basis increases budget balances but only when MTF=1, and the difference between these coefficients in Figure 1.1 (A) is significant at  $p < 0.05$ . Conversely, MTF increases balances, but only significantly once the legal basis is equal to a value of at least 2, which represents rules governed by a coalition agreement. Additionally, the estimated effect appears to be large, since MTF is estimated to improve budgets by about 1% of GDP when the fiscal rule is constitutionally based. For a country with a starting Debt/GDP ratio of 100, over 15 years this would lead to a ceteris paribus difference of approximately 20% Debt/GDP<sup>18</sup>. These findings are a novel contribution to the literature because it shows that neither fiscal institution

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<sup>18</sup> This assumes a baseline level of deficit spending of about 2.5% of GDP, which is roughly average for a country with such a debt level. This is according to data from the IMF Public Debt Database.



is effective without the other, contrary to the earlier fiscal rules literature (Kelemen and Teo 2014; Alt 2001; Bohn and Inman 1996).

The output results for the triple interactions are reported in Appendix Table 1.A.2, since the interpretation for these models hinges entirely upon the marginal effects plots. Figure 1.2 (C) is therefore the marginal effect plot corresponding to model 9 in the appendix. In Figure 1.2, we see the marginal effect of each financial flogging condition across the different values of the fiscal institutions. Rules Basis is on the x-axis, and the point estimate and confidence intervals estimate the *difference* of the effect when MTF=1 vs when MTF=0. We should therefore expect that the effect of the financial market condition should lead to significant and positive differences as the Rule Basis increases. However, in each of the figure 1.2 subplots C through F, there does not appear to be a statistically significant effect. In all of the models, the effect of the financial condition Speculative Threshold (lag), Speculative Grade (lag), Fixed Exchange Rate and Emerging Market all do not seem to significantly vary in their impact on fiscal balances. In appendix Figure 1.A.2, I examine the marginal effect of fiscal institutions with the flogging condition as the moderating variable, but this examination also reveals no support for the flogging hypotheses.

I turn now to a discussion of the results for the political competition models. Plot (H) of Figure 1.3 shows the marginal effect of Rule Basis across the range of opposition vote share in the sample, and reports the *difference* of the marginal effect of Rules Basis when MTF=1 vs MTF=0. Doing so enables us to more clearly see that the effect between these estimates is significantly different from each other. As expected, we see that the effect of Rule Basis is increasing along with the opposition vote share and this effect is significantly different from 0. However, when

MTF=0, Rule Basis has no effect. This underscores the importance of having *both* fiscal institutions for there to be fiscal discipline. Importantly, we in plot (H) that opposition vote share becomes statistically significant at roughly 30% vote share, controlling for the countries level of democracy. Thus, we have isolated the effect of opposition vote share aside from the democracy level (this is also the case with plots (I) and (J)). It is further noteworthy, since there are non-democracies in the sample who have an opposition vote share greater than 30%, such as Zambia, Botswana, or Burkina Faso (and more).

Plot (I) shows that fiscal institutions are indeed more effective at reducing deficits when the level of civil society participation is highest, and this effect is statistically significant and covers a good portion of the variation. Therefore, this shows the effect of civil society engagement apart from a countries' level of democracy. We find further validation with the other political variables as well. In plot (J), fiscal institutions significantly increase budget balances once the number of Checks & Balances is at least 3. And Plot (K) confirms that fiscal institutions, controlling for a countries Checks & Balances and level of judicial independence, have a significantly positive effect when a country has a democratic Polity score of 6 or greater. This is suggestive that there is in fact something about democracy which successfully promotes fiscal discipline that is aside from the rule of law or institutional constraints such as veto actors.

Taken as a whole, we therefore see from these marginal effects plots that the financial flogging hypothesis fails to find empirical support in any of the models. At the same time, domestic political competition seems to be an important conditioning factor for whether fiscal institutions are able reduce deficit spending. Both the *role of political elites matters* in addition to an *active civil society* for these fiscal institutions to be effective.

Table 1.1: Fiscal Institutions Models and Robustness Specifications

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Robust to:	Base	Region Dummies	Excluded Eurozone	Rbasis*MTF [lagged 3 Yrs]	DV: Forward 5yr Fiscal Ave	OLS-DK	Fixed Effects	Endogeneity
Rule Basis	-0.088 (0.076)	-0.083 (0.082)	-0.175* (0.092)	-0.178* (0.093)	-0.323* (0.171)	-0.07 (0.098)	-0.038 (0.118)	-0.177** (0.086)
MTF	-0.165 (0.222)	-0.157 (0.214)	-0.393 (0.371)	0.064 (0.242)	-0.004 (0.475)	-0.06 (0.213)	-0.331 (0.425)	-0.517** (0.245)
<b>Legal Basis * MTF</b>	<b>0.274*** (0.081)</b>	<b>0.233** (0.089)</b>	<b>0.353** (0.133)</b>	<b>0.310** (0.122)</b>	<b>0.697** (0.224)</b>	<b>0.240** (0.097)</b>	<b>0.257* (0.134)</b>	<b>0.335*** (0.096)</b>
Fiscal Balance (lag)	0.719*** (0.048)	0.712*** (0.048)	0.693*** (0.056)	0.687*** (0.060)	0.295** (0.094)	0.803*** (0.048)	0.678*** (0.041)	0.629*** (0.052)
Polity	-0.037 (0.034)	-0.04 (0.034)	-0.055 (0.043)	-0.054 (0.047)	-0.038 (0.070)	-0.048 (0.043)	0.034 (0.047)	-0.089* (0.047)
Checks and Balances	-0.042 (0.035)	-0.033 (0.032)	-0.036 (0.057)	-0.012 (0.032)	-0.009 (0.068)	-0.03 (0.054)	-0.08 (0.052)	-0.052 (0.044)
Executive Election	-0.400** (0.133)	-0.407** (0.134)	-0.194 (0.186)	-0.529** (0.178)	0.114 (0.122)	-0.488** (0.186)	-0.438** (0.158)	-0.358** (0.122)
(log) GDP-pc	0.163 (0.149)	0.41 (0.272)	0.262 (0.202)	0.174 (0.166)	0.238 (0.298)	0.193* (0.104)	2.024* (1.138)	0.072 (0.206)
Trade (% GDP)	0.004* (0.002)	0.005** (0.002)	0.006** (0.002)	0.005* (0.003)	0.017*** (0.003)	0.004 (0.003)	-0.006 (0.013)	0.007 (0.004)
Growth (lag)	0.055** (0.028)	0.058** (0.029)	0.064 (0.041)	0.048 (0.040)	0.043 (0.047)	0.046 (0.027)	0.062 (0.043)	0.059** (0.027)
(log) Inflation (lagged)	0.192*** (0.044)	0.176*** (0.041)	0.186** (0.082)	0.153** (0.069)	-0.105 (0.162)	0.210** (0.077)	0.214** (0.078)	0.214*** (0.055)
(log) Debt/GDP (lagged)	0.198 (0.181)	0.368* (0.192)	0.063 (0.223)	0.155 (0.188)	-0.186 (0.346)	0.205 (0.223)	0.864** (0.338)	0.083 (0.222)
Fixed Exch. Rate	0.042 (0.216)	0.004 (0.228)	0.221 (0.387)	-0.163 (0.256)	-0.533 (0.486)	0.062 (0.220)	0.556 (0.396)	0.328 (0.328)
Internal Conflict	-0.131*** (0.034)	-0.120*** (0.032)	-0.094* (0.049)	-0.163*** (0.049)	-0.096 (0.110)	-0.125** (0.053)	-0.054 (0.083)	-0.151*** (0.041)
Resource Rich Dummy	0.843** (0.357)	0.703* (0.370)	0.938* (0.494)	0.948** (0.420)	2.028** (0.900)	1.063** (0.394)	.	1.042** (0.451)
<b>Lambda (IMR)</b>								-0.308** -0.13
Constant	-2.363** (1.028)	-6.024** (2.479)	-2.301 (1.637)	-2.259 (1.524)	-3.631 (2.693)	-2.390** (1.013)	-22.636** (10.823)	0.967 (1.883)
Observations	957	957	714	921	873	957	957	924
# of Countries	65	65	64	65	63	65	65	64
Ave Years/Country	14.723	14.723	11.156	14.169	13.857		14.723	14.438
Hansen p-value	0.789	0.799	0.514	0.465	0.244			0.871
AR(2) p-value	0.655	0.642	0.672	0.59	0.993			0.471
# of Instruments (GMM)	56	61	56	57	56			57

\* p<0.05 \*\* 0.01 \*\*\* 0.001; All models except for model 5 use the DV "Fiscal Balance (% GDP)". Model 5 employs a 5 year average of the \*future\* fiscal balance as the DV. All models except for 6 and 7 are System GMM models with Windmeijer corrected robust standard errors. Models 6 and 7 are OLS models with Driscoll-Kraay standard errors, with model 7 including country fixed effects. Model 8 is the same as model 1, except that it controls for the (endogenous) probability of country adoption of BOTH fiscal institutions. All models include year fixed effects but not reported. Model 2 includes regional dummies and a dummy for "Developing" countries, but are omitted due to space.

Figure 1.1: Marginal Effects of Fiscal Institutions

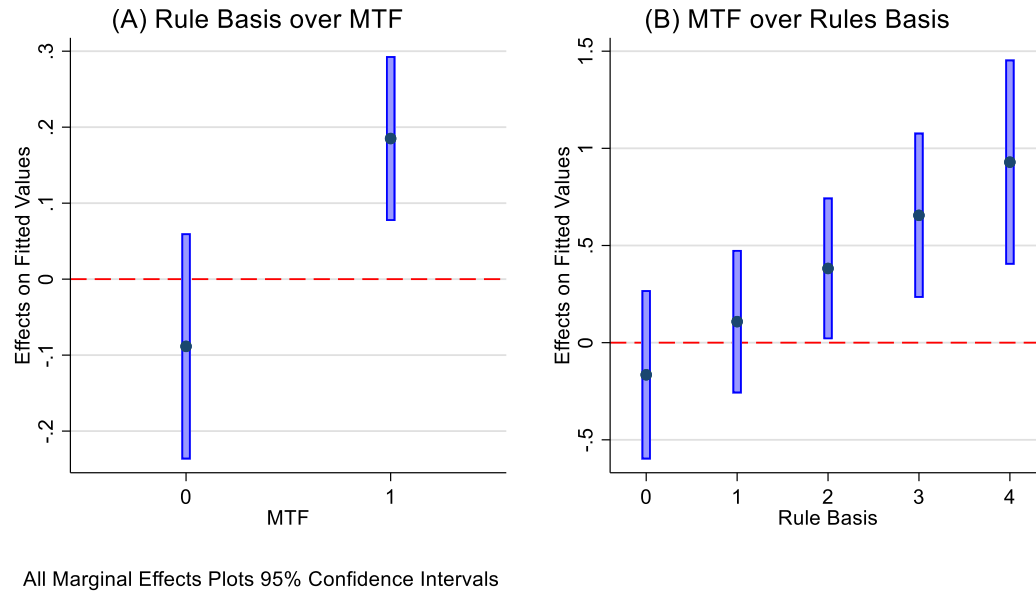


Figure 1.2: Financial Flogging Models

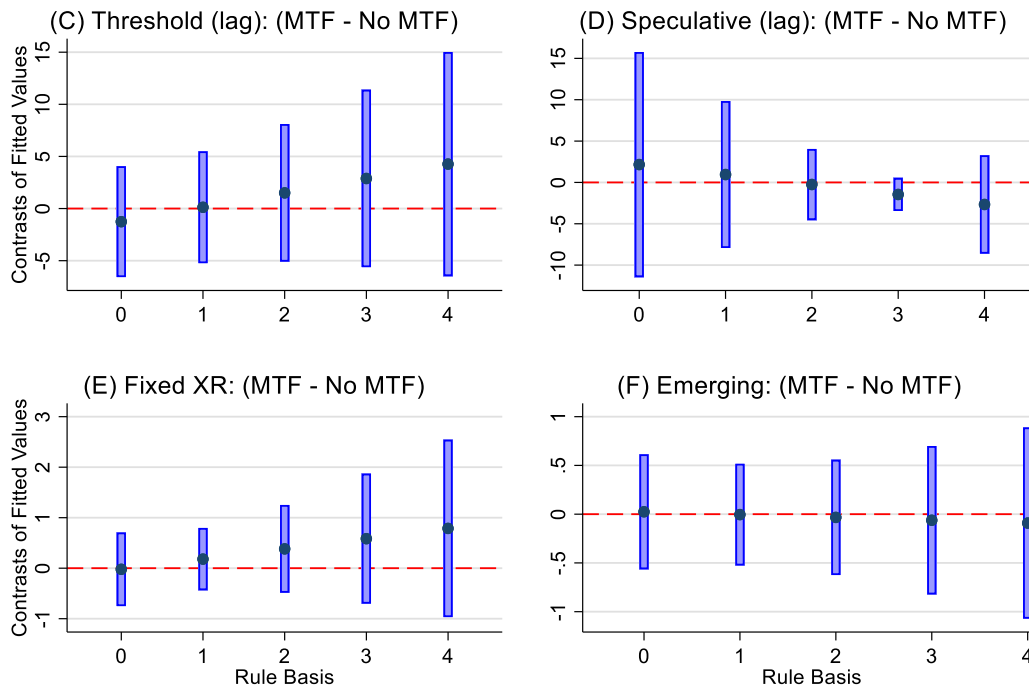
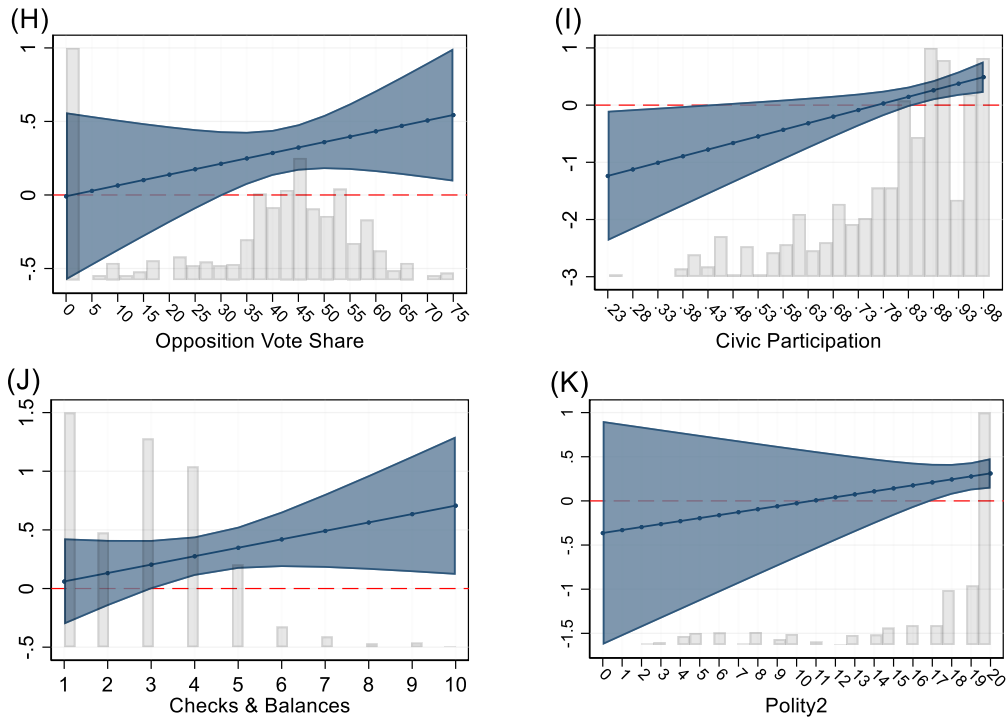


Figure 1.3: Political Competition: Rule Basis (MTF - No MTF)



### Endogeneity of Fiscal Institutions

Countries who adopt fiscal rules may inherently possess a different inclination towards budgeting discipline than states who do not, and as a consequence there could be a positive selection bias when estimating the effect of these fiscal institutions. In order to address this endogeneity risk, I follow a similar approach to that of DeMeritt (2012) or Bernhard and LeBlang (2008)<sup>19</sup> by first estimating a random-effects probit<sup>20</sup> model predicting the *joint*

<sup>19</sup> While they do not study fiscal balances explicitly, their approach to dealing with endogeneity is relevant and applicable for the endogeneity concern in this paper. These are both similar in spirit to my approach here, although more closely matches DeMeritt (2012) in that I also calculate the IMR as a control function. Similar to Bernhard and LeBlang (2008), I also tried calculating predicted probabilities, and the main inferences were unchanged.

<sup>20</sup> A pooled probit was also estimated, but I use the random effects probit because it yielded better out of sample estimates. Inferences were the same with both approaches, however.

*adoption* of the fiscal institutions, and then calculate the Inverse Mills Ratio<sup>21</sup> to model the endogenous nature of fiscal institutions adoption . I then use IMR as a control in the original GMM equations models, which use two-step corrected standard errors. As a consequence, I am able to say that, controlling for a countries inherent propensity to adopt these fiscal institutions, the institutions themselves have an independent effect on a countries fiscal balances.

The reason why it is necessary to model the adoption of *both* fiscal rules and fiscal transparency is because I have argued, and have shown empirically in Figure 1.1, that having one type of institution without the other is insufficient to impact country fiscal balances. For example, a country could adopt a fiscal rule knowing that monitoring will be difficult because transparency is low. In such a case, controlling for the probability of fiscal rule adoption without fiscal transparency could be meaningless because they are insincere rule adopters and would not actually be perceiving a fiscal constraint with its adoption. While this is the main strategy, in the appendix I also report models where instead of predicting the endogeneity of *joint adoption*, I separately predict the probabilities of *MTF adoption*, *Rule Basis adoption*, in addition to *joint adoption*. I then predict separate IMR ratios from each model and include all of these in the main GMM estimations. Inferences remain virtually unchanged based on this specification, and I report the triple interactions from these “triple endogeneity” control models in appendix Figure A5.

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<sup>21</sup> This is the ratio of the Standard normal PDF / 1 – standard normal CDF, pertaining to fiscal institution adoption.

For the model specification, I include all of the political competition variables so that we can be sure that political factors influencing fiscal institution adoption are not biasing the estimates of these political factors in the second stage fiscal balances regressions. As an example, I control for the role of Opposition Vote share in adopting fiscal institutions, such that we can say in the main fiscal balance model that Opposition Vote share independently influences the effectiveness of the institutions even apart from their adoption. I therefore include Civil Society Participation, Polity, Checks, and Opposition Vote Share in the model. In order to facilitate identification of the parameters in the second stage outcome models, in these adoption models I include as an excludable measure the number of fiscal institutions adopted globally in a given year. Theoretically, prominence of global adoption of fiscal institutions may influence a countries' decision process to adopt fiscal institutions themselves, but the number of global fiscal rules should not be related to a countries domestic fiscal balance. It is noteworthy that, in appendix table 1.A.3, we see that "*world rules*" is a significant predictor of rule adoption<sup>22</sup>. In addition, I also include two measures which significantly predict fiscal institutions adoption, but which are insignificant in the fiscal balances model<sup>23</sup>. These are the (log) population and a dummy variable "Ever Default" indicating whether a country has ever defaulted on its debt obligations. A joint test of these variables in the probit adoption model shows they are jointly significant at  $p < 0.001$ .

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<sup>22</sup> Alternatively, I also used in separate tests (though not reported) "Government Effectiveness" as an excludable variable, since this likely could correlate with the adoption of fiscal institutions but is unlikely to affect fiscal balances. The correlation coefficient of Gov't Effectiveness with fiscal balances is a low 0.1 and very significantly predicts fiscal institutions adoptions. This approach yielded the same conclusions as reported in the paper

<sup>23</sup> In a fixed effects model in the outcome fiscal balances equation, these measures were jointly insignificant at  $p > F = 0.6$ .

I also include a control for EuroZone membership, since these countries likely have different structures surrounding their fiscal procedures. While the economic control variables are the same as those in the main GMM model, I omitted the dummy variable for resource wealth, internal conflict variable, openness and executive election<sup>24</sup>. This choice was driven by the fact that the Z-statistics for all of these were below 0.7, the lowest being unemployment with 0.38. An F-test of this group of variables yielded a  $\chi^2$  p-value of 0.8. These variables therefore seem reasonably excludable, and omitting them returned a slightly higher Area under the ROC curve, suggesting an improvement in the models ability to predict institutional adoption. Finally, for this to successfully control for the endogenous nature of fiscal institutions, it is important that the adoption model has a reasonably strong fit of the data. The Area under the ROC curve for the model is a very high 0.89, giving us little cause for concern that it is poorly modeled here. Appendix Table 1.A.3 shows the random effects probit fiscal institutions adoption models. In Model (8) of Table 1.1, I report the baseline GMM regression results *including* the IMR reflecting *joint adoption*, therefore controlling for a countries propensity to jointly adopt these fiscal institutions. In appendix Table 1.A.3, all of the triple interaction models are shown controlling for the adoption of fiscal institutions. In almost all models, the IMR is significant, suggesting that it is indeed necessary to control for this endogeneity. However, it appears to have virtually no impact on the inferences made for both the flogging and political competition

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<sup>24</sup> I also followed a different route from the procedures guiding model specification I describe here. I also tried more explicitly following the recommended approach to identification for a Heckman selection model, even though a Heckman method is slightly different than the nature of my endogeneity problem here. In this case, I used all of the same covariates from the fiscal balances equation as predictors in the probit adoption model, while adding the two excludable variables (log)population and Ever Default. Using this simpler approach yields the same inferences for the influence of the fiscal institutions, but I choose to report the method above because I believe it gives a better specified model for the probit fiscal rule adoption equation.



hypotheses. In just the two-way interaction of the fiscal institutions (model 8), the coefficient of the interaction is actually larger than the previous estimations. The results hold as well for all of the triple interaction models, and Figure 1.A.2 reports all of the political competition interactions calculated from the endogeneity control models. As noted, these appear unchanged or even stronger relationships than in the initial estimations.

As a consequence, it seems that our inferences regarding the impact of fiscal institutions appear robust to consideration of the endogenous country-adoption of these institutions. Fiscal rules and fiscal transparency do improve fiscal balances, but only in countries which have strong enough political competition to constrain the executive and a civil society capable of pressuring the executive. At the same time, despite a more clearly specified theoretical framework regarding the potential influence of financial markets, the financial flogging hypothesis is not supported by the evidence investigated here. It may yet be possible to uncover such influence, but doing so will likely require additional theorizing regarding the nuances which make politicians feel vulnerable to the conditions of financial markets along the lines I have done here.

### **Further Robustness**

In addition to addressing the concern regarding endogenous fiscal institutions, I also examined the sensitivity of the results to a variety of other specifications, the results of which are reported in Table 1.1. Out of concern that the results may be driven by sub-regions, in Model (2) I include regional dummies as well as a dummy indicator for developing countries. These were not significant and are omitted from the table to conserve space. Out of concern that Eurozone countries may be unduly influencing the regression results, in Model (3) I estimated

the model but excluding such country-members. Next, I estimated the GMM model using 3 year lags of the fiscal institutions (reported in Model (4)), and the (L3)Rule Legal Basis \* (L3)MTF interaction remained positive and significant. Alternatively, I also estimated the model but with an alternative dependent variable. In model (5), instead of current year fiscal balances I used the *forward 5 year average*<sup>25</sup> of the fiscal balance as the DV. This is a useful measure because it gives a better sense of the long-run change in fiscal balances than simply regressing on the current time periods value. Here, we see that the coefficient on the Rule Basis \* MTF interaction is 44% larger and remains significant. This larger effect makes sense, because regressing only on the current period does not account for the dynamic response of the fiscal balance to an increase in fiscal institutions.

Additional robustness<sup>26</sup> procedures include using a logarithmic form of the fiscal balance as the dependent variable, as well as switching to using pooled-OLS with Driscoll-Kraay standard errors. The value of using OLS with DK standard errors is that these are robust to contemporaneous correlation, which the GMM standard errors do not account for. In the GMM estimations, I included year fixed effects in all of the models but are omitted from the tables. As Roodman (2009a) suggests, this is a way of mitigating the concern that contemporaneous shocks are biasing the estimates. Nonetheless, it is fruitful to examine the model performance with standard errors actually suited to the task. In model (6) we see the results hold. In model (7), I report an OLS-DK model but include country fixed effects, to ensure the results are not

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<sup>25</sup> Therefore, it excludes the current year fiscal balance in time 't'.

<sup>26</sup> Another concern may be whether there are issues of misattribution arising from countries abandoning a fiscal rule. However, only 3 countries in this sample actually abandoned their fiscal institutions, and the results hold when excluding the period after the withdrawal.

driven primarily by between country variance. In another appendix table 1.A.5, I demonstrate the triple interactions for the political competition variables but split according to different samples. The include restricting the sample to non-European countries, to developing countries only, excluding dictatorships and lastly excluding the highest level of democracy (9 or 10 polity score). In these cases we see supportive evidence for the original hypotheses. As a means of assessing robustness to outlier countries, I also report estimation results where the main GMM model is run but excluding one country from each estimation. We see in table A(5) that the results from the Rule Basis \* MTF interaction are significant and highly consistent across all of these regressions. Because the table lists the country omitted for the relevant coefficient, it also serves as a default list of countries which comprise the main regression sample.

Finally, another concern is that the significant results for the fiscal institutions may be resultant from overfitting of the data. To investigate this possibility, I performed a 10-fold cross-validation procedure, where one-tenth of the data (the test set) is randomly held-out of the regression sample, and then predicted values of fiscal balances are used to assess model fit in the held-out sample. I performed this technique both with and without the fiscal institutions variables, in order to assess which model has lower out-of-sample forecast error. Because the model is linear, I use the RMSE to assess forecast error in the held out sample. In this case, because the cross-validation procedure is reducing the sample for the main estimation and because GMM models have limiting properties in small samples (Roodman 2009a), I used a pooled-OLS model for this procedure, although results were similar when using the GMM model. The average forecast RMSE for the estimation without fiscal institutions was 2.98, whereas including the fiscal institutions reduced the average RMSE to 2.78, indicating that

including the fiscal institutions has improved the ability to predict out-of-sample. To illustrate this same process visually, I also estimated the model with and without the fiscal institutions on a restricted time sample, up until 2003. I then predicted the ( $\hat{Y}$ ) fiscal balances for the remaining period after 2003, and show these predictions for a small set of countries in appendix Figure 1.A.5. We can then visually see what the cross-validation procedure indicates, which is that including the fiscal institutions in the model improves the ability to predict out of sample, and therefore overfitting bias does not seem to be an issue in this case.

## **Conclusion**

It has long been argued that financial markets are able to compel political leaders to restrain deficit spending, yet there has been fairly limited investigation of this exact hypothesis. In this paper I have laid out a clearer theoretical framework from which we might expect that financial markets do compel fiscal discipline. Despite this, we fail to find evidence of a significant role for markets. Instead of the usual mechanisms – either markets or the rule of law – I have argued that an important causal mechanism missing from this discussion is the role of domestic political competition. Because political opponents can use fiscal rules as leverage against the executive, in the presence of such fiscal institutions the executive is actually compelled to reduce deficit spending. Furthermore, we have evidence that a vibrant civil society is able to function as an additional form of political-fiscal pressure. These findings are noteworthy because it indicates that these fiscal rules could be effective constraining devices even for countries who lack robust and independent judiciaries. This paper thus highlights how and why such institutions may be effective and in what environments globally, which may help policymakers in the design of such policies. It also furthers a research agenda pursuing the

understanding of how and under what conditions political leaders' policies are shaped by international economic conditions. While I found that there is a lack of such evidence with respect to fiscal policy, this paper contributes to a more nuanced research program seeking to uncover such potential influences. It may yet be that there are international financial market influences, but in an effort to uncover them we first need a clearer framework of analysis to detect and untangle them. At the same time, it seems clear that the evidence thus far is much more supportive of the role of domestic politics than it is for financial markets. The paper thus is an important advance in a long line of research contending for this influence.

## APPENDIX

## Appendix

Table 1.A.1: GMM Robustness Specifications

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Base Model	-	-	-	-	-	No Orthogonal
Instrumenting Lags	<i>collapsed</i>	<i>2 years</i>	<i>2 years</i>	<i>4 years</i>	<i>6 years</i>	<i>4 years</i>	<i>collapsed</i>
levels or diff equation?	<i>both</i>	<i>both</i>	<i>Difference</i>	<i>Difference</i>	<i>Difference</i>	<i>Both</i>	<i>Both</i>
Rule Basis	-0.132* (0.0790)	-0.128* (0.0774)	-0.120 (0.0794)	-0.118 (0.0908)	-0.102 (0.0980)	-0.121 (0.0978)	-0.0960 (0.0864)
MTF	-0.366* (0.214)	-0.394 (0.297)	-0.370 (0.290)	-0.308 (0.262)	-0.173 (0.284)	-0.299 (0.335)	-0.324 (0.240)
<b>Rule Basis * MTF</b>	<b>0.297*** (0.0843)</b>	<b>0.243** (0.107)</b>	<b>0.252** (0.0967)</b>	<b>0.202** (0.0975)</b>	<b>0.226** (0.108)</b>	<b>0.202* (0.109)</b>	<b>0.246** (0.107)</b>
Fiscal Balance (t-1)	0.697*** (0.0449)	0.746*** (0.0599)	0.797*** (0.0751)	0.781*** (0.0622)	0.724*** (0.0635)	0.728*** (0.0733)	0.733*** (0.0643)
Polity	-0.0437 (0.0355)	-0.0698 (0.0496)	-0.0672 (0.0452)	-0.0840* (0.0438)	-0.0465 (0.0496)	-0.0677 (0.0593)	-0.0390 (0.0377)
Checks and Balances	-0.0422 (0.0375)	-0.0410 (0.0474)	-0.0503 (0.0491)	-0.0564 (0.0557)	-0.0661 (0.0584)	-0.0178 (0.0499)	-0.0393 (0.0406)
Executive Election	-0.367** (0.141)	-0.406** (0.175)	-0.435** (0.169)	-0.386** (0.159)	-0.465** (0.148)	-0.405** (0.168)	-0.376** (0.136)
(log) GDP-pc	0.244* (0.143)	0.256* (0.155)	0.274* (0.151)	0.379 (0.296)	0.384 (0.273)	0.423* (0.232)	0.171 (0.164)
Trade (% GDP)	0.00460* (0.00252)	0.00220 (0.00235)	0.00174 (0.00219)	0.00193 (0.00290)	0.00389 (0.00262)	0.00381 (0.00315)	0.00444* (0.00258)
(lag) Growth	0.0506* (0.0265)	0.0506* (0.0285)	0.0382 (0.0333)	0.0325 (0.0331)	0.0621* (0.0349)	0.0449 (0.0358)	-0.0171 (0.0335)
(lag) (log) Inflation	0.211*** (0.0466)	0.245*** (0.0651)	0.196** (0.0627)	0.234** (0.0949)	0.286** (0.0924)	0.232** (0.0895)	0.169*** (0.0494)
(lag) (log) Debt/GDP	0.168 (0.188)	0.162 (0.168)	0.272 (0.207)	0.197 (0.366)	0.288 (0.411)	0.354 (0.318)	0.210 (0.177)
Fixed Exch. Rate	-0.0269 (0.230)	-0.0781 (0.231)	-0.0944 (0.196)	-0.0556 (0.262)	0.0149 (0.260)	0.0836 (0.290)	0.0127 (0.213)
Internal Conflict	-0.128*** (0.0357)	-0.139** (0.0608)	-0.115** (0.0511)	-0.0981 (0.100)	-0.0618 (0.0892)	-0.0726 (0.0941)	-0.144*** (0.0381)
Resource Rich Dummy	0.815** (0.374)	0.835** (0.385)	0.707** (0.348)	0.724* (0.415)	1.090** (0.494)	1.135** (0.456)	0.965** (0.346)
Constant	-3.334** (1.020)	-2.628** (1.254)	-3.191** (1.338)	-3.885 (4.695)	-5.718 (4.219)	-5.559 (3.836)	-2.484** (1.123)
Observations	957	957	957	957	957	957	957
# of Countries	65	65	65	65	65	65	65
Ave # years/country	14.72	14.72	14.72	14.72	14.72	14.72	14.72
Hansen p-value	0.690	0.415	0.128	0.952	1.000	1.000	0.918
AR(2) p-value	0.657	0.685	0.667	0.676	0.645	0.658	0.637
# of instruments	54	68	49	85	120	104	54

Dependent Variable is Fiscal Balance (%GDP). All Models estimated by twostep System GMM with Windmeijer corrected standard errors, but vary other estimation criteria in each column to demonstrate robustness to alternate specification choices. Column 1 is identical to estimation reported in table 1. All models use orthogonal deviations rather than the difference transformation, with the exception of column 7.

Table 1.A.2: Triple Interaction Models

	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Theory:	Flogging	Flogging	Flogging	Flogging	Politics	Politics	Politics	Politics
Variable for interaction:	Speculative Threshold	Speculative Grade	Fixed ER	Emerging Mkt	OppVote	Civil Society	Checks	Polity
Rule Basis	0.039 (0.258)	-0.086 (0.177)	-0.017 (0.080)	0.019 (0.081)	-0.031 (0.158)	-0.486 (0.376)	-0.005 (0.175)	-0.697 (0.425)
MTF	0.225 (0.831)	0.106 (1.069)	-0.177 (0.271)	-0.055 (0.237)	0.206 (0.714)	4.303** (2.067)	0.316 (0.575)	2.662 (1.695)
Legal Basis * MTF	0.169 (0.232)	0.429 (0.334)	0.234** (0.083)	0.221** (0.081)	-0.009 (0.291)	-1.739** (0.793)	-0.011 (0.234)	-0.363 (0.647)
[variable]	-0.268 (2.956)	-1.236 (2.703)	0.188 (0.291)	0.632* (0.325)	-0.002 (0.007)	-0.473 (1.497)	-0.045 (0.051)	-0.043 (0.033)
Rule Basis * [variable]	-0.72 (1.932)	0.405 (0.531)	-0.29 (0.222)	-0.21 (0.131)	-0.002 (0.003)	0.457 (0.454)	-0.02 (0.031)	0.032 (0.023)
MTF * [variable]	-1.257 (2.716)	2.16 (6.947)	-0.022 (0.372)	0.025 (0.301)	-0.01 (0.016)	-5.101** (2.365)	-0.128 (0.134)	-0.148* (0.088)
Rbasis * MTF * [variable]	1.381 (1.360)	-1.206 (2.446)	0.202 (0.262)	-0.029 (0.141)	0.007 (0.007)	2.270** (0.915)	0.072 (0.051)	0.034 (0.034)
Fiscal Balance (lag)	0.778*** (0.068)	0.777*** (0.066)	0.717*** (0.048)	0.719*** (0.047)	0.710*** (0.050)	0.699*** (0.049)	0.719*** (0.048)	0.725*** (0.051)
Polity	-0.076 (0.140)	-0.13 (0.184)	-0.035 (0.035)	-0.053 (0.036)	-0.039 (0.034)	-0.039 (0.037)	-0.039 (0.037)	
Checks and Balances	-0.099 (0.076)	-0.124 (0.094)	-0.039 (0.035)	-0.039 (0.037)	-0.041 (0.039)	-0.036 (0.039)		-0.031 (0.036)
Executive Election	-0.394** (0.163)	-0.380** (0.175)	-0.410** (0.135)	-0.410** (0.133)	-0.399** (0.134)	-0.376** (0.124)	-0.396** (0.133)	-0.389** (0.135)
(log) GDP-pc	-0.604 (1.160)	-0.927 (1.270)	0.163 (0.154)	0.204 (0.163)	0.205 (0.147)	0.216 (0.172)	0.183 (0.153)	0.265 (0.208)
Trade (% GDP)	0.002 (0.005)	-0.001 (0.007)	0.005** (0.002)	0.004* (0.002)	0.005* (0.003)	0.005 (0.004)	0.005** (0.003)	0.007** (0.003)
Growth (lag)	0.035 (0.116)	0.016 (0.098)	0.054** (0.026)	0.051* (0.028)	0.058** (0.028)	0.050* (0.029)	0.055** (0.028)	0.054* (0.029)
(log) Debt/GDP (lagged)	-0.107 (1.029)	-0.141 (0.736)	0.182 (0.177)	0.253 (0.187)	0.191 (0.187)	0.177 (0.200)	0.183 (0.179)	0.252 (0.176)
(log) Inflation (lagged)	-0.114 (0.472)	-0.141 (0.327)	0.199*** (0.047)	0.159*** (0.042)	0.207*** (0.046)	0.183*** (0.047)	0.197*** (0.044)	0.208*** (0.046)
Fixed Exch. Rate	0.34 (0.487)	0.578 (0.605)		0.128 (0.205)	0.02 (0.227)	0.009 (0.246)	0.032 (0.216)	-0.02 (0.225)
Internal Conflict	-0.293 (0.322)	-0.352 (0.327)	-0.133*** (0.037)	-0.140*** (0.030)	-0.126*** (0.035)	-0.128*** (0.038)	-0.128*** (0.034)	-0.104** (0.037)
Resource Rich Dummy	0.681 (0.796)	1.022 (0.861)	0.872** (0.356)	0.812** (0.374)	0.896** (0.366)	0.912** (0.387)	0.859** (0.351)	0.864** (0.330)
Judicial Independence								-0.262 (1.031)
Observations	703	703	957	957	957	938	957	957
# of Countries	50	50	65	65	65	64	65	65
Ave Years/Country	14.06	14.06	14.723	14.723	14.723	14.656	14.723	14.723
Hansen p-value	0.971	0.977	0.779	0.829	0.812	0.862	0.803	0.783
AR(2) p-value	0.24	0.203	0.656	0.633	0.654	0.45	0.663	0.658
# of Instruments (GMM)	60	60	59	60	60	60	59	60

Standard Errors in Parantheses. \* p<0.1 \*\* p<0.05 \*\*\* 0.001; DV = Fiscal Balance (% GDP). All models are System GMM models with twostep Windmeijer corrected robust standard errors. Year fixed effects estimated in all models, not reported



Table 1.A.3: Fiscal Institution Adoption (Selection) Models

<i>DV =</i>	(1) <i>MTF</i>	(2) <i>Rbasis</i>	(3) <i>Joint Adopt</i>
(lag) Fiscal Balance	0.240* (0.143)	-0.011 (0.019)	0.053 (0.040)
World # of Rules	0.285* (0.155)	0.062** (0.026)	0.078** (0.036)
Polity	0.496 (0.386)	-0.013 (0.037)	0.121** (0.044)
Checks and Balances	0.001 (0.175)	0.017 (0.057)	-0.064 (0.084)
Opposition Vote Share	-0.008 (0.020)	0.009 (0.007)	0.018* (0.010)
Civil Society Participation	0.011 (0.060)	-0.019* (0.011)	-0.011 (0.017)
(log) Population	1.866* (1.018)	0.410*** (0.116)	0.542** (0.168)
EuroZone	3.707 (3.064)	0.786* (0.455)	1.174 (0.746)
(lag) Debt/GDP	-2.963 (1.829)	-0.308 (0.264)	-0.658** (0.322)
Ever Default	-6.844** (3.228)	-0.074 (0.533)	-0.844 (0.585)
(log) GDP-pc	1.480 (1.225)	0.490** (0.198)	0.332 (0.295)
Growth	-0.067 (0.073)	0.030** (0.014)	0.045 (0.032)
(log) Inflation	-0.323 (0.373)	-0.173** (0.072)	-0.366** (0.113)
Fixed Exch. Rate	2.939 (2.777)	-0.871** (0.335)	-0.977* (0.502)
Time Trend	0.667* (0.384)	0.014 (0.037)	0.057 (0.083)
Constant	-1379.561* (783.886)	2.287** (0.721)	-127.690 (166.793)
Insig2u	4.182*** (0.368)		1.216** (0.407)
Observations	1020	1293	1020

Dependent Variable changes per model. Model 1 is a binary MTF indicator, model 2 is the legal basis of a fiscal rule (range from 0 to 5), and 3 is a binary indicator of joint adoption. Models 1 and 3 use a random effects probit, with model 2 being a random effects ordinal probit. Clustered Standard Errors are in parentheses.

Table 1.A.4: Endogeneity Robustness Models

	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Theory:	Flogging	Flogging	Flogging	Flogging	Politics	Politics	Politics	Politics
Variable for interaction:	Speculative Threshold	Speculative Grade	Fixed ER	Emerging Mkt	OppVote	Civil Society	Checks	Polity
Rule Basis	-0.188 (0.163)	-0.275 (0.183)	-0.079 (0.102)	0.045 (0.093)	-0.134 (0.217)	-0.898** (0.382)	-0.078 (0.219)	-1.200** (0.445)
MTF	-0.881 (0.570)	-0.898 (1.201)	-0.486 (0.321)	-0.372 (0.274)	-0.205 (0.600)	3.487 (2.188)	-0.122 (0.520)	1.88 (1.468)
Rule Legal Basis * MTF	0.251 (0.171)	0.588* (0.330)	0.262** (0.119)	0.240** (0.091)	-0.047 (0.323)	-1.528* (0.888)	0.042 (0.225)	-1.122 (0.723)
[variable]	-1.603 (2.655)	-0.772 (2.681)	0.53 (0.393)	0.718* (0.385)	-0.007 (0.008)	-0.984 (1.488)	-0.063 (0.072)	-0.113** (0.044)
Rule Basis * [variable]	-1.05 (1.353)	0.419 (0.592)	-0.448 (0.333)	-0.402** (0.161)	-0.001 (0.004)	0.877* (0.491)	-0.025 (0.041)	0.056** (0.024)
MTF * [variable]	-0.41 (3.633)	2.113 (6.206)	-0.134 (0.403)	0.041 (0.355)	-0.008 (0.015)	-4.434* (2.562)	-0.114 (0.135)	-0.124 (0.078)
Rbasis * MTF * [variable]	2.452 (2.220)	-1.326 (2.271)	0.386 (0.378)	-0.001 (0.174)	0.01 (0.007)	2.061** (1.032)	0.076 (0.050)	0.074** (0.037)
Fiscal Balance (lag)	0.758*** (0.078)	0.713*** (0.077)	0.626*** (0.050)	0.622*** (0.052)	0.614*** (0.053)	0.640*** (0.049)	0.625*** (0.052)	0.624*** (0.053)
Polity	-0.199 (0.265)	-0.218 (0.245)	-0.090* (0.046)	-0.119** (0.048)	-0.094** (0.048)	-0.091** (0.044)	-0.091* (0.050)	
Checks and Balances	-0.197* (0.105)	-0.145 (0.139)	-0.048 (0.045)	-0.047 (0.047)	-0.059 (0.042)	-0.048 (0.044)		-0.053 (0.043)
Executive Election	-0.313* (0.163)	-0.421** (0.160)	-0.373** (0.126)	-0.381** (0.121)	-0.355** (0.123)	-0.358** (0.117)	-0.352** (0.120)	-0.353** (0.123)
(log) GDP-pc	-1.707 (1.817)	-1.389 (1.921)	0.049 (0.212)	0.069 (0.223)	0.113 (0.197)	0.076 (0.204)	0.09 (0.214)	0.092 (0.243)
Trade (% GDP)	0.006 (0.008)	0.012** (0.006)	0.007* (0.004)	0.008* (0.004)	0.007 (0.005)	0.008* (0.005)	0.008 (0.005)	0.009** (0.004)
Growth (lag)	-0.042 (0.138)	0.008 (0.112)	0.057** (0.026)	0.054** (0.028)	0.061** (0.027)	0.051* (0.029)	0.058** (0.026)	0.061** (0.029)
(log) Debt/GDP (lagged)	-0.294 (0.832)	0.357 (0.676)	0.062 (0.216)	0.147 (0.233)	0.087 (0.234)	0.176 (0.215)	0.06 (0.222)	0.117 (0.230)
(log) Inflation (lagged)	-0.115 (0.362)	0.164 (0.193)	0.218*** (0.057)	0.197*** (0.054)	0.249*** (0.063)	0.221*** (0.054)	0.220*** (0.055)	0.254*** (0.058)
Fixed Exch. Rate	0.946 (1.196)	1.399 (1.407)		0.45 (0.326)	0.385 (0.349)	0.238 (0.325)	0.293 (0.331)	0.315 (0.317)
Internal Conflict	-0.519 (0.436)	-0.335 (0.373)	-0.157*** (0.045)	-0.165*** (0.037)	-0.143*** (0.040)	-0.151*** (0.042)	-0.148*** (0.041)	-0.128** (0.043)
Resource Rich Dummy	0.473 (0.711)	1.348 (0.879)	1.066** (0.452)	1.077** (0.490)	1.079** (0.449)	1.117** (0.441)	1.064** (0.436)	1.179** (0.440)
<b>Lambda (IMR)</b>	<b>-1.283</b> <b>(1.470)</b>	<b>-1.78</b> <b>(1.429)</b>	<b>-0.328**</b> <b>(0.132)</b>	<b>-0.365**</b> <b>(0.135)</b>	<b>-0.368**</b> <b>(0.146)</b>	<b>-0.343**</b> <b>(0.131)</b>	<b>-0.317**</b> <b>(0.130)</b>	<b>-0.379**</b> <b>(0.126)</b>
Judicial Independence								-0.133 (1.030)
Observations	675	675	924	924	924	924	924	924
# of Countries	49	49	64	64	64	64	64	64
Ave Years/Country	13.776	13.776	14.438	14.438	14.438	14.438	14.438	14.438
Hansen p-value	0.993	0.994	0.86	0.907	0.899	0.892	0.889	0.867
AR(2) p-value	0.529	0.615	0.464	0.441	0.469	0.472	0.478	0.455
# of Instruments (GMM)	61	61	60	61	61	61	60	61

Standard Errors in Parantheses. \* p<0.1 \*\* p<0.05 \*\*\* 0.001; DV = Fiscal Balance (% GDP). All models are System GMM models with twostep Windmeijer corrected robust standard errors. Year fixed effects estimated in all models, not

Figure 1.A.1: Endogeneity Robustness: RBasis (MTF - No MTF)

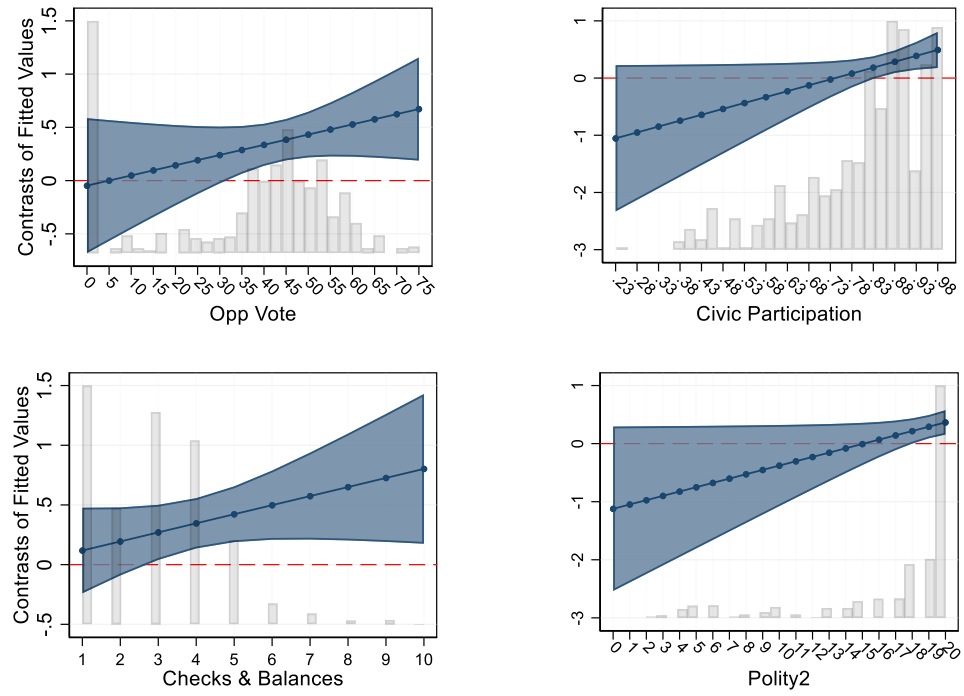
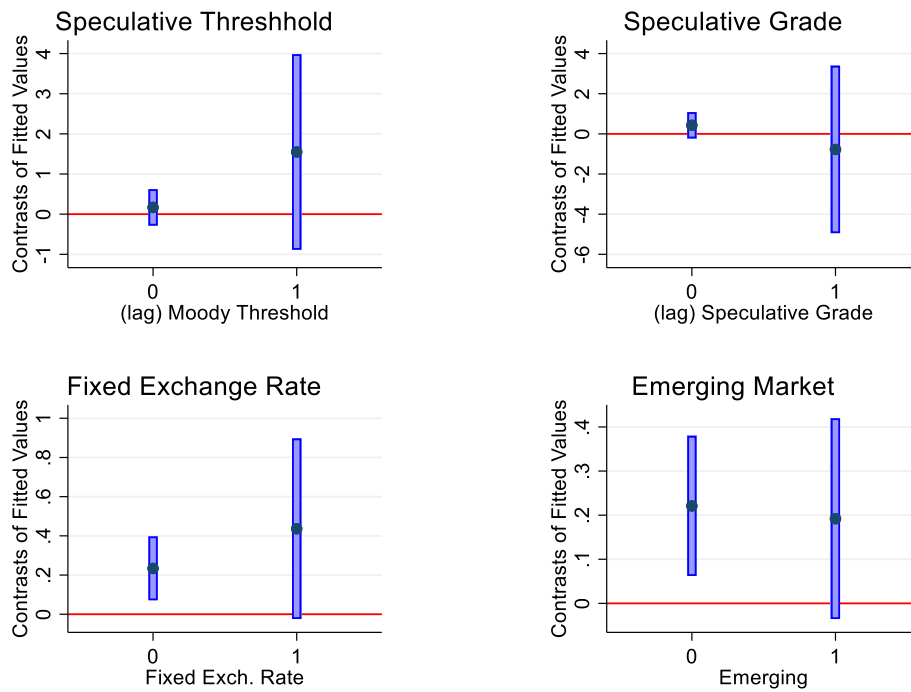
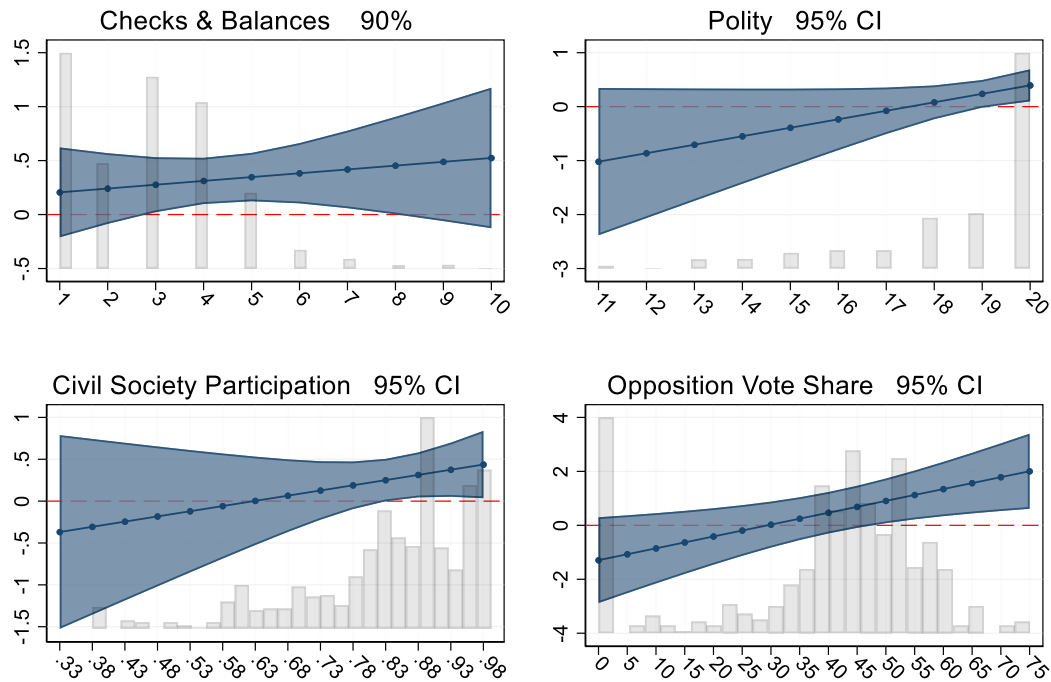


Figure 1.A.2: Marginal Effect of Rule Basis (MTF - No MTF)



Note: Above, we see the marginal effect of fiscal rules as the financial flogging condition varies. As we see, the coefficient values do not seem to significantly change when the flogging condition =1 vs when it is 0. Further, the prediction should be that fiscal institutions have a more positive effect when the financial flogging condition==1, but in some of these the value declines. The standard errors also significantly overlap. Also, while in the Threshold and speculative grade plots it does not appear as though fiscal institutions are effective, an examination of the two-way interaction plots for these models mirror those reported in Figure 1.1: We find that MTF significantly increases fiscal balances when the Rule Basis equals 3 or 4, and Rule Basis significantly improves balances but only when MTF is equal to 1.

Figure 1.A.3 - ME Plots from Table 1.A.5 Region A



Here, we can see the marginal effects plots from the table 1.A.5 below, which corresponds to sub-table region A. In this case, we see the triple interactions when countries with a polity score less than 0 are excluded, in order to see if key clusters of countries are driving the results. We see instead that we still have strong support for the hypotheses. In the above plots, the standard errors are larger due to the reduced sample and some of the coefficients for the interaction terms are not significant, but the marginal effects plots reveal the same significant relationships as explored in the main text of the paper.

Table 1.A.5: Robustness to Splitting Sample

<i>Sample Restriction:</i>	<b>(A) Excluding Polity &lt; 0</b>				<b>(B) Excluding Europe</b>			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Rule Basis * MTF * Checks	0.0354 (0.0658)				0.125 (0.128)			
Rule Basis * MTF * Polity		0.157* (0.0846)				0.179*** (0.0444)		
Rule Basis * MTF * Civil Society Org's			1.240 (1.132)				5.405*** (1.130)	
Rule Basis * MTF * Opp Vote Share				0.0135** (0.00587)				0.0225* (0.0116)
Observations	826	826	826	826	557	557	538	557
# of Countries	60	60	60	60	40	40	39	40
Ave # years/country	13.77	13.77	13.77	13.77	13.93	13.93	13.79	13.93
<i>Sample Restriction:</i>	<b>(C) Developing Countries Only</b>				<b>(D) Excluding Polity level 9 or 10</b>			
	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Rule Basis * MTF * Checks	0.144 (0.158)				0.314* (0.162)			
Rule Basis * MTF * Polity		0.223*** (0.0511)				0.127* (0.0640)		
Rule Basis * MTF * Civil Society Org's			5.392*** (1.452)				4.657*** (1.285)	
Rule Basis * MTF * Opp Vote Share				0.0306** (0.0117)				0.0138 (0.0132)
Observations	451	451	451	451	392	392	373	392
# of Countries	36	36	36	36	37	37	36	37
Ave # years/country	12.53	12.53	12.53	12.53	10.59	10.59	10.36	10.59

Dependent Variable is Fiscal Balance (% GDP). All models include full set of controls from Table 1 but omitted for space and ease of presentation. Section headers denote the sample manipulation. All models are country fixed effects models with clustered standard errors.

Table 1.A.6: Jackknife Panel Regressions

Country Omitted	Rule Basis * MTF	p-value	Country Omitted	Rule Basis * MTF	p-value	Country Omitted	Rule Basis * MTF	p-value
US	0.363***	(0.003)	Hungary	0.381***	(0.002)	Burkina Faso	0.381***	(0.003)
Canada	0.375***	(0.002)	Slovak Republic	0.366***	(0.004)	Liberia	0.344***	(0.004)
Jamaica	0.378***	(0.002)	Italy	0.388***	(0.002)	Togo	0.373***	(0.002)
Mexico	0.386***	(0.002)	Croatia	0.385***	(0.002)	Cameroon	0.414***	(0.000)
Costa Rica	0.397***	(0.001)	Slovenia	0.374***	(0.003)	Nigeria	0.368***	(0.004)
Panama	0.336***	(0.010)	Greece	0.375***	(0.003)	Gabon	0.335***	(0.004)
Columbia	0.399***	(0.001)	Cyprus	0.392***	(0.002)	Congo, Republic	0.374***	(0.003)
Ecuador	0.355***	(0.003)	Bulgaria	0.366***	(0.003)	Kenya	0.373***	(0.002)
Peru	0.370***	(0.002)	Romania	0.376***	(0.002)	Namibia	0.384***	(0.002)
Brazil	0.386***	(0.002)	Russia	0.368***	(0.002)	Botswana	0.356***	(0.004)
Chile	0.377***	(0.002)	Latvia	0.381***	(0.002)	Israel	0.402***	(0.002)
Argentina	0.417***	(0.001)	Lithuania	0.381***	(0.002)	Mongolia	0.339***	(0.005)
UK	0.373***	(0.002)	Armenia	0.375***	(0.002)	Japan	0.338***	(0.006)
Ireland	0.366***	(0.008)	Finland	0.386***	(0.002)	India	0.361***	(0.003)
Netherlands	0.375***	(0.002)	Sweden	0.363***	(0.003)	Pakistan	0.377***	(0.002)
Belgium	0.379***	(0.002)	Norway	0.373***	(0.002)	Sri Lanka	0.390***	(0.001)
France	0.399***	(0.001)	Denmark	0.372***	(0.002)	Malaysia	0.369***	(0.005)
Switzerland	0.390***	(0.002)	Guinea-Bissau	0.389***	(0.001)	Singapore	0.369***	(0.004)
Spain	0.407***	(0.001)	Mali	0.381***	(0.002)	Indonesia	0.361***	(0.003)
Portugal	0.367***	(0.003)	Senegal	0.357***	(0.002)	Australia	0.369***	(0.003)
Poland	0.372***	(0.004)	Niger	0.365***	(0.004)	New Zealand	0.364***	(0.003)
Austria	0.404***	(0.001)	Ivory Coast	0.362***	(0.003)			

Results from panel jackknife regressions, excluding one country per regression. Estimated from model (1), estimates are system GMM. While not reported, GMM diagnostic statistics in all models suggested instruments used are valid (all Hansen and AR(2) statistics were

Table 1.A.7: Expanded Control Set for Main GMM Models

	(1)
	Base + controls
Rule Basis	-0.139 (0.087)
MTF	-0.063 (0.262)
<b>Rule Basis * MTF</b>	<b>0.298**</b> <b>(0.109)</b>
(lag) Fiscal Balance	0.753*** (0.060)
Polity	-0.066** (0.027)
Checks and Balances	-0.004 (0.036)
Executive Election	-0.408** (0.148)
(log) GDP-pc	0.186 (0.134)
CBI Garriga (weighted)	0.011 (0.453)
(log) Population	-0.156 (0.105)
(log) IMF Credits	0.022 (0.020)
(lag) Unemployment (%LF)	0.011 (0.026)
Capital Account Openness	0.406 (0.375)
Current Account Balance	0.056** (0.020)
Trade (% GDP)	-0.002 (0.003)
(lag) Growth	0.108*** (0.025)
(lag) (log) Inflation	0.177** (0.083)
(lag) (log) Debt/GDP	0.221 (0.170)
Fixed Exch. Rate	-0.035 (0.240)
Internal Conflict	-0.174*** (0.038)
Resource Rich Dummy	0.674** (0.270)
Constant	0.324 (2.637)
Observations	781
hansenp	0.781
ar2p	0.390
# of Countries	63.000
Years/country	12.397

Model estimation the same as reported in Table 1



Figure 1.A.4: Lambda Triple Endogeneity Models

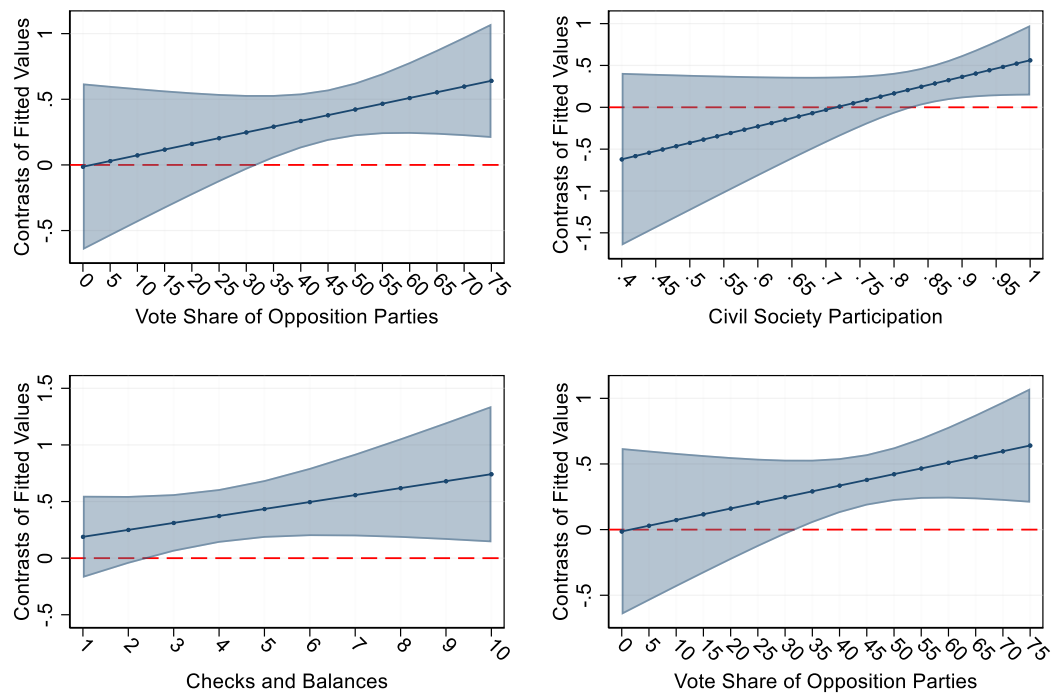
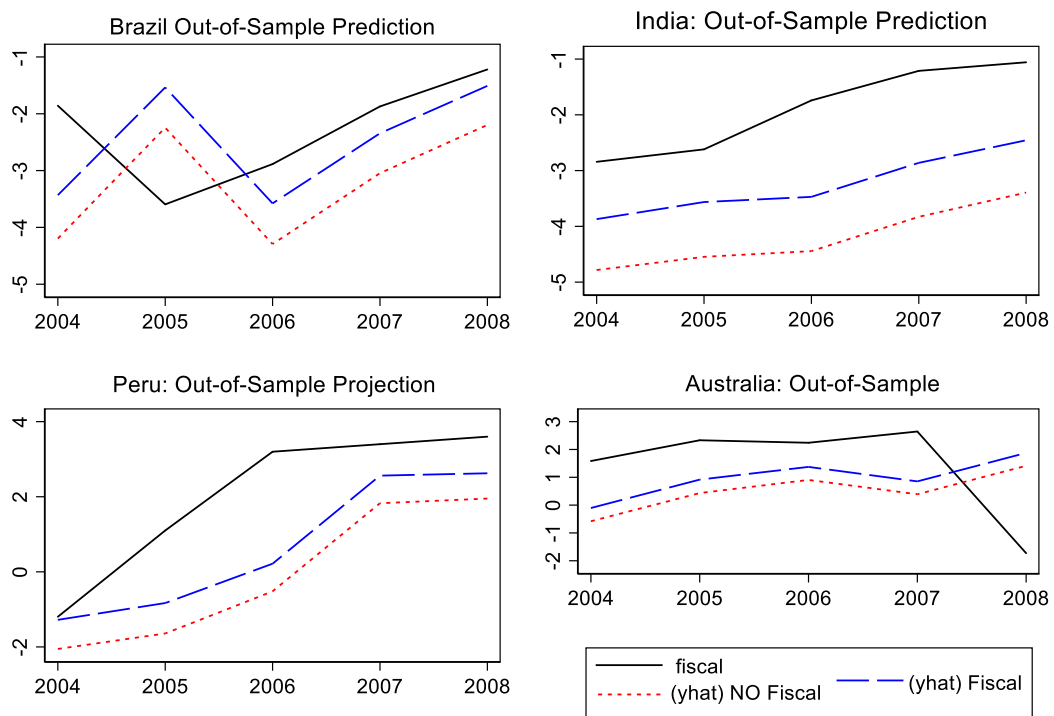


Figure 1.A.5: Out of Sample Forecasts



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## CHAPTER 2: The Democratic (Dis)Advantage: How Financial Vulnerability Conditions the Effect of Democracy on Sovereign Credit Ratings in Developing Countries

The question regarding whether democratic institutions can serve as effective credible commitment devices has received considerable attention and has been examined in diverse ways. In one context, North and Weingast (1989) and Schultz and Weingast (2003) have argued that because democracies have greater accountability and the public can punish its leaders, democracies can credibly commit to repay sovereign (national) debt. As a consequence, this reasoning goes, democracies should be more creditworthy and have an advantage in financial markets. First, they should enjoy better sovereign credit ratings such as the highest “AAA” rating, which indicate a countries’ ability and willingness to repay its debt commitments. And secondly, they should also have greater ability to issue more of and pay less interest for their debt. While there was some early debate over this argument (Archer, Biglaiser, and DeRouen 2007; Saiegh 2005), DiGiuseppe and Shea (2015) note that most scholars seem to have converged toward agreement that democracies do enjoy this “democratic advantage” of sovereign credit ratings.

Contrasting the emphasis of the literature, I introduce a novel argument that democracies do not have an *inherent* credit market advantage. Instead, the advantage of democracies is conditional on the countries’ level of financial vulnerability, such that when democracies are highly vulnerable they have worse credit ratings, but enjoy ratings advantages when their economic vulnerability is low. Because democratic institutions enable and facilitate the ability of the public to mobilize against the use of unpopular economic adjustment measures, the adjustment process can be more challenging for such governments. As a result, financial

vulnerability interacts with democratic institutions in specific ways which lead international creditors to be more suspicious of their ability to adapt to challenging macroeconomic circumstances. Specifically, I argue that two important phenomena jointly determine a countries' level of financial vulnerability: a countries' overall debt burden (which increases financial risk) and its level of foreign exchange reserves (which, as a form of international "financial insurance", decreases risk). These conditions jointly determine financial vulnerability because high debts can be a signal of weakening resolve to repay debts, signifies that in the event of an unrelated shock high debts can magnify crises, and because large debts leave little space for stabilizing counter-cyclical policy during such events. However, a large pool of foreign exchange reserves enables domestic financing of foreign loans, currency convertibility, and even provides an additional mechanism to provide counter-cyclical policy. In these ways, both of these issues combine such that high debt and low foreign reserves represent a perfect storm of economic vulnerability for a country. Risk is higher when debt is high and, in the event of a crisis, a low level of foreign reserves means a country has fewer policy options to manage the crisis.

Thus, I advance several related arguments. First, democracies should have worse credit ratings at high levels of debt, holding foreign reserves constant. Debt levels are the clearest indicator that a country is in need of fiscal rebalancing, and so democracies at high debt should have poorer credit ratings. Second, while it is an accepted finding that higher debt predicts lower ratings (Gaillard 2011), this effect should be more strongly negative for democracies than autocracies. This is because large debt burdens are viewed as less risky for future debt repayment when financial actors believe that the debt burden can and will be easily resolved.

On the other hand, if financial actors believe that substantial debts are unlikely to be reversed, then this should be reflected in the form of lower credit ratings. As a result, because I argue that democratic institutions make economic adjustment more difficult, financial actors will view large debts for democracies more negatively. And lastly, democracies should have worse credit ratings at their *highest vulnerability*, which is when the ratio of foreign reserves relative to external debt is low. At the same time, precisely because foreign reserve assets can attenuate the risk of external debt, democracies should enjoy higher ratings when their reserves/external debt ratio is sufficiently high (that is, when they are *financially secure*, instead of vulnerable). As a consequence of this analysis, we gain important insights into the precise mechanisms which enable democracies to enjoy a credit market advantage.

On the first dimension, when countries have a high level of debt, this increases the risk of debt default and can also increase the risk of other financial crises (Cantor and Packer 1996; Steinberg, Koesel, and Thompson 2015). As a result, higher levels of debt can increase the pressure on governments to undertake financial adjustment policies to mitigate the risk posed by such debts. However, while proponents of the democratic advantage hypothesis emphasize that electoral punishment (accountability mechanisms) and checks and balances (veto players) enable credible commitments by democracies to repay, these *same features* of democracy should also make policy adjustment more difficult when there is a pressing need to do so. Because democracies are more accountable, incumbents should be more hesitant to embrace painful adjustment policies such as tax increases and spending and benefit cuts. It is also because democracies have more diffuse policymaking that such adjustment can be more difficult in democracies (Alesina and Drazen 1991).

Autocracies, by contrast, should have an easier time passing economic adjustment measures because they do not need the approval of other government members, enabling them to shift the adjustment burden onto those whom the regime does not rely on for support. And very importantly, democratic institutions are also what arguably compels fiscal mismanagement in the first place, in the form of fiscal budget cycles (Shi & Svensson 2006; O'Mahoney 2011) or excessive debt accumulation due distributive politics or electoral design (Hallerberg and Hagen 1997; Persson and Tabellini 2005). Autocracies, then, have lower adjustment costs in order to ensure their ability to repay debt obligations, and may not face the same interest group pressures for deficit spending.

A recent Bloomberg article<sup>27</sup> titled "The Bond Market Prefers Dictators to Democracies," helps to illuminate this argument with a comparison of recent debt payment cases. While specifically showing that financial returns from autocratic government debt has been more favorable in recent years, the article suggests:

On April 12, Venezuela's creditors reaped large returns when President Nicolas Maduro made good on \$2.5 billion in debt payments even as he struggles to come up with enough money for food imports. Two days earlier, El Salvador, a democracy for the last quarter-century, [defaulted](#) as a feud between the president and an opposition party -- a "high-stakes game of chicken," as Nomura Holdings Inc. strategist Benito Berber called it -- left the government unable to make a \$29 million payment to a local pension fund."

Venezuela has in fact defaulted since this example was made; however, it nonetheless demonstrates the extremes to which autocrats may go in order to maintain debt repayments, while contrasting a potentially lower threshold for democracies. Similar issues to are found by

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<sup>27</sup> <https://www.bloomberg.com/news/articles/2017-04-20/autocracies-beating-democracies-in-emerging-market-bond-world>

examining public statements given by the ratings agencies, such as a Moody's Analytics explanation for a negative rating outlook for Honduras in 2013<sup>28</sup>, saying it "reflects Moody's concerns about (1) the government's fiscal deterioration in 2012 and *the low likelihood of significant fiscal consolidation in 2013, given that it is an election year...*" (emphasis added). In March of 2017, Fitch Ratings issued a statement concerning the increasing debt burden of Ecuador, noting that a potential electoral winner would face legislative challenges in passing pro-IMF reforms, given the strength of the opposition party<sup>29</sup>. And in 2016, Fitch discussed the negative rating outlook for Costa Rica<sup>30</sup>, stating that despite a strong macroeconomic position, "The Negative Outlook reflects adverse public debt dynamics, driven by large fiscal deficits, and *legislative gridlock preventing progress on reforms to correct fiscal imbalances in a timely manner.*" (emphasis added). We therefore see several direct examples for which these key features of democracy – elections, partisan obstacles and legislative gridlock - which may actually be a source of *disadvantage*. As a consequence, two expectations emerge from this consideration of economic adjustment costs. First, that democracies will have worse credit ratings than autocracies when debt levels are high. Secondly, high debt levels should reduce credit ratings *more so* in democracies than in autocracies.

Yet as noted, an important means by which countries seek to insulate themselves from financial risk is by accumulating a larger pool of foreign exchange reserves (Obstfeld, Shambaugh, and Taylor 2010; Nyblade and O'Mahony 2014). A 2004 Moody's Analytics statement<sup>31</sup> on the

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<sup>28</sup> [https://www.moody.com/research/Moodys-changes-Honduras-rating-outlook-to-negative--PR\\_267052](https://www.moody.com/research/Moodys-changes-Honduras-rating-outlook-to-negative--PR_267052)

<sup>29</sup> <https://www.fitchratings.com/site/pr/1021287>

<sup>30</sup> [http://en.centralamericadata.com/en/article/home/Costa\\_Rica\\_Fitch\\_Maintains\\_Sovereign\\_Rating](http://en.centralamericadata.com/en/article/home/Costa_Rica_Fitch_Maintains_Sovereign_Rating)

<sup>31</sup> [https://www.moody.com/research/MOODYS-REPORTS-THAILANDS-Baa1-RATINGS-AND-STABLE-OUTLOOK-REFLECT-IMPROVED--PR\\_81226](https://www.moody.com/research/MOODYS-REPORTS-THAILANDS-Baa1-RATINGS-AND-STABLE-OUTLOOK-REFLECT-IMPROVED--PR_81226)

positive ratings outlook for Thailand exemplifies this argument, citing “a high level of international reserves” among key reasons that “provide considerable leeway for the authorities to manage external shocks.” Foreign exchange reserves can be used in emergencies or abrupt financial shocks, such that domestic institutions are able to draw upon the reserves for emergency financing. As such, while rising debt increases both the risk and costliness of crises, a higher volume of foreign currency reserves provides a form of financial insurance which mitigates the very weakness posed by democratic institutions. In such a case, this leaves only the positive effects of democracies to have an influence on credit ratings. Such positive effects are, for a few examples: economic transparency (Hollyer, Rosendorff, and Vreeland 2014), reducing corruption (Kolstad and Wiig 2016), stronger rule of law (Biglaiser and Staats 2012), and a greater ratio of public vs private goods provisions (Bueno de Mesquita and Downs 2005; DiGiuseppe and Shea 2015). Therefore, in keeping with the theory that democracies will have a disadvantage when they are most financially vulnerable (considering both debt and reserves), I argue that democracies should have lower credit ratings when their *relative level* of foreign reserves-to-debt is low, but that at a sufficiently high level of reserves-to-debt democracies should regain the advantage.

I utilize credit ratings data from Moody’s Analytics and Standard & Poor’s on 54 developing countries from 1977 to 2012 to investigate these financial vulnerability hypotheses. Even after controlling for the selection bias of which countries receive credit ratings (Beaulieu, Cox, and Saiegh 2012), and possible simultaneity bias, I show robust support for these predictions. When the Reserves/External Debt ratio is low – indicating a countries’ highest level of financial vulnerability – democracies have significantly poorer credit ratings. However, at higher levels of

Reserves/ External Debt, democracies have a ratings advantage. Importantly, the analysis also reveals that high debt levels significantly reduce ratings, but only for more democratic countries, which confirms a key contention of the paper that democracies are more likely to struggle with debt consolidation because of the increased political adjustment costs they face. I also show that this result holds using several indicators of democracy.

This paper thus makes an important theoretical contribution to the literature by helping to clarify exactly what it is about democracies that leads to better credit ratings. The democratic advantage literature has argued that democracies are able to credibly commit to debt repayment, and hence they enjoy ratings advantages. This paper calls this basic line of reasoning into question. Democracies do have some advantages in finance markets, but it does not seem to be because of a *ceteris paribus* credible commitment to repay debt holdings. If democracies were, by default, more credible debt issuers than autocracies, then it should not matter whether the countries' level of debt is high or low, or whether a country has large foreign exchange reserves. Instead, this analysis reveals an inherent institutional weakness of democracies, but implicitly highlights other pathways by which democracies enjoy credit rating advantages.

### **The Democratic Advantage**

The literature which examines the “democratic advantage” of country credit ratings is a smaller subset of a broader literature which examines the ability of democracies to deliver more optimal economic policies. Here, I overview the specific literature of the democratic advantage, and will draw upon the literature on economic crises to illustrate that the theoretical structure predicting the democratic advantage is much more logically ambiguous than is generally given

credit. In the next section, I will argue that considering the democratic advantage through the lens of financial vulnerability gives us important insights into when democracies are at a *disadvantage*, and in what cases they may regain preferential credit ratings.

The argument surrounding democratic institutions and preferential financial market access has its origins from North and Weingast (1989), who argued that the English Crown was only able to commit to stable fiscal policies when the parliament was granted constitutional authority to oversee royal spending decisions (Dincecco 2009). From there, Schultz and Weingast (2003) expanded on the idea by arguing that, because democratic leaders are accountable to their public (who can punish the sovereign lender via elections), they are able to credibly commit to debt repayment. As a consequence, investors would be more likely to lend to democracies because of this *de facto* contract enforceability, which therefore increases their financial market access. As a result, they argued, democracies are better able to endure and prevail in long running wars.

Most scholars of the democratic advantage have agreed with this essential logic, that democracies are able to credibly commit to debt repayment because of electoral accountability and because of the diffusion of decision-making authority (veto player arguments). These essential features of democracy are also argued to provide a range of other beneficial and pro-growth outcomes, such as a higher provision of public vs private goods (Bueno de Mesquita et al. 2003; DiGiuseppe and Shea 2015), reduction of corruption (Schultz and Weingast 2003; Kolstad and Wiig 2016), and greater rule of law and property rights protections (Biglaiser and Staats 2012).



While recent scholarship on the democratic advantage has been very supportive, some of the earlier literature demonstrated some contrary findings. For instance, Saiegh (2005) examined the democratic advantage in developing countries, arguing that the essential logic of the democratic advantage holds only for developed countries. Specifically, he argued that because developing countries have higher levels of *foreign* ownership over government debt, the electoral punishment mechanism does not apply. He showed that, contrary to expectations regarding the democratic advantage hypothesis, democracies are *more likely* to default on their debt obligations, and do not differ in the interest paid on debt. This reasoning has been disputed, however, as it has been argued that defaulting even on foreign debt can have ripple effects on the domestic economy (DiGiuseppe and Shea 2015). Archer, Biglaiser, and DeRouen (2007) also examined developing countries, showing that sovereign credit ratings did not differ notably between regime types, and suggested from interviews with investors that regime type is not an important consideration.

More recently, Biglaiser and Staats (2012) have argued that the earlier literature ignored the important influence of judicial independence and the rule of law as an indicator of political stability. Again examining developing countries, they show that measures of judicial strength and the rule of law significantly predict higher credit ratings, augmenting the analysis with compelling direct quotations from the ratings agencies. Beaulieu, Cox, and Saiegh (2012) arguably provide the most decisive analysis on the subject, attempting to reconcile the previously inconsistent findings. They argue that *credit access* is an important aspect of the democratic advantage, but that no one had yet examined that implication sufficiently. They find

that democracies were more likely to secure credit ratings, and that once controlling for this selection effect democracies again appear to have significantly higher ratings.

These recent papers are likely what inspired DiGiuseppe and Shea (2015) to suggest that, despite a few democratic outliers such as Greece and Weimar Germany, “scholars typically agree that democracies are more creditworthy than nondemocracies.” Even while they argue that one of the supposed mechanisms of the democratic advantage is false – that of electoral punishment – they yet argue that the democratic advantage exists because democracies are more likely to adopt pro-growth policies which maximize the use of public rather than private goods.

The logic for the democratic advantage thus has rested upon the notion that democracies are better able to credibly commit to debt repayment. However, I argue that this expectation is ambiguous in light of other consequences of democratic politics, and in some cases should lead us to expect that democracies are actually worse off. In the next section, I overview relevant segments from the literature on economic crises and debt accumulation, and show how these literatures lead us to opposite expectations. Afterword, I will elaborate how democracies may have different effects conditioned by financial vulnerability.

### **The Democratic Disadvantage**

While all of these above reasons regarding why democracies may have a credit advantage are sound and plausible reasons, I suggest that the broad theoretical expectations are not as clear as it would seem. The reason is that, while it may be true that democracies may be more likely to adopt growth maximizing policies, others argue that democracies may be unable to adopt optimal policies (via economic adjustment) because of intensive interest group pressures. It is

this reasoning why Bearce and Hallerberg (2011) argue that democracies have less stable exchange rates, and why Steinberg, Koesel, and Thompson (2015) argue that democracies are more likely to experience currency crashes. When the need for economic adjustment presents itself, democracies have trouble facilitating this adjustment to maintain the exchange-rate. Along these same lines, Oatley (2004) argues that democracies are unable to promptly adjust to episodes of high-inflation, because they “cannot overcome societal opposition and distributive conflict”.

Societal pressure and electoral incentives are also what drive democracies to use electoral spending cycles as a reelection effort (Shi and Svensson 2006; Drazen 2001; Nyblade and O’Mahony 2014). Block and Vaaler (2004), for instance, find that elections in developing countries increase the cost of debt finance as well as the probability of a credit rating downgrade. Yet not only do elections generate negative fiscal pressures, as the literature generally argues, but Dreher (2003) specifically shows that democracies are also more likely to be non-compliant with IMF programs prior to elections. Such a finding was similar to earlier research on middle-income countries by Haggard and Kaufman (1992), who showed that “virtually all high inflation was brought down only under the auspices of authoritarian regimes” and that such regimes “are more likely to stabilize when inflation and social conflict are high” (Haggard and Webb 1993). These findings thus also illustrate the unique complications of economic adjustment which democracies may face. So while one may suggest that electoral punishment incentives in democracies create a credible commitment to repay debt, it is not clear that this very same mechanism does not also make crisis (or default) more likely.

Further, Leblang and Satyanath (2006) also argue that democracies and divided government are significant predictors of currency crashes, although by slightly different logic. While democracies may provide greater economic transparency (Hollyer, Rosendorff, and Vreeland 2014), Leblang and Satyanath argue that divided government in democracies subverts the good accomplished by transparency. Their reasoning is that, because there are multiple veto players, currency speculators are unable to settle on a focal point and therefore are unable to coalesce around an expected ex-post currency rate. As a consequence of this unpredictability, speculative runs become more likely.

The literature on debt accumulation also provides some key insights in this regard. Here again, the second posed mechanism for the credibility of democratic commitments – multiple veto players – is likely also a source of institutional weakness. The reason is that, if the country is in need of a debt consolidation, so as to avoid a debt default, such economic adjustment policies will be difficult to achieve when there are multiple veto players (Roubini and Sachs 1989).

Alesina and Drazen (1991) formalize this expectation, that multiple government actors have incentives to delay adjustment in the hopes that other government actors will shoulder more of the adjustment costs. Franzese (2002) confirms this finding, showing that additional veto players cause significant enlargements to the debt burden as the level of debt increases.

Additionally, Arpac, Bird, and Mandilaras (2008) also show that a higher number of veto-actors increases the probability of non-compliance with IMF programs for this very reason. This concern over the adjustment burden – as a function of divided government (veto players) - also resonates well with recent experience. For instance, it was the political brinksmanship caused by divided government in the United States in 2011 which led Standard and Poor's to

downgrade its rating of US debt for the first time in its history<sup>32</sup>. S&P stated “the downgrade reflects our view that the effectiveness, stability, and predictability of American policymaking and political institutions have weakened.” They go on to emphasize “the difficulties in bridging the gulf between the political parties over fiscal policy” and “our perception of greater policymaking uncertainty”. This example thus clearly illustrates how, even in an advanced economy such as the United States, veto-players can make economic adjustment more difficult to achieve and that this may directly impact a country's sovereign credit rating.

In this sense, even if democracies adopt pro-growth policies, as democratic advantage proponents have argued, it may still be the case that democracies spend at unsustainable rates, either deliberately (via electoral spending cycles) or as a consequence of unexpected economic shocks (via fiscal stabilizers during recessions). In any case, it is not clear from democratic advantage proponents why the potential advantages of democracies should *ceteris paribus* dominate these contrasting influences that democratic institutions have on policy outcomes. And, as I argue in the next section, it seems we have clear reason to expect democracies to be worse off given the need for economic adjustment.

### **The Influence of Financial Vulnerability**

I propose that there may be a way to reconcile the discordant predictions of the democratic advantage. To restate: there are two democratic features which are presumed to enable democracies to credibly commit to debt repayment: electoral punishment and executive constraints via veto players. I argue that *both* of these institutions clearly suggest that at times of financial vulnerability, democracies will actually be worse off than their autocratic

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<sup>32</sup> <http://blogs.wsj.com/marketbeat/2011/08/05/sp-downgrades-u-s-debt-rating-press-release/>

counterparts. First, if a country is financially vulnerable by some means, it is suggestive that the country is in need of economic adjustment policies to lower risk and forestall potential crises. Presumably, this is implied by suggesting that democracies have a credible commitment to repay. Such a claim is suggestive that the country would be more likely to undertake policies commensurate with the goal of debt repayment. However, given an obvious need for countries to adopt adjustment policies, democracies should clearly have a more difficult time accomplishing this task.

Both of the “credible commitment” mechanisms are at play in this case. In the first instance, veto actors make policy adjustment more difficult (Franzese 2002; Oatley 2004). When the executive needs no other actor to sign off on policy changes, the process is achieved much more readily, and so autocracies have the advantage. Secondly, DiGiuseppe and Shea (2015) argue that the smaller size of the winning coalition for autocracies means that they have stronger incentives to maintain the stability of their coalition (by not defaulting). Similarly, I argue it is precisely because autocracies have smaller winning coalitions (WCs) that the winning coalition is better insulated from the risk of a painful economic adjustment program. Since autocrats have smaller WCs, it should be easier for them to shift the adjustment burden onto other segments of society without fear of meaningful political retribution. As a result, it should be easier for autocrats to both enact economic adjustment measures while also protecting their supporters. Sensing these inherent institutional weaknesses *as risk accumulates*, credit rating agencies and international bond investors should therefore give lower ratings and charge higher interest rates for financially vulnerable democracies. It also suggests that given an equally heavy debt burden, credit rating analysts should perceive the large debt burden for a

democracy to be more threatening, because they have lower expectation that it will be subsequently adjusted downward.

But simply because democracies should have adjustment problems does not indicate that they will in all cases be disadvantaged, though. To be clear, all of the argued advantages of democracies in the form of better governance (or lower corruption), political and economic transparency, political stability and judicial strength are all sound reasons why investors and credit rating agencies would assess lower levels of repayment risk (North and Weingast 1989; Beaulieu, Cox, and Saiegh 2012; DiGiuseppe and Shea 2015). At low levels of financial vulnerability, the adjustment risks posed by democracies simply don't exist. For democracies who do not stand in need of adjustment policies, the risk of "delayed stabilization" simply isn't a concern for investors, and therefore in such cases all of the positives associated with democracies should dominate.

I suggest that two fundamental measures of financial vulnerability successfully capture these concepts. First, a country's level of accumulated debt is a well-established predictor of country risk of non-repayment or other financial crises (Cantor and Packer 1996; Leblang and Satyanath 2006; Oatley 2004). Ahlquist (2006) and Mosley (2003) discuss this issue in the context of a signaling game, such that large accumulated debts are a signal to investors of a country's lacking intent to repay their debt burden. Ahlquist (2006) elaborates on the connection between large debts and investor risk perception, arguing that it is an important risk indicator because it is connected with all of the main dimensions of investor risk. He states that portfolio (bond) investors "face 3 kinds of risk: inflation, currency, and default. Deficits [and thus debt] are potentially linked to all three". All three of these phenomena are interconnected, since debt

(and thus deficits) can influence the local inflation rate, which causes currency volatility and depreciation. Further, given a depreciating currency, this would also exacerbate a debt burden if there are substantial holdings of *external debt*, because this drives up the cost of repayment on foreign-denominated debt issues. Thus, not only do high debt levels increase the risk of a crisis, but it also indicates that if a crisis does occur, the adjustment burden will be much larger. Corneli and Tarantino (2016) argue that “debt increases both the likelihood that the sovereign is hit by a liquidity shock and the probability that the due repayment to lenders falls short...”. Finally, when governments default on their debt and investors agree to a “debt restructuring”, the volume of total debt owed is also likely related to how much investors agree to reduce the debt principal.

A country's debt level is therefore an established indicator of financial vulnerability which we would expect to mediate the effect of regime type on country credit ratings. This leads me to state the first two hypotheses of the paper:

**H1:** Democracies will have worse (better) credit ratings than autocracies at higher (lower) levels of Debt/GDP.

**H2:** Higher levels of Debt/GDP will have a larger negative effect on credit ratings for democracies compared to autocracies.

On the other hand, when democracies are not financially vulnerable, I expect that democracies will enjoy better credit ratings because of the other benefits which flow from democratic institutions. We should therefore expect that, at *low* levels of Debt/GDP, democracies should enjoy better credit ratings, as is described in the two conditions embedded within H1. Beyond this, it has also been long established that a country's level of foreign exchange reserves is a



key means by which countries seek to mitigate the risks posed by large debt burdens and exchange rate risk. For instance, Corneli and Tarantino (2016) argue that “although raising debt increases the sovereign exposure to liquidity and productivity crises, the simultaneous accumulation of reserves can mitigate the negative effects of such crises.” It is this reason why Nyblade and O’Mahony (2014) argued that governments were only likely to boost deficits around elections when they had sufficiently high foreign reserves (thus mitigating the risk of economic blowback). Further, Dominguez, Hashimoto, and Ito (2012) demonstrate that countries with large accumulated foreign reserves prior to the 2008 financial crisis also had higher post-crisis GDP growth rates. And more recently, Cheng (2015) has articulated that foreign reserves can boost investor confidence in the currency’s valuation. He expands on this logic by also demonstrating that large reserves, in the face of an economic shock, can also foster expansionary fiscal policy because government’s can sell the foreign assets for this purpose. Reserves therefore can act as stop-gap liquidity measures in the event of a shock, allowing the government to maintain domestic liquidity for foreign-denominated debts, as well as allowing the government to defend the currency against debilitating sharp depreciations. These reasons are why reserves accumulation is often discussed as a form of national insurance (Rodrik 2006; Obstfeld, Shambaugh, and Taylor 2010; Jeanne 2007). Recalling that Oatley (2004) and Leblang and Satyanath (2006) both found that democracies were more likely to face currency crises, foreign exchange reserves thus seem an ideal means to assess whether democracies are insulated from financial risks. This leads me to the third hypothesis:

**H3:** Democracies will have better credit ratings at higher levels of Foreign Reserves/GDP.

Importantly, both of these financial vulnerability conditions – debt levels and foreign reserves holdings - are important considerations for the *overall* level of financial risk. But the clearest case for when democracies should be at a disadvantage to autocracies is both when there is a pressing need for economic adjustment, such as when debt is high, *and* when the country is insufficiently protected with foreign reserves. In this case, democracies both need to adjust their policies and are vulnerable to economic shocks because of low reserves. As a result, considering the impact of one without the other may present an incomplete picture. Therefore, the best test of the argument that financial vulnerability mediates the effect of democracies on country credit ratings utilizes a ratio of reserves to the debt level (rather than to GDP). This captures the purest indicator of the concept of “financial vulnerability” as laid out in the paper, and therefore will form the main component of the empirical analysis<sup>33</sup>. The final hypothesis of the paper is thus:

**H4:** Democracies will have worse (better) credit ratings at low (high) levels of the reserves-to-debt ratio.

## Research Design

Beaulieu, Cox, and Saiegh (2012) argue that democracies are more likely to secure credit access by gaining credit ratings, which they argue is not only an important advantage for democracies but is also a source of selection bias when this is not modeled. For instance, they suggest that rated autocracies are likely very different than rated democracies, and they show that rated

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<sup>33</sup> However, though I argue that this captures the single best metric of financial vulnerability, because Reserves/Debt contains both reserves *and* debt, using this measure exclusively prevents the investigation of the impact of debt alone, which forms the basis for hypotheses 1 and 2. Therefore, I present both measures while relying most upon the Reserves/Debt measure in the analysis.

autocracies are more likely to have large amounts of resource wealth, potentially be geo-politically important, or possess stronger economic fundamentals. Thus, neglecting to model the determinants of entry into bond markets (or, securing credit ratings) is plausibly biasing the estimates of democracy in a single-equation analysis. As a consequence, the main model used in this paper is the Heckman selection model with clustered standard errors, following the strategy taken by Beaulieu et al (2012). I further follow their approach to satisfy the exclusion restriction by including the log of US-Imports in the selection equation but omitting this variable in the outcome equation. Beaulieu et al argue that this proxies for a countries' "friendliness with major western powers, which should affect its decision to seek a rating but not the rating it receives, given that we already account for total trade".

While formally testing this excludability is not strictly possible, an observed significant effect in the outcome equation would call its suitability into question. Estimating Model 1 of Table 2.1 including the (log) US-Imports in the outcome equation, it returns a very low p-value of 0.92. Additionally, I extend this approach to excludability by including a more explicit measure of 'western friendliness' and thus the decision to enter sovereign debt markets. This is the UN Ideal Point distance estimate of state preferences produced by Bailey, Strezhnev, and Voeten (2017). Their measure estimates the distance between two countries voting ideal-points, and so for the present context I isolate the ideal distance between each country and the US. For the Moody Rating models, both this variable and the (log) US Imports variable are significant in the selection equation<sup>34</sup>. In the robustness section, I discuss an alternate exclusion restriction, finding that the results are unchanged across these specifications.

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<sup>34</sup> This variable was insignificant in the outcome equation when it was tested.

The sample covers the years 1977 to 2012, and is restricted to developing countries because the literature emphasizes that both levels of debt and foreign exchanges reserves are significantly more relevant for economic risk in these countries (Reinhart and Rogoff 2009; Jeanne 2007; Obstfeld, Shambaugh, and Taylor 2010; Rodrik 2007). For instance, interest in the determination of foreign exchange reserves is driven largely by the observation that, while reserves holdings have been very steady in the advanced economies, reserves have more than quintupled in poorer countries (Obstfeld et al 2010). This illustrates the fact that countries in the developing world are more susceptible to a variety of external crises and demonstrates that the use of reserves may have different policy inputs in the developed world. Further, Mosley (2003) argues that non-developed countries face a variety of additional financial pressures, including capital scarcity, exposure to investment flow volatility, currency and exchange rate risk, and especially the potential for sovereign debt default (which is essentially “absent” in developed countries). Equally important to the concept of the democratic advantage is that Mosley then argues that investors care much more about political conditions in developing countries, which therefore also suggests that the influence of democratic institutions should be especially pronounced in the developing world. As a consequence of these factors, it is precisely in the developing world where we would expect the interplay between democratic institutions and financial vulnerability to be most apparent in their impact on credit ratings.

There are two essential dependent variables used in the analysis. These are the country credit ratings given by Moody’s Analytics (the first DV) and Standard & Poor’s (the second). These ratings are a 17 point rating scale, which peaks at S&P’s “AAA” or Moody’s “Aaa” rating, indicating a country is extremely creditworthy and likely to repay its debts. Conversely, the

ratings fall to 0 for junk bond status for countries likely to default, which are ratings lower than CCC+ and Caa1, respectively.

Table 2.A.1 of the appendix includes the full list of variables and the associated descriptive statistics for developing countries, along with the source for each variable. These are mostly standard control variables in the literature, as can be found in Beaulieu et al (2012) or Bodea and Hicks (2017). Table 2.A.2 in the appendix reports the full list of countries which appear in the main regression sample for Table 2.1, Model 5. Beaulieu et al (2012) also raise the concern over the endogeneity between democracy and GDP per capita, and so I follow their recommendation to use GDP as a means of addressing this issue<sup>35</sup>.

To investigate the impact of democracy on credit ratings, I first employ the variable “Electoral Democracy”, from the publicly available Varieties of Democracy version 6 database. This variable aggregates the combination of factors considered essential for democracy: Freedom of Association, clean elections, freedom of expression, elected executive, and suffrage. This democracy measure is especially useful in this context because it incorporates the numerous features of democracy which can combine to make economic adjustment a difficult policy process. For instance, even if there are relatively clean elections and the executive is elected, an executive who intensely stifles freedom of association and expression likely would not face the same sorts of public pressure in the face of unpopular adjustment programs. Thus, combining these factors is ideal for the democratic advantage hypothesis.

Beyond this, the VDEM Electoral Democracy index has numerous advantages compared with other democracy indicators. For instance, it was coded with a much larger number of coders,

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<sup>35</sup> I use the log form of GDP.

with broader source materials, and as it is a continuous scale between 0 and 1 it better discriminates different types of democracy and has greater variation than Polity, which is limited to its 21point scale. Perhaps most importantly, because the development team used Bayesian IRT modelling in the variable construction, they also account for measurement error and coder bias in the index (for a deeper discussion, see: Coppedge et al 2016 Methodology<sup>36</sup>). At the same time, I also report the Cheibub, Gandhi, and Vreeland (2010) “D-D” Democracy index in the main tables, which is the measure used by Beaulieu et al (2012). In doing so, we can see that the relationship is robust to both specifications and the results are therefore not contingent on the choice of democracy variable.

The Debt/GDP ratio comes from the IMF’s Historical Public Debt Database. The data on foreign exchange reserves, for which I use two variables, comes from the World Bank WDI database, and both are standard in the literature (Rodrik 2006). The main variable, Foreign Reserves/External Debt, comes directly from the WDI. The second variable is the countries’ “total reserves minus gold”, which I then divide by GDP (also from the WDI) and I use this to create the ratio of a countries “foreign reserves / GDP”. Lastly, I take the natural logarithm of the reserves and debt variables because they all are highly skewed.

Importantly, while in the main models the possibility of selection bias is controlled for by employing Heckman models, there further exists the possibility that reverse causality could bias the estimates. For instance, it is well established that debt levels influence ratings, but the level of ratings also influence the *cost of debt*, which therefore can also influence the overall debt level. Another possibility is that financial transparency may have a different impact on bond

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<sup>36</sup> <https://www.v-dem.net/en/data/data-version-6-2/>

prices at higher debt levels<sup>37</sup> (Copelovitch, Gandrud and Hallerberg *forthcoming*), and since democracies are more transparent this could potentially influence the results. I would argue, however, that even if transparency has a larger impact at high debt levels, this would be a *positive bias* for democracies and therefore a finding that democracies are *worse* at high debt levels would still validate my key hypothesis. Even so, the causal chain among these variables is not clearly established, and so it remains important to account for this potential endogeneity bias. In Table 2.2 I employ both System GMM and Two-Stage Least Squares models, using internal instruments to mitigate this concern. The system GMM model is useful for several reasons. First, when the time sample is short but the panel is much larger, this can give rise to dynamic panel bias with a lagged dependent variable. As such, because the System GMM model estimates the parameters in levels *and* differences, the estimator expunges the fixed effect and instruments the lagged DV, such that there is no bias due to country fixed effects. System GMM, rather than Difference GMM or the Anderson-Hsiao estimator, is also useful for cases with a persistent dependent variable, making it well-suited for analyzing country credit ratings.

Beyond this, the model also readily allows for the use of “internal” instruments for endogenous variables. In this case, in the GMM models 8:11, I treat the interaction estimates (democracy and reserves/debt ratio), the debt level, and FDI flows as endogenous, limiting the instruments to second-order lags in an effort to minimize the instrument count. In doing so, the GMM

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<sup>37</sup> In this study, CGH find that at high debt levels, transparency reduces the costliness of debt and has a larger substantive impact compared with small debt levels. It should also be noted that I do not control for *transparency* in the regression models because, as a key feature and benefit of democracies, controlling for this would bias the estimate of democracy by partialling out one of its key operative mechanisms (Wooldridge 2010).

diagnostic statistics are all insignificant, suggesting that the instruments appear to be valid and exogenous. At the same time, the Hansen p-value is a value of one for these models, suggesting that an alternative approach reducing the instrument set even further could be helpful. In this case, the 2SLS framework allows for a more precise selection of instrumenting variables, in addition to illustrating robustness to using an alternative instrumenting framework to the System GMM. Doing so for models 12:15 reduces the excluded instrument<sup>38</sup> set to 7, and also returns insignificant Sargan statistic p-values<sup>39</sup>, though now less than one. Additionally, tests for weak instrument bias were also insignificant<sup>40</sup>. Consequently, all models satisfy the exogeneity requirements with respect to the GMM or the 2SLS models. In addition to these standard tests, I also performed 5-fold cross validation among the core models I present in the main text and the appendix, wherein each model randomly held out a subset of data to examine how well the model performs in prediction out of sample. In this way, we can get better and unbiased sense of whether added model complexity is yielding a performance benefit or if it is somehow weakening the out of sample performance of the models. I compared Pooled-OLS, random effects, PCSE, 2SLS and the System GMM model, exactly as reported in the corresponding tables. Among these, the System GMM model yielded the lowest out of sample prediction error (conversely, the highest out of sample prediction accuracy), suggesting that the estimation method is valuable in addressing the potential issues of bias. Regardless, in all cases we see that

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<sup>38</sup> I only use a democracy lag of 1 period, since democracy itself is not an endogeneity concern. For Reserves and Debt, I used up to 3 year lags to instrument, as well as their first-order differences.

<sup>39</sup> The Hansen statistic, preferred after GMM (Roodman 2009), is not available after 2SLS. Therefore, I use the Sargan statistic.

<sup>40</sup> tests for instrument strength were conducted and the F-tests of the excluded instrument sets were very large, suggesting that weak instrument bias is not a concern here. Precise values for these tests are available upon request.



the key theoretical interactions retain statistical significance and are supportive of the main hypotheses.

All of the hypotheses for the paper are conditional hypotheses. As such, the proper tests of the theory examine the interaction effects of democracy, Debt/GDP, and Reserves/ External Debt, which will require marginal effects plots for interpretation. Specifically, the test of the democratic (dis)advantage hypotheses will be the marginal effect of democracy across the range of debt and foreign reserves levels. All marginal effects plots use 95% confidence intervals, and the range on the x-axis for all graphs is limited to the range of the conditioning variable in the sample.

### **Empirical Results**

Table 2.1 shows the estimation results from the 2<sup>nd</sup> stage outcome equations of the Heckman selection models. The corresponding selection equations are reported in Table 2.A.5 of the appendix. To show that the observed relationships are not driven by overparameterization, Models 1 through 3 are estimated with only a basic set of economic control variables, while models 4:7 are run with a full set of controls informed by the literature. Model 1 tests the first two hypotheses of the paper, that democracies experience worse credit ratings as debt increases (H1) and that high debt levels reduce credit ratings more strongly for democracies (H2). Model 2 then tests whether that democracies have an advantage as Reserves / GDP increase. In these cases, the interactions are highly significant (at  $p < 0.001$ ) and in the expected direction. Figure 2.1 subplot (A) plots the marginal effect of Electoral Democracy across all observed values of Debt/GDP and we see that at low debt levels democracies enjoy significantly higher credit ratings (about 2.5 ratings higher). However, at higher debt levels, democracies

have significantly worse credit ratings by roughly the same degree. We therefore find support for this key contention. In Figure 2.1 subplot (B) we observe the marginal effect corresponding to H2, the effect of increasing Debt across all observed values of electoral democracy. We find strong support for the main argument of the paper, finding that higher debt does decrease credit ratings but this effect occurs much more strongly for democratic countries than more autocratic ones. Finally, Model 2 tests the interaction of democracy and Reserves/GDP, and see here as well that the interaction is highly significant and positive, as expected. While not reported, inspection of the marginal effects plot displays a pattern consistent with expectations. At low levels of reserves, democracy has a negative effect on ratings, while at a higher level democracies enjoy significant ratings advantages.

Models 3 through 7 test hypothesis 3, showing the interaction of the democracy variables and Reserves/ External Debt (the unified risk measure), rather than both as a comparison of GDP. Because these models take into account both dimensions of financial risk, these models give us the clearest test of how financial vulnerability conditions the impact of democracy on credit ratings. For ease of visualization, the models employing the Reserves/Debt interaction are shaded in darker grey, matching the column header with the independent variable listed in the table. We see in all of these models that the interaction is significant and in the expected direction. In the fully specified models, Electoral Democracy is used in models 4 and 6, while D-D Democracy is used in 5 and 7. The last two models, 6 and 7, use Standard & Poor's credit ratings as the dependent variable.

Figure 2.2 shows the marginal effects plots both electoral democracy (subplot A) and D-D Democracy (subplot B). We see strikingly similar relationships, although it is clear that electoral

democracy predicts a much larger ratings difference at various levels of Reserves/Debt. For instance, at low Reserves/Debt electoral democracy predicts about 3 ratings lower, compared with about 1.5 ratings lower for D-D Democracy. In order to get a sense of where democracies typically fall in this relationship, the vertical dashed blue line indicates the democracy mean value of Reserves/Debt. This shows us, therefore, that the average developing democracy appears to be at a disadvantage compared with their authoritarian counterparts.

Lastly, for the selection equation in appendix 2.A.5, the US imports and UN ideal variables are significant and in the expected direction. The negative coefficient for the UN Ideal variable indicates that countries whose ideal point of state preferences is very distant from the US were *less likely* to secure a credit rating. Similarly, it shows that countries who import more goods from the US were also more likely to receive a credit rating. It is worth noting, however, that these selection variables are insignificant in the S&P models.

As previously noted, aside from selection bias influencing the results, another endogeneity concern is that country ratings may affect debt levels and possibly investment. Table 2.2 reports the models where these variables were treated endogenously, using internal instruments. None of the GMM or 2SLS diagnostic statistics are significant, which would be evidence that the instruments used fail to satisfy the exogeneity requirements. In all models the theoretical interactions are significant and in the expected direction. Appendix Figure 2.A.1 plots the marginal effects of the instrumented relationships for the Electoral Democracy variable on both Moody's and S&P, and we largely observe the same relationship as that found in the marginals of Figure 2.2. The results are thus robust to multiple endogeneity risks.

Table 2.1: Heckman Selection Models (Outcome Equations)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Interacted variable:	Debt/GDP	Reserves/ GDP	Reserves/Debt				
Rating Agency:	Moody's	Moody's	Moody's	Moody's	Moody's	S&P	S&P
Lagged DV (Rating t-1)	0.890*** (0.026)	0.893*** (0.024)	0.835*** (0.025)	0.830*** (0.041)	0.842*** (0.042)	0.785*** (0.030)	0.787*** (0.035)
(log) Debt/GDP	0.479** (0.231)	-0.155 (0.146)	-0.082 (0.114)	0.017 (0.123)	-0.035 (0.127)	0.202** (0.099)	0.113 (0.102)
Electoral Democracy	4.997*** (1.285)	-2.953** (0.914)	-1.980** (1.001)	-4.487*** (0.782)		-4.570*** (1.173)	
Electoral Dem * Debt/GDP	-1.402*** (0.392)						
Electoral Dem * Reserves/GDP		1.175*** (0.305)					
Electoral Dem * Reserves/Debt			0.611** (0.256)	1.148*** (0.253)		1.278*** (0.344)	
D-D Democracy * Reserves/Debt					0.478** (0.147)		0.516** (0.188)
D-D Democracy					-1.848*** (0.435)		-1.836** (0.686)
(log) Reserves/Ext Debt			0.164 (0.168)	-0.332** (0.136)	0.003 (0.099)	-0.262 (0.166)	0.218* (0.114)
(log) Reserves/GDP	0.150 (0.146)	-0.398* (0.219)					
Fiscal Balance (% GDP)	0.019 (0.020)	0.021 (0.019)	0.046** (0.021)	0.043 (0.032)	0.039 (0.031)	0.037** (0.017)	0.036* (0.022)
Growth	0.092*** (0.019)	0.089*** (0.020)	0.089*** (0.020)	0.085*** (0.020)	0.082*** (0.018)	0.133*** (0.017)	0.125*** (0.017)
Trade Openness	0.001 (0.002)	0.002 (0.001)	0.002 (0.001)	0.001 (0.001)	0.001 (0.001)	-0.000 (0.002)	-0.000 (0.002)
(log) GDP	0.052 (0.062)	0.070 (0.048)	0.102** (0.044)	0.331** (0.122)	0.219 (0.145)	0.400*** (0.119)	0.326** (0.103)
Time	-0.018 (0.013)	-0.015 (0.011)	-0.010 (0.019)	-0.054** (0.026)	-0.053* (0.028)	-0.031* (0.018)	-0.023 (0.018)
Central Bank Independence				0.173 (0.260)	0.155 (0.243)	0.090 (0.299)	-0.055 (0.296)
(log) Population				-0.285** (0.119)	-0.210* (0.123)	-0.318** (0.121)	-0.252** (0.112)
Capital Acct Openness				-0.070 (0.229)	0.023 (0.201)	-0.080 (0.298)	0.072 (0.298)
(log) CPI Inflation				-0.175* (0.105)	-0.170* (0.103)	-0.147 (0.107)	-0.102 (0.089)
(log) Oil Rents				-0.079 (0.087)	-0.120 (0.085)	-0.045 (0.053)	-0.056 (0.061)
(log) FDI				-0.043 (0.114)	-0.050 (0.124)	0.112 (0.084)	0.083 (0.079)
Ever Default				-0.067 (0.284)	-0.132 (0.307)	-0.413 (0.328)	-0.391 (0.354)
Constant	33.424 (26.953)	29.296 (21.958)	18.503 (37.909)	107.207** (52.795)	104.841* (57.859)	59.728* (35.254)	41.424 (35.924)
Observations	1818	1818	1649	1193	1199	1191	1196
Rho p-value	0.298	0.170	0.408	0.852	0.892	0.955	0.531

Clustered standard errors in parentheses; \* p<0.1 \*\* p<0.05 \*\*\* p<0.001; Models are Heckman selection outcome equations. DV is country credit rating. Corresponding Selection equations reported in Appendix.

Figure 2.1: Marginal Effects of Democracy & Debt

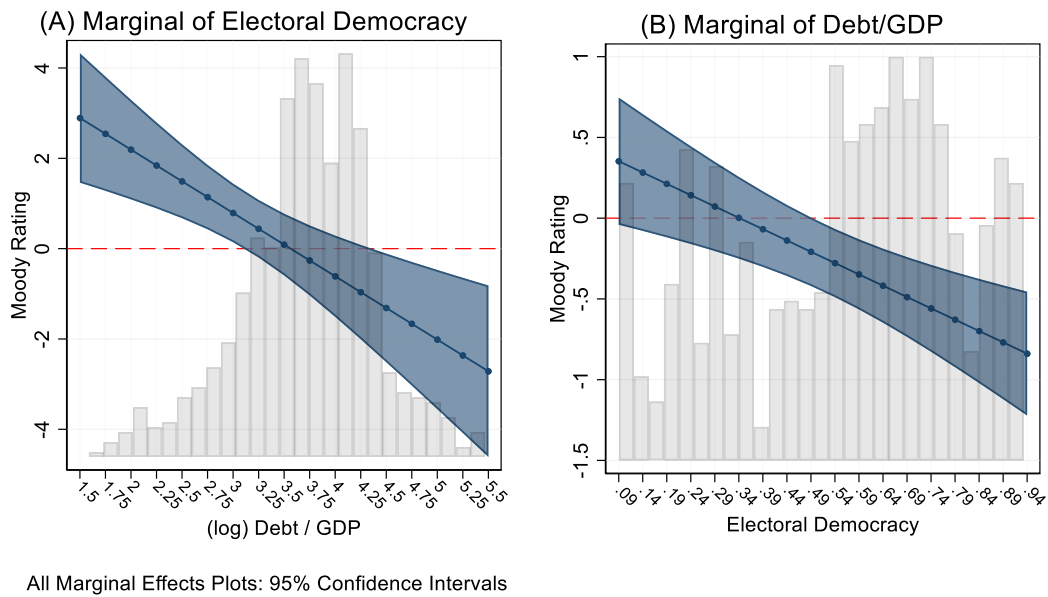
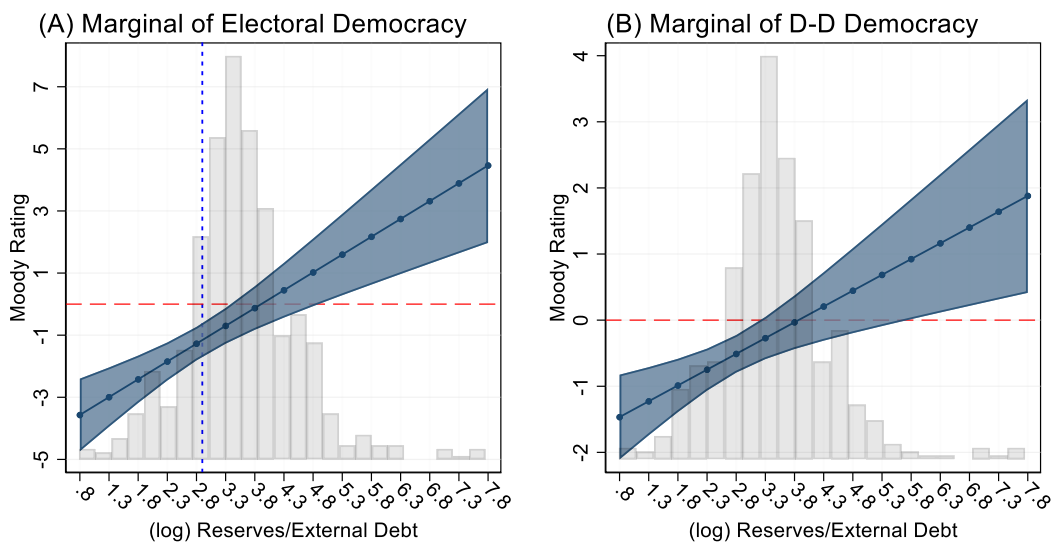


Figure 2.2: Marginal Effects of Democracy & Reserves/Debt



As a final point, I had previously mentioned that the average developing democracy seems to have an insufficient level of Reserves/Debt in order to enjoy the democratic advantage. While a full exploration of this is beyond the scope of the paper, it is worth considering whether democracies properly utilize the benefits of foreign reserves. In other words, it may be that democracies are also predisposed to underutilize foreign reserves as a function of economic insurance. The reason is that reserves are not costless insurance. As Rodrik (2006) discusses, the opportunity costs to holding reserves is high because reserves are low interest bearing assets and consequently only yield very small returns on investment. It may be that democracies are less willing to bear the costs of reserves. Further, Jäger (2016) shows that since the middle-1990's developing democracies have accumulated fewer foreign reserves than autocracies, and shows that democracies opportunistically deplete reserves around elections (therefore, over time, depleting the stock of reserves). As a result, even though I demonstrate that democracies have ratings advantages as the level of reserves increases, it is at the same time not immediately clear that democracies will be readily able to draw upon this financial insurance in order to maintain preferential ratings and debt-finance. This is an issue which will require deeper exploration in the future.

Table 2.2: Endogeneity Models - GMM and 2SLS

	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
	System GMM				2SLS			
	Moody's		S&P		Moody's		S&P	
Lagged DV (Rating t-1)	0.836*** (0.037)	0.859*** (0.050)	0.799*** (0.038)	0.789*** (0.042)	0.906*** (0.014)	0.909*** (0.018)	0.876*** (0.017)	0.864*** (0.021)
Electoral Democracy	-3.461*** (0.560)		-2.767** (1.061)		-2.874*** (0.768)		-1.156* (0.700)	
(log) Reserves/Ext Debt	-0.144 (0.089)	0.103 (0.105)	-0.0561 (0.140)	0.279** (0.102)	-0.326** (0.131)	-0.106 (0.088)	-0.0504 (0.107)	0.154** (0.059)
<b>Electoral Dem * (log) Reserves/Debt</b>	<b>0.744*** (0.177)</b>		<b>0.720** (0.268)</b>		<b>0.711*** (0.181)</b>		<b>0.325** (0.162)</b>	
<b>D-D Democracy * (log) Reserves/Debt</b>		<b>0.244* (0.136)</b>		<b>0.298** (0.136)</b>		<b>0.383*** (0.092)</b>		<b>0.206* (0.106)</b>
D-D Democracy		-1.327** (0.415)		-1.233** (0.490)		-1.636*** (0.370)		-0.766* (0.424)
(log) Debt/GDP	0.107 (0.071)	0.105 (0.086)	0.0161 (0.102)	0.037 (0.101)	-0.0598 (0.060)	-0.053 (0.088)	0.029 (0.063)	0.124* (0.075)
Fiscal Balance (% GDP)	0.0371** (0.014)	0.0346** (0.017)	0.0269** (0.008)	0.0188** (0.008)	0.0121 (0.012)	0.00656 (0.014)	0.0287** (0.009)	0.0201* (0.011)
Central Bank Independence	0.004 (0.297)	0.194 (0.323)	-0.06 (0.241)	-0.143 (0.222)	-0.164 (0.191)	-0.1 (0.206)	-0.069 (0.147)	-0.202 (0.179)
(log) Population	-0.337*** (0.092)	-0.247** (0.082)	-0.250** (0.077)	-0.247** (0.085)	-0.184** (0.066)	-0.180** (0.076)	-0.170** (0.059)	-0.222** (0.070)
Growth	0.0514*** (0.009)	0.0619*** (0.009)	0.0688*** (0.010)	0.0904*** (0.012)	0.0609*** (0.013)	0.0708*** (0.017)	0.0900*** (0.013)	0.107*** (0.016)
(log) GDP	0.482*** (0.085)	0.328*** (0.085)	0.414*** (0.076)	0.358*** (0.080)	0.267*** (0.049)	0.213*** (0.061)	0.278*** (0.050)	0.286*** (0.065)
Capital Acct Openness	0.126 (0.171)	0.106 (0.180)	-0.0297 (0.147)	0.0519 (0.179)	0.187 (0.169)	0.251 (0.193)	0.0684 (0.140)	0.122 (0.177)
(log) CPI Inflation	-0.138* (0.081)	-0.122 (0.088)	-0.146* (0.087)	-0.115 (0.097)	-0.147** (0.061)	-0.121* (0.062)	-0.144** (0.060)	-0.120* (0.069)
(log) FDI	-0.014 (0.156)	-0.087 (0.177)	0.138* (0.079)	0.114 (0.087)	-0.033 (0.083)	-0.089 (0.092)	0.007 (0.045)	-0.016 (0.056)
(log) Oil Rents	-0.094 (0.070)	-0.108 (0.078)	-0.0819* (0.045)	-0.051 (0.057)	-0.008 (0.033)	-0.019 (0.036)	-0.029 (0.038)	0.018 (0.043)
Trade Openness	0.001 (0.001)	0.001 (0.002)	0.003* (0.001)	0.002 (0.001)	-0.001 (0.001)	-0.001 (0.001)	0.001 (0.001)	0 (0.001)
Ever Default	0.049 (0.181)	-0.0419 (0.246)	0.0432 (0.131)	-0.0459 (0.204)	-0.0619 (0.114)	-0.134 (0.172)	-0.0978 (0.130)	-0.116 (0.220)
Constant	-3.124*** (0.833)	-2.152*** (0.998)	-2.369*** (0.716)	-2.377*** (0.657)	-1.22 (0.798)	-0.749 (1.072)	-3.404*** (0.628)	-3.697*** (0.753)
Observations	675	538	658	493	631	493	612	447
# of Countries	50	46	59	53	50	44	59	52
Hansen p-value	1	1	1	1	0.331	0.318	0.405	0.714
AR(2) p-value (for GMM)	0.598	0.532	0.251	0.218	.	.	.	.

\* p<0.1 \*\* p<0.05 \*\*\* p<0.001; Models 8:11 are One-Step System GMM models with robust standard errors, instrumenting for specific variables (See text). Models 12:15 are 2SLS models instrumenting for the interaction terms. Dependent variable is country credit rating (See column header for specific rating agency). For the 2SLS models, the Hansen p-value actually corresponds to the Sargan p-value for assessing instrument exogeneity.

## Robustness

One might be concerned to know the differences of debt and reserves between regime types, and whether there are notable differences. Figures 2.A.4 and 2.A.5 in the appendix show that democracies and autocracies have very similar descriptive profiles in terms of debt and reserves levels. It also demonstrates significant variation in terms of countries with high debt and low reserves, and vice-versa, and thus the paper estimates meaningful real-world cases.

Additionally, in appendix Table 2.A.9 I present a seemingly unrelated regression model, which demonstrates that democracies and autocracies do not differ in terms of how much debt or reserves they accumulate and that these determinants do not mitigate the main hypotheses – even controlling for potential correlation between these equations, the main results hold.

Additionally, it is noteworthy that in most models the ( $\rho$ ) Rho parameter, which tests the necessity of modeling the selection process, is insignificant. This is suggestive that modeling selection in this way may be introducing unnecessary inefficiency in the outcome equation. It would be fruitful to examine the estimated relationship with a model that ignores the potential endogeneity. Similar to Beaulieu et al (2012), in appendix table 2.A.3 I estimate the models as OLS with panel-corrected standard errors, as well as random effects models with country clustered standard errors. In this case, we find very consistent results and the main hypotheses hold. Turning next to appendix table 2.A.4, I estimate the interaction models using Polity2, and I separately estimated a quantile regression out of concern that the results are driven only among the lowest rated of countries<sup>41</sup>. In both cases the results hold. Table 2.A.6 shows

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<sup>41</sup> I estimated a “median regression” in this case. Alternatively, I reestimated the main regression models excluding countries within 2 ratings of being “junk status”, and the results held.



condensed Heckman results, but with the inclusion of additional control variables – Including a measure of the amount of IMF Credit a country has outstanding, as well as controlling for whether a country employs a fixed exchange rate regime (which likely would influence its level of reserve holdings). IMF Credit is significant in both the selection and outcome equations, while the fixed exchange rate measure is insignificant in all cases. The main results, however, remain the same across these models.

Out of concern that the results are unduly driven by Asian countries accumulating large amounts of reserves, I estimated Models 1 and 4 from Table 2.1 but excluded the Asian region, and the results appeared virtually identical. Additionally, noting that the UN Ideal and US Imports exclusion variables were not significant in the S&P model, I also estimated a model replacing the UN Ideal measure with the (log) of the M2 monetary base (% GDP), in table 2.A.7, serving as an alternate exclusion restriction. This likely would influence a countries decision to seek a credit rating, and therefore be selected into the ratings markets, but its potential effect on the outcome is not obviously positive or negative. For instance, it could indicate greater financial ability (a positive), but would also be higher in hyperinflationary cases or where the central bank is providing too much credit to the economy. In this case, the variable is highly significant in all selection equations, and was insignificant in all outcome equations. The inferences of the analysis hold in this case as well. Figure 2.A.3 in the appendix reports the marginal effect plot of debt across democracy scores analogous to Figure 2.1 (B), but instead estimated from a full model with controls comparable to Table 2.1, model 4, showing similar results. Lastly, the lagged dependent variables for the ratings variables indicate the data is very persistent. One might be concerned with the presence of a unit root in such a context, and

consequently I estimate an Error-Correction Model to examine robustness to this specification. Reported in table 2.A.8, we see for the levels estimations that the significance holds, and Figure 2.A.2 shows the estimated marginal effects from the levels-ECM model.

## **Conclusion**

This paper goes a long ways to advancing our understanding of the role that democratic institutions play to enable credible commitments, and it significantly revises our understanding of whether democracies enjoy preferential treatment in financial markets. I demonstrate that democracies, contrary to the literature on the democratic advantage, tend to have a credit rating disadvantage compared with autocracies. Specifically, financially vulnerable democracies are significantly more likely to have negative ratings, while financially secure democracies do enjoy financial market advantages. This paper also shows the powerful role which foreign reserves can play in attenuating the risks posed by debts and economic risk, and helps to highlight the importance for such reserves in democratic polities.

## APPENDIX

## Appendix

Table 2.A.1: Descriptive Statistics for Main Regression Sample

Variable	Obs	Mean	Std. Dev.	Min	Max	Source:
Moody's	675	5.56	3.61	0	16	Bodea & Hicks (2017)
S&P	572	5.42	2.99	0	16	Bodea & Hicks (2017)
Electoral Democracy	675	0.54	0.22	0.10	0.93	Varieties of Democracy v. 6
D-D Democracy	529	0.65	0.48	0	1	Cheibub et al (2010)
(log) Reserves (% External Debt)	675	3.58	0.94	0.78	7.75	World Bank WDI
(log) Reserves (% GDP)	675	2.63	0.70	0.38	4.62	World Bank WDI
(log) Debt (% GDP)	675	3.74	0.61	1.79	5.47	IMF Public Debt Database
Fiscal Balance (% GDP)	675	-1.55	3.76	-14.60	19.99	Bodea & Higashijima (2015)
Central Bank Independence	675	0.55	0.21	0.13	0.90	Garriga (2016)
(log) Population	675	17.02	1.74	13.61	21.02	World Bank WDI
GDP Growth (%)	675	4.25	4.18	-14.80	25.05	World Bank WDI
(log) GDP	675	24.89	1.70	20.88	29.78	World Bank WDI
Capital Account Openness	675	0.52	0.35	0	1	Chinn-Ito Index
(log) CPI Inflation	675	2.03	1.07	-0.88	7.99	World Bank WDI
(log) FDI	675	1.29	0.75	-2.41	3.47	World Bank WDI
(log) Oil Resource Wealth	675	0.90	1.03	0	4.07	World Bank WDI
Trade Openness	675	77.63	39.67	13.75	220.41	World Bank WDI
Ever Default	675	0.82	0.39	0	1	Bodea & Hicks (2017)
UN Ideal Scores	339	3.05	0.61	1.53	4.55	Bailey et al (2009)
(log) M2 (% GDP)	671	3.89	0.56	1.22	5.49	World Bank WDI
IMF Credit	640	2.05E+09	4.09E+09	0	2.89E+10	World Bank WDI
(log) US Imports	565	7.59	1.76	3.35	12.02	World Bank WDI
Fixed Exchange Rate	571	0.28	0.45	0	1	Reinhart and Rogoff (2002)

Table 2.A.2: Countries in Regression Sample

Albania	Dominican Republic	Lithuania	Philippines
Argentina	Ecuador	Malaysia	Romania
Armenia	Egypt	Mauritius	Russia
Azerbaijan	El Salvador	Mexico	Senegal
Bangladesh	Fiji	Moldova	South Africa
Belarus	Georgia	Mongolia	Sri Lanka
Bolivia	Guatemala	Morocco	thailand
Botswana	Honduras	Namibia	Tunisia
Brazil	India	Nicaragua	Turkey
Bulgaria	Indonesia	Pakistan	Ukraine
Chile	Jamaica	Panama	Uruguay
China	Jordan	Papua New Guinea	Venezuela
Colombia	Kazakhstan	Paraguay	
Costa Rica	Lebanon	Peru	

Table 2.A.3: PCSE and Random Effects Models

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Model:	PCSE				RE			
Rating Agency:	Moody's		S&P		Moody's		S&P	
Lagged DV (Rating t-1)	0.873*** (0.024)	0.872*** (0.028)	0.854*** (0.027)	0.823*** (0.036)	0.873*** (0.022)	0.872*** (0.029)	0.854*** (0.024)	0.823*** (0.031)
(log) Reserves/Ext Debt	-0.195* (0.112)	0.051 (0.084)	-0.017 (0.109)	0.202** (0.076)	-0.195* (0.102)	0.051 (0.079)	-0.017 (0.105)	0.202** (0.081)
Electoral Democracy	-2.839*** (0.819)		-1.438** (0.718)		-2.839*** (0.581)		-1.438* (0.784)	
<b>Electoral Dem * Reserves/Debt</b>	<b>0.689*** (0.190)</b>		<b>0.390** (0.173)</b>		<b>0.689*** (0.140)</b>		<b>0.390** (0.188)</b>	
<b>D-D Dem * Reserves/Debt</b>		<b>0.337*** (0.095)</b>		<b>0.229** (0.094)</b>		<b>0.337*** (0.082)</b>		<b>0.229** (0.112)</b>
Democracy		-1.416*** (0.394)		-0.895** (0.370)		-1.416*** (0.304)		-0.895* (0.462)
(log) Debt/GDP	-0.07 (0.067)	-0.041 (0.076)	-0.009 (0.062)	0.035 (0.090)	-0.07 (0.058)	-0.041 (0.076)	-0.009 (0.061)	0.035 (0.079)
Fiscal Balance (% GDP)	0.015 (0.011)	0.015 (0.013)	0.024** (0.008)	0.018** (0.008)	0.015 (0.013)	0.015 (0.018)	0.024** (0.008)	0.018* (0.009)
Central Bank Independence	-0.009 (0.213)	0.051 (0.282)	0.013 (0.145)	-0.076 (0.187)	-0.009 (0.204)	0.051 (0.209)	0.013 (0.178)	-0.076 (0.210)
(log) Population	-0.267*** (0.061)	-0.225*** (0.066)	-0.202*** (0.051)	-0.206** (0.068)	-0.267*** (0.074)	-0.225** (0.080)	-0.202** (0.067)	-0.206** (0.079)
Growth	0.056*** (0.013)	0.066*** (0.016)	0.088*** (0.012)	0.105*** (0.014)	0.056*** (0.012)	0.066*** (0.013)	0.088*** (0.012)	0.105*** (0.014)
(log) GDP	0.370*** (0.059)	0.277*** (0.067)	0.314*** (0.049)	0.302*** (0.057)	0.370*** (0.075)	0.277*** (0.082)	0.314*** (0.063)	0.302*** (0.072)
Capital Acct Openness	0.118 (0.121)	0.135 (0.149)	0.033 (0.100)	0.134 (0.147)	0.118 (0.140)	0.135 (0.163)	0.033 (0.138)	0.134 (0.188)
(log) FDI	-0.009 (0.056)	-0.038 (0.063)	0.028 (0.053)	0.023 (0.054)	-0.009 (0.076)	-0.038 (0.090)	0.028 (0.048)	0.023 (0.065)
(log) CPI Inflation	-0.172*** (0.040)	-0.155*** (0.042)	-0.159*** (0.043)	-0.132** (0.048)	-0.172** (0.075)	-0.155** (0.077)	-0.159** (0.068)	-0.132* (0.075)
(log) Oil Rents	-0.049 (0.054)	-0.054 (0.066)	-0.051 (0.040)	-0.023 (0.049)	-0.049 (0.050)	-0.054 (0.064)	-0.051 (0.039)	-0.023 (0.055)
Trade Openness	0.001 (0.001)	0.001 (0.001)	0.002 (0.001)	0.001 (0.001)	0.001 (0.001)	0.001 (0.001)	0.002* (0.001)	0.001 (0.001)
Ever Default	0.039 (0.094)	0.001 (0.128)	-0.081 (0.091)	-0.142 (0.127)	0.039 (0.130)	0.001 (0.199)	-0.081 (0.135)	-0.142 (0.220)
Time	-0.032** (0.010)	-0.040** (0.015)	-0.019** (0.009)	-0.030** (0.013)	-0.032** (0.010)	-0.040** (0.014)	-0.019** (0.007)	-0.030** (0.012)
Constant	60.498** (19.961)	77.644** (28.849)	35.396** (17.698)	56.789** (25.976)	60.498** (19.106)	77.644** (27.270)	35.396** (14.299)	56.789** (22.605)
Observations	675	538	658	493	675	538	658	493
# of Countries	50	46	59	53	50	46	59	53
Ave # years/country	13.5	11.696	11.153	9.302	13.5	11.696	11.153	9.302

Country clustered standard errors in parentheses; \* p< 0.1 \*\* p< 0.05 \*\*\* p< 0.001; Models 1:4 are OLS with PCSEs; Models 5:8 are random effects.

Table 2.A.4: Polity2 Robustness Models

	(1)	(2)	(3)	(4)
Model:	Heckman		System GMM	
Rating Agency:	Moody's	S&P	Moody's	S&P
Lagged DV (Rating t-1)	0.844*** (0.045)	0.798*** (0.034)	0.850*** (0.039)	0.797*** (0.041)
(log) Reserves/Ext Debt	0.085 (0.090)	0.273** (0.094)	0.100 (0.092)	0.276** (0.088)
Polity 2	-0.147*** (0.037)	-0.129** (0.047)	-0.113*** (0.024)	-0.063* (0.035)
<b>Polity2 Dem * Reserves/Debt</b>	<b>0.037** (0.012)</b>	<b>0.038** (0.013)</b>	<b>0.026*** (0.007)</b>	<b>0.019** (0.009)</b>
(log) Debt/GDP	-0.008 (0.119)	0.182* (0.100)	0.076 (0.072)	0.008 (0.093)
Fiscal Balance (% GDP)	0.04 (0.032)	0.033* (0.018)	0.034** (0.014)	0.024** (0.008)
Central Bank Independence	0.213 (0.251)	-0.01 (0.316)	0.033 (0.261)	-0.219 (0.217)
(log) Population	-0.23 (0.140)	-0.295** (0.113)	-0.255** (0.097)	-0.242** (0.079)
Growth	0.088*** (0.020)	0.133*** (0.017)	0.055*** (0.008)	0.072*** (0.010)
(log) GDP	0.253 (0.159)	0.358*** (0.107)	0.394*** (0.098)	0.386*** (0.083)
Capital Acct Openness	-0.067 (0.253)	-0.089 (0.322)	0.132 (0.169)	-0.045 (0.148)
(log) CPI Inflation	-0.178* (0.107)	-0.125 (0.112)	-0.152* (0.087)	-0.151 (0.093)
(log) Oil Rents	-0.088 (0.085)	-0.043 (0.055)	-0.093 (0.069)	-0.059 (0.050)
(log) FDI	-0.05 (0.116)	0.092 (0.085)	0.026 (0.165)	0.132 (0.086)
Trade Openness	0.001 (0.002)	-0.001 (0.002)	0.001 (0.001)	0.003 (0.002)
Ever Default	-0.091 (0.320)	-0.351 (0.366)	-0.018 (0.191)	0.063 (0.150)
Observations	1191	1189	673	656
# of Countries in outcome	50	59	50	59
# years/Country			13.46	11.119
Hansen p-value			1.000	1.000
AR(2) p-value			0.571	0.267

Cluster robust standard errors in parentheses; \* 0.1 \*\* 0.05 \*\*\* 0.001; Models 1 and 2 are Heckman Selections Models (outcome equations); Models 3 and 4 are system GMM, with the same estimation procedures as reported in Table 2

Figure 2.A.1: Endogeneity Marginal Effects (Electoral Democracy)

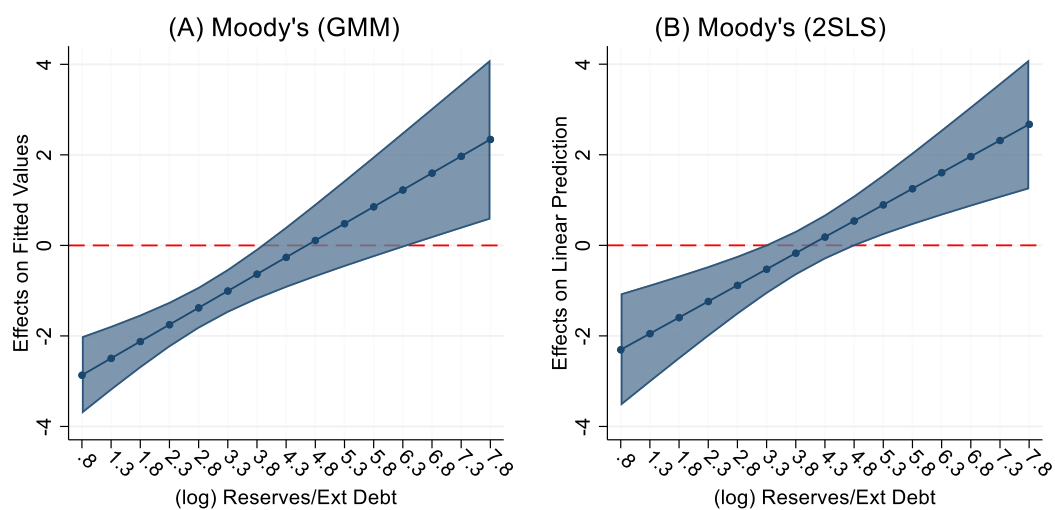


Table 2.A.5: Heckman Selection Equations (corresponding to Table 2.1)

	(1b)	(2b)	(3b)	(4b)	(5b)	(6b)	(7b)
Interacted variable:	Debt/GDP	Reserves /GDP	Reserves /Debt	Reserves /Debt	Reserves /Debt	Reserves /Debt	Reserves /Debt
Rating Agency:	Moody's	Moody's	Moody's	Moody's	Moody's	S&P	S&P
Electoral Democracy	1.99 (1.505)	-2.073 (2.324)	2.466 (2.271)	0.548 (2.223)		0.622 (2.470)	
Electoral Dem * Debt/GDP	-0.396 (0.390)						
Electoral Dem * Reserves/GDP		1.158 (0.880)					
Electoral Dem * Reserves/Debt			-0.312 (0.674)	0.202 (0.624)		0.385 (0.686)	
D-D Dem * Reserves/Debt					-0.420* (0.250)		0.298 (0.237)
Democracy					1.898** (0.798)		-0.023 (0.892)
(log) Debt/GDP	0.077 (0.231)	-0.062 (0.138)	0.158 (0.239)	0.248 (0.262)	0.236 (0.267)	-0.262 (0.222)	-0.213 (0.222)
(log) Reserves/GDP	0.166 (0.204)	-0.35 (0.521)					
(log) Reserves/Ext Debt			0.632 (0.414)	-0.194 (0.375)	0.034 (0.217)	-0.085 (0.348)	0.036 (0.137)
Fiscal Balance (% GDP)	-0.029* (0.016)	-0.029* (0.017)	-0.012 (0.028)	0 (0.027)	-0.001 (0.026)	0.047 (0.032)	0.033 (0.034)
Growth	-0.005 (0.012)	-0.005 (0.013)	-0.017 (0.022)	-0.074*** (0.017)	-0.074*** (0.017)	-0.101*** (0.017)	-0.084*** (0.017)
(log) GDP	-0.027 (0.211)	0.021 (0.185)	0.251* (0.151)	1.658*** (0.327)	1.726*** (0.369)	1.241*** (0.319)	1.491*** (0.320)
(log) US-Imports	0.649*** (0.137)	0.640*** (0.135)	0.638*** (0.132)	0.309* (0.168)	0.370* (0.191)	0.206 (0.176)	0.151 (0.166)
UN voting Ideal-p dist	-0.595*** (0.167)	-0.572*** (0.164)	-0.539** (0.274)	-1.067** (0.334)	-1.056** (0.332)	-0.118 (0.201)	0.091 (0.200)
Time	0.116*** (0.019)	0.120*** (0.018)	0.186*** (0.024)	0.157*** (0.026)	0.163*** (0.030)	0.187*** (0.027)	0.189*** (0.028)
Central Bank Independence				-1.177 (0.743)	-1.388* (0.761)	-0.032 (0.812)	-0.131 (0.752)
(log) Population				-0.687** (0.251)	-0.838** (0.259)	-0.364 (0.244)	-0.726** (0.238)
Capital Acct Openness				0.632 (0.438)	0.657 (0.509)	0.398 (0.402)	0.202 (0.441)
(log) CPI Inflation				-0.379*** (0.090)	-0.382*** (0.092)	-0.457*** (0.104)	-0.438*** (0.103)
(log) Oil Rents				-0.123 (0.160)	-0.062 (0.165)	0.099 (0.184)	0.118 (0.189)
(log) FDI				0.125 (0.132)	0.083 (0.126)	0.222 (0.163)	0.224 (0.153)
Trade Openness				0.019** (0.006)	0.020*** (0.006)	0.010* (0.006)	0.007 (0.005)
Constant	-235.273*** (40.702)	-241.135*** (38.159)	-383.787*** (49.254)	-341.761*** (51.646)	-353.480*** (58.714)	-398.403*** (53.621)	-402.617*** (56.486)
Observations	1818	1818	1649	1193	1199	1191	1196
Rho p-value	0.298	0.17	0.408	0.852	0.892	0.955	0.531

Dependent Variable is a dummy variable indicating that a country has received a credit rating. Columns correspond to the same numbers in Table 1 (thus, model 1 in Table 1 corresponds to Model 1b here).



Table 2.A.6: Additional Controls

	(1)	(2)	(3)	(4)	(5)	(6)
	Moody's		S&P		Moody's	
Lagged DV (Rating t-1)	0.852*** (0.025)	0.866*** (0.026)	0.782*** (0.030)	0.783*** (0.034)	0.819*** (0.048)	0.828*** (0.051)
(log) Reserves/Ext Debt	-0.273* (0.145)	0.101 (0.092)	-0.272 (0.196)	0.260** (0.121)	-0.230 (0.178)	0.076 (0.111)
Electoral Democracy	-4.330*** (0.764)		-4.562*** (1.265)		-3.955*** (0.870)	
<b>Electoral Dem * Reserves/Debt</b>	<b>1.164*** (0.217)</b>		<b>1.314*** (0.397)</b>		<b>0.934*** (0.249)</b>	
<b>D-D Dem * Reserves/Debt</b>		<b>0.457*** (0.110)</b>		<b>0.463** (0.225)</b>		<b>0.325* (0.167)</b>
Democracy		-1.660*** (0.363)		-1.629** (0.732)		-1.388** (0.516)
IMF Credit (curr USD\$)	-0.000** (0.000)	-0.000* (0.000)	-0.000 (0.000)	-0.000 (0.000)		
Fixed Exchange Rate					-0.059 (0.173)	-0.075 (0.164)
Constant	56.046 (40.554)	59.903 (47.949)	53.308 (66.937)	18.354 (56.886)	45.775 (41.344)	43.592 (46.238)
Selection Models (condensed)			[Other control variables omitted]			
(log) US-Imports	0.213 (0.187)	0.285 (0.200)	0.136 (0.199)	0.136 (0.198)	0.387** (0.191)	0.506** (0.199)
UN voting Ideal-p dist	-1.107*** (0.324)	-1.132*** (0.307)	-0.162 (0.260)	0.111 (0.264)	-1.143** (0.420)	-1.179** (0.411)
IMF Credit (curr USD\$)	0.000* (0.000)	0.000** (0.000)	0.000 (0.000)	0.000 (0.000)		
Fixed Exchange Rate					0.486 (0.381)	0.585 (0.375)
Observations	1053	1059	1051	1056	821	825
Rho p-value	0.016	0.001	0.938	0.500	0.825	0.737

\* p< 0.1 \*\* p<0.05 \*\*\* p< 0.001; All Models are Heckman Selection Models. Cluster Robust SE's in parentheses; Extra control variables Fixed exchange rate and IMF Credit are employed.

Table 2.A.7: Alternate Exclusion Variable for Heckman

	(1)	(2)	(3)	(4)
	Moody's		S&P	
Lagged DV (Rating t-1)	0.868*** (0.024)	0.872*** (0.029)	0.844*** (0.027)	0.824*** (0.030)
(log) Reserves/Ext Debt	-0.258** (0.091)	0.048 (0.078)	-0.098 (0.111)	0.198** (0.081)
Electoral Democracy	-3.511*** (0.575)		-2.369** (0.775)	
<b>Electoral Dem * Reserves/Debt</b>	<b>0.848*** (0.142)</b>		<b>0.649** (0.198)</b>	
<b>D-D Dem * Reserves/Debt</b>		<b>0.334*** (0.081)</b>		<b>0.233** (0.109)</b>
D-D Democracy		-1.398*** (0.310)		-0.899** (0.454)
(log) Debt/GDP	-0.029 (0.067)	-0.040 (0.075)	0.045 (0.073)	0.031 (0.078)
Constant	67.022** (25.000)	74.948** (27.238)	40.194** (17.120)	53.345** (22.614)
Selection Equations:				
(log) US-Imports	0.214* (0.128)	0.201 (0.135)	0.163 (0.149)	0.172 (0.150)
<b>(log) M2/GDP</b>	<b>0.404** (0.163)</b>	<b>0.419** (0.162)</b>	<b>0.410** (0.138)</b>	<b>0.500*** (0.148)</b>
Constant	-130.128*** (33.115)	-140.084*** (38.528)	-234.021*** (38.983)	-238.106*** (41.809)
Observations	1616	1580	1605	1568
Rho p-value	0.473	0.439	0.132	0.461

\* p< 0.1 \*\* p< 0.05 \*\*\* p< 0.001; Cluster Robust SE's in parentheses. All Models are Heckman Selection Models, run with full set of controls in Table 1 but omitted here to conserve space. (log) M2/GDP serves as the exclusion variable, replacing "UN Ideal Score" in Table 1.

Table 2.A.8: Robustness Error Correction Models

	(1)		(2)		(3)		(4)	
	Moody's				S&P			
	lag	differenced	lag	differenced	lag	differenced	lag	differenced
Lagged DV (Rating t-1)	-0.117*** (0.022)		-0.119*** (0.029)		-0.121*** (0.018)		-0.135*** (0.024)	
(log) Reserves/Ext Debt	-0.194* (0.115)	0.022 (0.205)	0.044 (0.082)	0.331** (0.135)	0.037 (0.091)	-0.115 (0.327)	0.237*** (0.064)	0.26 (0.164)
Electoral Democracy	-2.740*** (0.622)	-2.501 (1.852)			-1.220* (0.684)	-2.969 (2.139)		
Electoral Dem * Reserves/Debt	0.657*** (0.153)	0.612 (0.438)			0.337** (0.167)	0.753 (0.571)		
D-D Democracy * Reserves/Debt			0.300*** (0.085)	0.218** (0.108)			0.160* (0.091)	0.171 (0.157)
D-D Democracy			-1.290*** (0.315)	-0.943** (0.378)			-0.611* (0.367)	-0.874 (0.670)
(log) Debt/GDP	-0.064 (0.051)	-0.407 (0.376)	-0.022 (0.078)	-0.474 (0.390)	0.019 (0.056)	-0.321 (0.254)	0.128** (0.062)	-0.383 (0.266)
Fiscal Balance (% GDP)	0.012 (0.012)	-0.002 (0.018)	0.017 (0.017)	-0.005 (0.022)	0.016** (0.008)	0.01 (0.009)	0.013 (0.009)	0 (0.008)
Central Bank Independence	-0.113 (0.180)	0.051 (0.717)	-0.026 (0.181)	0.249 (0.802)	-0.13 (0.141)	-0.744 (0.679)	-0.136 (0.139)	-0.652 (0.713)
(log) Population	-0.226*** (0.060)	-2.642 (3.196)	-0.185** (0.064)	-5.669* (3.199)	-0.164*** (0.047)	-4.632* (2.633)	-0.234*** (0.046)	-4.576 (3.471)
Growth	0.016 (0.017)	0.032** (0.013)	0.016 (0.019)	0.036** (0.014)	0.052*** (0.011)	0.066*** (0.012)	0.062*** (0.014)	0.060*** (0.012)
(log) GDP	0.334*** (0.059)	1.338** (0.520)	0.248*** (0.069)	1.554** (0.666)	0.266*** (0.049)	0.855* (0.438)	0.279*** (0.056)	1.623** (0.621)
Capital Acct Openness	0.161 (0.148)	0.389 (0.425)	0.116 (0.165)	0.329 (0.473)	-0.025 (0.100)	1.412** (0.649)	-0.117 (0.116)	1.429** (0.585)
(log) CPI Inflation	-0.197** (0.065)	-0.084 (0.080)	-0.201** (0.071)	-0.051 (0.091)	-0.168** (0.058)	-0.151** (0.073)	-0.144** (0.068)	-0.154* (0.086)
(log) Oil Rents	-0.021 (0.035)	-0.269 (0.411)	-0.041 (0.045)	0.018 (0.478)	-0.042 (0.034)	0.241 (0.201)	-0.029 (0.041)	1.059*** (0.287)
Trade Openness	0.001 (0.001)	-0.007 (0.006)	0.001 (0.001)	-0.009 (0.006)	0.002** (0.001)	-0.006 (0.006)	0.002 (0.001)	-0.001 (0.007)
Ever Default	0.043 (0.095)	0.287 (0.436)	0 (0.155)	-0.362 (0.434)	0.083 (0.093)	-1.581 (1.326)	0.092 (0.112)	-4.169*** (1.229)
Time	-0.029** (0.009)		-0.046*** (0.013)		-0.021** (0.008)		-0.047*** (0.011)	
Constant	55.988** (17.678)		90.619*** (24.960)		37.754** (16.165)		91.138*** (20.855)	
Observations	664		529		643		480	
# of Countries	50		46		59		53	
Ave Years/Country	13.28		11.5		10.898		9.057	

Models are Error Correction Models - each model has output from a lagged-variable and differenced-variable specification. Clustered standard errors in parentheses; \* p<0.1 \*\* p<0.05 \*\*\* p<0.001.

Figure 2.A.2: ECM Robustness

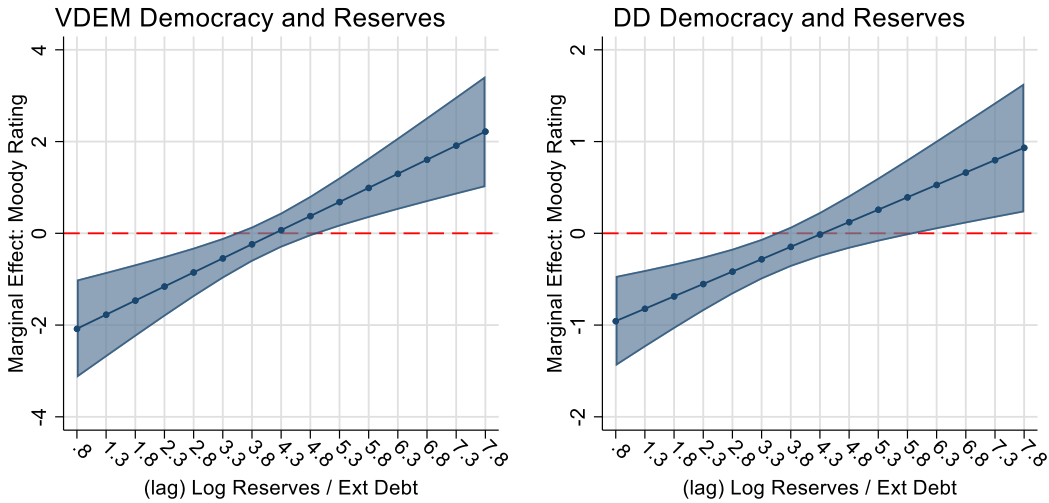


Figure 2.A.3: (log) Debt / GDP - Full Model (Table 1, M4)

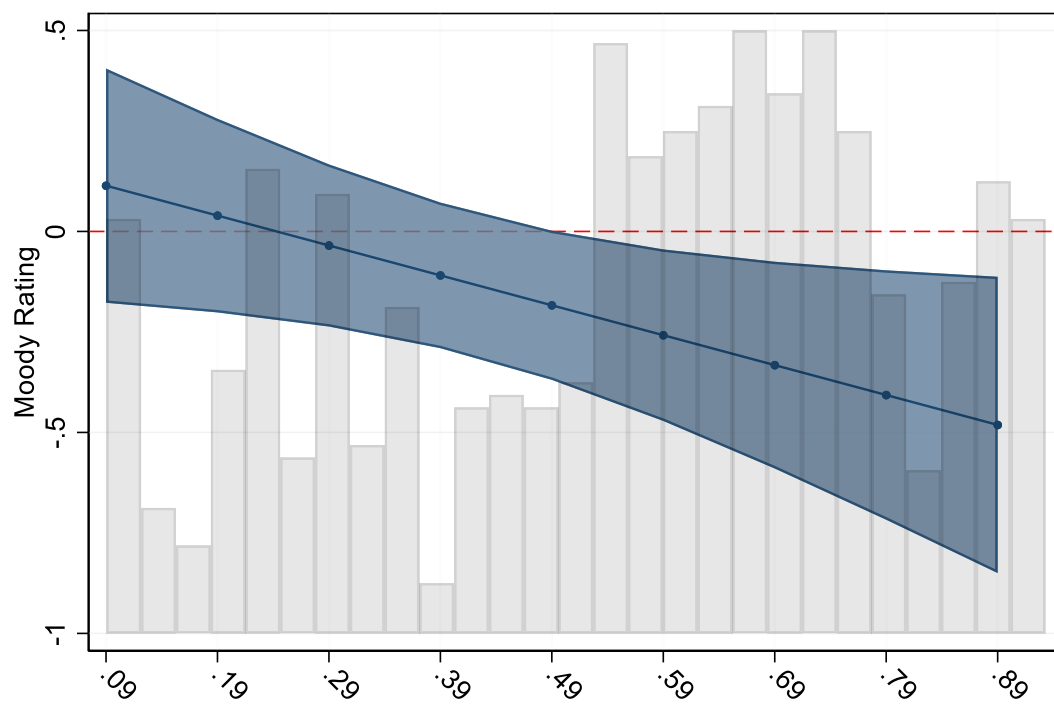


Figure 2.A.4: Developing Country Debt & Reserves, By Regime Type

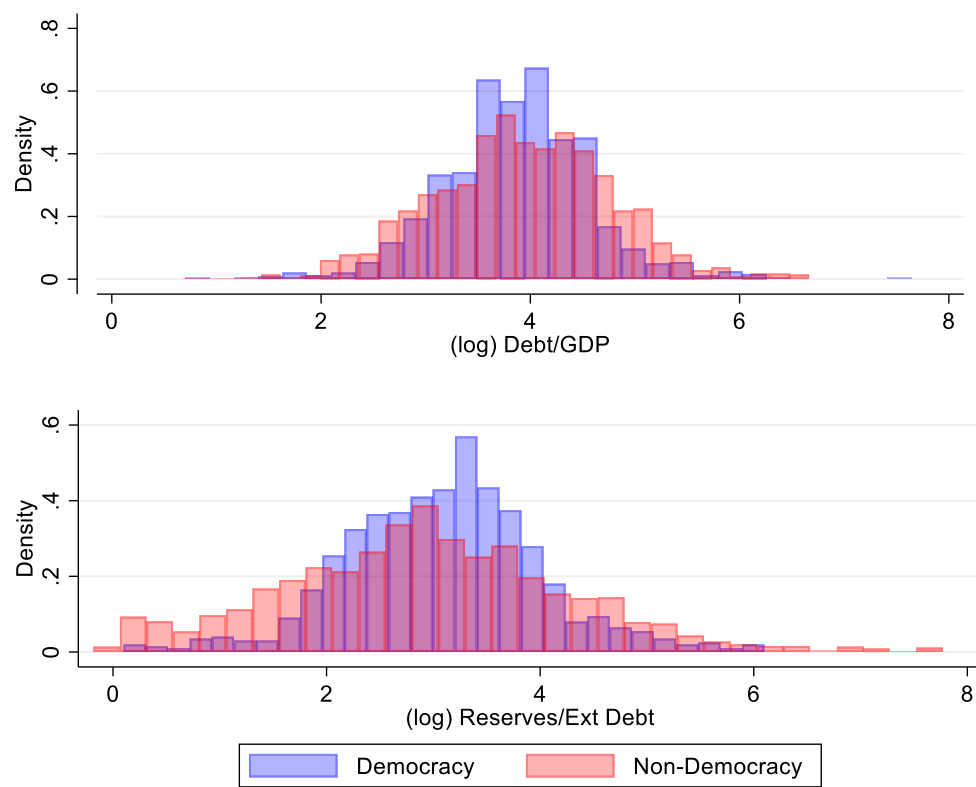


Figure 2.A.5: Debt and Reserves Correlation, Developing Countries

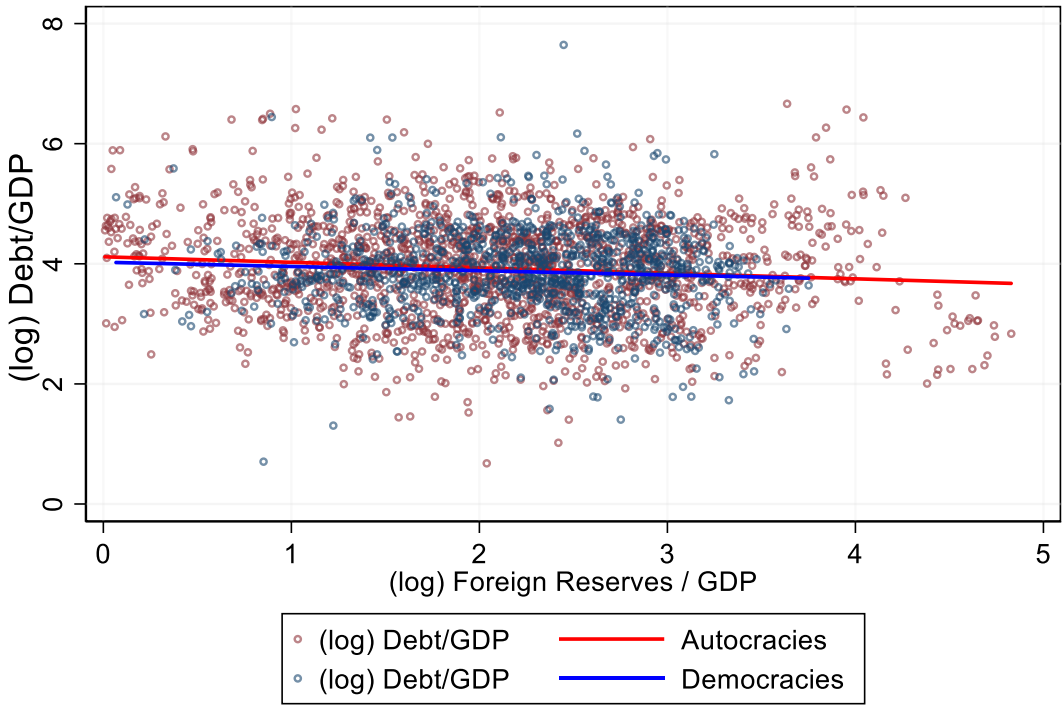


Table 2.A.9: Seeming Unrelated Regression Robustness Model

DV =	(1)		(2)		(3)
	Moody Rating		(log) Debt / GDP		(log) Reserves / GDP
Lagged- DV	0.897*** (0.014)		0.899*** (0.010)		0.875*** (0.017)
VDEM Democracy	1.972* (0.877)		0.076 (0.095)		-0.037 (0.229)
(log) Debt/GDP	0.219 (0.142)	(log) Reserves / GDP	0.023 (0.021)	(log) Debt/GDP	0.038 (0.037)
VDEM Democracy * Debt/ GDP (log)	-0.598** (0.230)	Democracy * Reserves / GDP (log)	-0.032 (0.035)	Democracy * Debt / GDP (log)	-0.004 (0.060)
Fiscal Balance (% GDP)	0.019 (0.010)		-0.012*** (0.002)		0.014*** (0.003)
Central Bank Independence	-0.034 (0.193)		-0.129*** (0.030)		0.074 (0.049)
(log) Population	-0.227*** (0.056)		0.005 (0.009)		0.055*** (0.014)
Growth	0.066*** (0.009)		-0.021*** (0.001)		-0.012*** (0.002)
(log) GDP	0.309*** (0.057)		-0.004 (0.008)		-0.026* (0.013)
Capital Acct Openness	0.136 (0.118)		0.001 (0.019)		0.019 (0.031)
(log) CPI Inflation	-0.166*** (0.038)		-0.015* (0.006)		0.005 (0.009)
(log) Oil Rents	-0.031 (0.041)		0.007 (0.006)		-0.012 (0.011)
(log) FDI	-0.009 (0.055)		-0.005 (0.009)		0.045** (0.014)
Trade Openness	-0.000 (0.001)		-0.000 (0.000)		0.001** (0.000)
Ever Default	-0.125 (0.098)		0.003 (0.016)		-0.052* (0.026)
Time Trend	-0.017* (0.007)		-0.001 (0.001)		0.003 (0.002)
Constant	31.270* (13.571)		1.682 (2.017)		-5.369 (3.334)

Model is SUR Model. Models 1 through 3 estimated with same control variables, but different DV and different interaction variable with Electoral Democracy. \* p<0.05 \*\* p<0.01 \*\*\* p<0.001.



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### CHAPTER 3: Dollars and Debt: How Financial Vulnerability Improves the Effectiveness of Economic Sanctions

The literature on the imposition of economic sanctions has generally held that the use of sanctions is ineffective in achieving its goals (Wood 2008; Drury and Li 2006; Li and Drury 2004) or is especially harmful. In particular, many have argued that sanctions can worsen human rights practices (Wood 2008; Peksen 2009; Carneiro and Apolinário Jr 2015) by increasing threats to the regime, in addition to destabilizing the economy with banking crises (Hatipoglu and Peksen 2016), fomenting the overthrow of leaders (Marinov 2005; Escriba-Folch and Wright 2010), and eroding political liberties, press freedoms and the level of democracy (Peksen 2010; Peksen and Drury 2010, 2009). Recently, Carneiro and Apolinário Jr (2015) confirmed that even targeted sanctions, which are sometimes thought to be less harmful overall than broad-based sanctions, are just as harmful to human rights practices. The literature therefore collectively has found that human rights sanctions are detrimental to the precise goals they are sometimes designed to achieve, calling into serious question their use as foreign policy tools.

In this paper, I argue that sanctions designed to coerce governments into reducing repression can succeed when they are imposed on countries who are financially vulnerable to the international economy and thus are at risk of severe losses in the event of an economic shock. While previous literature (Peksen and Drury 2009; Peksen 2010) has argued that regime leaders are well equipped to maintain the loyalty of regime elites during such cases, I argue that clear financial indicators signal to leaders that they will be unable to maintain the *political* solvency of their rule. For instance, in the event that economic sanctions are imposed, they can observe

the financial resources of the country and their political allies broadly as a means of understanding the likelihood of threats against their government. If a leader senses they face little direct economic exposure and that the country has sufficient domestic capital to deal with the onset of sanctions, this enables the regime to safely employ repression against threats of popular mobilization and protests which arise in such cases (Grauvogel, Licht, and von Soest 2017). On the other hand, if they are highly exposed to financial losses and have little domestic capital, increased repression would run substantial risks of causing a currency attack (Peksen and Son 2015), depreciation (Dreger et al. 2016) or banking crises (Hatipoglu and Peksen 2016), all of which lead to significant financial losses for elites and even sharper recessions. Given that much research has shown that poor economic circumstances can lead to instability (violent or otherwise) for the ruling regime (Svolik 2012; Svolik 2008; Houle 2009; Reuter and Gandhi 2011; Tang, Huhe, and Zhou 2017), political leaders would be highly unlikely to undertake increased repression when they observe it would likely only generate a political backlash which undermines their rule. Moreover, under such circumstances they would have increased incentives to avoid specific actions which could further destabilize the economy, and as a result should be expected to improve human rights practices, contrary to the argument from the literature.

I hypothesize that there are specific financial vulnerability channels which enhance the likelihood of sanctions' success due to the means by which these channels penetrate the ruling elite's wealth and erode the resolve of the regime to withstand the imposition of sanctions. These are (a) a country's level of external debt, (b) it's level of foreign liabilities (foreign financial investment) (c) it's *ratio* of short-term debt to total debt (d) current account deficits,

which signal a net inflow of foreign finance over exports, and (e) a country's level of foreign exchange reserves, which are considered a form of financial insurance against the possibility of abrupt stops to financial capital flows (Oatley 2010; Rodrik 2006). Each of these conditions carry important implications for how leaders make foreign policy decisions broadly, including political calculations regarding the risks and benefits of both internal and international conflict (Shea and Poast 2017; Schultz and Weingast 2003; DiGiuseppe 2015; Clay and DiGiuseppe 2017; DiGiuseppe and Shea 2016). For instance, an early illustration regarding the role of foreign exchange reserves is evident with an examination of the lead up to WWI in Germany. In the Agadir crisis of 1911, Germany, the aggressor and chief antagonist of this episode, deliberately provoked France in an attempt to gain influence over Morocco (Ahamed 2009; Mortimer 1967). However, soon after the incident began, Germany encountered a financial panic and was suffering considerable losses to their stock of Gold Reserves, jeopardizing their ability to remain on the Gold Standard. As a consequence, Germany backed down against France, enduring the public embarrassment but stabilizing their financial conditions. Subsequently, bankers at the Reichsbank were instructed to amass a substantial quantity of reserves, such that the country could sustain itself during a continental war. By the time WWI began, Germany held the largest stock of reserves among the major European powers<sup>42</sup> (Ahamed 2009). This case demonstrates that even amongst major world powers, domestic economic circumstances are a strong input to policy-making.

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<sup>42</sup> According to Ahamed (2009), it was this that helped Germany from suffering much gold losses once WWI began, which contrasted sharply with Britain who had fewer reserves and faced larger outflows of liquidity due to the credibility problems it fostered.



Each of the financial vulnerability conditions I posit are key indicators of financial stress with the ability to pressure policymakers in precisely the same way as evidenced by the Germany case. Importantly, foreign reserves are also seen as an important stabilizer when other economic risks are mounting. For instance, as the level of foreign debt for a country rises, domestic actors have greater needs for foreign financing and must also be able to repay their international debts, without which companies (even aside from borrowing governments) could be unable to borrow from other lenders in the event of a default<sup>43</sup> (Corneli and Tarantino 2016). Foreign reserves enable continued lending even in the event of a liquidity crisis where external financing is scarce, and safeguard countries in the event of sudden outflows of capital (Jung and Pyun 2016). Separately, high levels of government borrowing also raise the risk of a debt default, but also raise the interest costs of corporate finance because financial risk is linked within countries (Gaillard 2011; Kabadayi 2013). Further, in addition the overall levels of debt, the term structure of debt finance is also an important indicator of systemic risk. When businesses finance much of their debt with short-term financing, for instance, much lending is made and accepted based on the presumption that loans will be “rolled over” and refinanced rather than repaid in full. Consequently, financial crises or sudden disruptions to financial markets leave borrowers without the ability to cover their short term loans (Du and Palia 2018), or at least face sharply increased financing costs. Finally, a countries level of external liabilities as well as current account deficits (which show *on net* more financial inflows) both demonstrate to what degree a countries’ economy is dependent on international finance. Severe disruptions to financial flows to countries with high levels of external liabilities would thus be exposed to

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<sup>43</sup> Or pay substantial rates of interest

dramatic financial frictions where, even if replacement capital is locatable it would be on more expensive financing terms.

A consequence of this analysis is to highlight and distinguish the *manner* in which politicians respond to pressure via the international economy. Studies on economic growth or trade are undoubtedly an important component of the discussion, and yet it is difficult to discern exactly how such issues influence domestic actors and for what purposes. A drop in trade may hurt businesses, but disruptions to financial markets potentially impact a much broader range of domestic actors regardless of industry, and recent evidence shows that financial crises may lead to subsequent reductions in income inequality because it “hits the top of the income ladder” (Agnello and Sousa 2012). Elites would also financially suffer more clearly in the event of a shock which sparks a currency devaluation or currency attack (Peksen and Son 2015), because countries with high levels of external liabilities indicate that debt repayment would be much costlier in such cases. Conversely, elites with most of their financial assets abroad would actually be *insulated* from some of these risks. Thus, I argue that the financial vulnerability conditions which I discuss likely *more closely* track elite interests than in other conceptualizations. Consequently, leaders under human rights sanctions should be much less willingly to prolong the crisis with even worse repressive tactics. Increased repression may only induce a steeper recession and lengthen the duration of the sanctions, which would increase the likelihood that the regime is overthrown (Svolik 2012; Reuter and Gandhi 2011). The logical consequence of this scenario is that political leaders will be more likely to acquiesce and improve human rights conditions when sanctions are imposed, precisely because they perceive this financial vulnerability as a threat to the stability of the ruling elite.

Utilizing data covering 1960 to 2005, which represents the broadest possible sample given the data involved, I utilize Bayesian fixed effects and hierarchical models showing strong results for the main hypotheses. Whereas most previous studies of economic sanctions utilize PTS or CIRI human rights data to study the influence of sanctions on human rights, in this paper I utilize the 'Physical Violence Index' from the Varieties of Democracy database in order to study the relation between sanctions and human rights. This is a worthwhile advance because VDEM was coded with a greater number of experts, covers a substantially longer time span, and offers much greater variability due to its estimation via Bayesian factor analysis. While the main analysis is on the influence of the vulnerability index (FVI), I also examine the influence of the subcomponents as well as robustness to utilizing the Fariss measure of respect for human rights (Fariss 2018a).

The paper thus makes a strong contribution to the literature on economic sanctions by demonstrating how sanctions can, in fact, have their desired effect of coercing positive changes in human rights practices and reducing the level of repression. Recently, Peterson (2014) has shown that sanctions can have positive effects on external actors' human rights practices, but here I demonstrate this positive influence even on intended target states for a broad class of governments. Further, by demonstrating these precise financial channels of sanctions' influence, it has the potential to update our understanding of which precise tools of economic statecraft can maximize the ability of western governments to gain leverage over and positively influence harmful global actors. It also demonstrates how *allowing*, rather than *constraining*, the flows of international investment to begrudged nations can actually be beneficial in the long-run and maximize the potential for coercive foreign policy. In this way, this study offers

insights into the importance of meaningful international rewards for cases in which foreign actors demonstrate a positive response to international sanctions demands.

### **The Influence of Economic Sanctions**

The contemporary literature on economic sanctions has to some degree debated how targeted governments respond to perceived threats to the regime. This is an important point of emphasis since I argue that financial vulnerability conditions how governments respond to perceived threats to the regime. After a brief overview of this research, in the next section I will elaborate on how my theory of financial vulnerability relates to government incentives' to acquiesce or repress in the face of sanctions.

Kaempfer , Lowenberg , and Mertens (2004) and Marinov (2005) are notable cases by arguing that sanctions may be successful when it successfully threatens the stability of the governing coalition, suggesting that it is exactly when target leaders sense that their survival is at stake when they are likely to compromise and offer concessions. In what Peksen (2009) refers to as the naïve economic model of sanctions, human rights practices improve because it reduces the repressive capacity of the state with a direct loss of such financial resources, but importantly also reduces the loyalty premium to elites because the regime has less resources to distribute rents and loyalty benefits (Wood 2008; Peksen 2009). As a consequence, the target state should perceive their vulnerability (Mirinov 2005) and improve their human rights practices.

This logic has not received much support from the literature, however, both on theoretical grounds and with more precise empirical testing. Wood (2008), for instance, argues that by almost the same logic that one might argue perceived vulnerability leads to improved human rights conditions, perceived vulnerability should lead to an erosion of human rights standards.

Because sanctions impose a loss of financial resources on the regime, this increases the chances of defection from the regime, which then increases the incentives to repress in an effort to forestall broader defections and stifle domestic protest. Peksen (2009) further argues a skeptical view, emphasizing that targeted regimes are able to consolidate their control over the distribution of resources in the wake of sanctions imposition, deepening their ties with supporters and alienating opponents. Based on this reasoning, Peksen and Drury (2009, 2010) argue that economic sanctions reduce a countries' level of democracy and political rights, noting that "economic coercion barely hams the economic and political capacity of the targeted regimes." Additionally, they argue that sanctions do not harm the political elites but worsen perceived popular grievances (due to unemployment and health outcomes), and that it is therefore necessary for the regime to repress in order to stifle popular mobilization and the potential for any incipient political opposition. In other work, Peksen (2010) has shown how sanctions also reduce media openness due to these changes in political power.

More recently, Carneiro and Apolinário Jr (2016) have drawn upon an emphasis for the use of limited or targeted economic sanctions in an effort to more precisely coerce governments without all of the attendant consequences to human security. They find, however, that even targeted sanctions are likely to worsen human rights practices, thus leaving policymakers with the original dilemma regarding how to use foreign policy to coerce foreign actors. A consequence of this collective body of research is that, in general, the expectation is that sanctions do not *sufficiently* threaten the governments ability to maintain support while contributing to a broader deterioration in the governments' security environment. A recent exception to this is Peksen (2017), who argues that differences in autocratic regime types

involve different responses to the threat of sanctions. Because personalist dictators tend to rely more on foreign aid and resource rents, have poorer economic fundamentals, and lack strong institutional governance structures which enable the efficient collection of tax revenues, he argues that personalist regimes lack the resources necessary to survive sanctions episodes. As a consequence, they are more likely than single-party authoritarian governments to acquiesce in the face of sanctions, although they do not differ compared with democracies. As I will discuss in the following section, this has implications for how we conceive of the role of governments with financially vulnerable economies in terms of their response to sanctions episodes.

Finally, Peterson (2014) represents a notable advance in the literature, in that he examines the effectiveness of economic sanctions against *external actors*. Thus, he argues and provides compelling evidence that sanctions lead to *improvements* in human rights practices against other countries who qualify as potential sanctions targets (such as countries with similar repression histories). Others emphasize how international economic issues such as trade linkages are important factors for sanctions success. For instance, McLean and Whang (2010) argue that, since globalization makes the success of sanctions more difficult (Elliott 1998), cooperation from target states major trade partners is important for the success of sanctions.

In related work, Early (2009, 2011) and Early and Spice (2015) examine what determines whether countries utilize economic ties to sanctioned governments as a means of “busting” the sanctions. From these works we gain important insights into how the global system responds to sanctions events and how these international dimensions influence the efficacy of sanctions as a policy tool. For our present purposes, it is notable that while trade is thus an important dimension to the analysis of economic sanctions, considerations of financial vulnerability

arguably have much clearer implications for the success of sanctions in general. I turn to a discussion of these issues in the next section.

### **Sanctions and the Influence of Financial Vulnerability**

In the previous section, we see that whether or not sanctions actually lead governments to increased repression hinges on consideration of whether the government actually perceives a viable threat to their regime. Kaempfer et al (2004) and Marinov (2005) argue for cases where the regime does feel threatened, since the loss of resources threatens their ability to maintain the loyalty to the regime. Most compellingly, Peksen and Drury (2009, 2010) argue that most governments feel little in the way of this type of pressure, because they are able to utilize increased monopoly power of economic resources as political levers of loyalty. This takes place amidst a broader deterioration in the security climate, however, and thus the government has increased incentive to repress all the while protecting the elites on whom they rely on for support. The key matter here is in understanding whether the government can sufficiently insulate their supporters from the deterioration to the macroeconomy, which involves typical recessions of around 3.3% of GDP and an inflation rate of 37% (Peksen 2017), with lasting negative growth effects up to a decade in length (Neuenkirch and Neumeier 2015). Indeed, Peksen (2017) argues that personalist regimes fit exactly the case in which they lack the ability to insulate regime supporters from the associated economic costs, and thus sanctions against personalist governments are more likely to succeed.

I argue that conditions of international financial vulnerability suggest that governments will be less able to protect domestic elites from the harmful economic fallout of sanctions, and thus will be more likely to respond positively to being sanctioned. Wood (2008) suggests that

sanctioned governments redistribute resources “in the hope of weathering sanctions”, and Peksen (2017) that personalist regimes don’t have the “capacity to weather” such costs. I argue that in financially vulnerable countries, leaders have an acute understanding that they will not be able to successfully protect domestic elites and weather the economic storm of sanctions. Given that they understand the economic costs to wealthy elites will be particularly severe, they have little incentive to engage in repression because the onset of repression or related political violence is likely to only exacerbate economic conditions (Blomberg, Hess, and Orphanides 2004) by simply extending the duration of sanctions, by increasing the intensity of imposed sanctions, or generating other economic costs such as capital flight. In such a case, the leader essentially is faced with a high elasticity of loyalty from the winning coalition. An increase in repression, given the additional economic costs it entails for them, could provoke a large backlash in regime loyalty and materially threaten the leaders’ survival. Thus, when a country is financially vulnerable given its exposure to the world economy, leaders are much more likely to respond to sanctions by improving their respect for human rights.

Peksen and Drury (2009, 2010) discuss how leaders refrain from improving human rights practices at least in part because they do not want to be perceived by domestic actors as weak. Indeed, this is sensible when the leader and his winning coalition is *secure*. Peksen (2017) notes that personalist regimes would of course *desire* to repress, but when they sense that defying sanctions will only erode their political support base, they acquiesce to the sanctions demands. Given the perception of instability, therefore, leaders would rather appear weak but able to preserve the wealth of their winning coalition, which necessitates acquiescence. This was demonstrated by Germany in the Agadir crisis, mentioned earlier, suggesting that such



concerns are indeed secondary to the most important goal of maintaining the loyalty from regimes elites.

The literature explicitly examining whether political leaders are punished for poor economic performance further reinforces the importance that financial vulnerability has on the political calculations of leaders. If leaders were rarely ever punished during times of economic stress, then arguably it would not matter whether the country was “financially vulnerable” or not, as it would remove the key source of political pressure which I argue applies. However, the literature generally finds that such political pressure *does exist*. Speaking broadly to this issue, (Svolik 2008) shows that there are important long and short run influences of growth on political stability. Economic development is an extremely strong predictor that democracies consolidate, which we can take as evidence that long-run growth reduces the political tensions which can foster political breakdowns; but he also argues that the *timing of reversals* to autocracy is strongly predicted by the association of economic recessions. Elsewhere, Svolik (2012) finds that economic development also reduces the likelihood of coups.

Reuter and Gandhi (2011) also find strong evidence which is consistent with these expectations regarding the importance of economic conditions for the viability of the political regime. For instance, they argue that poor economic growth leads to increased episodes of elite defection from the ruling regime in hegemonic party systems. They argue that poor economic performance deprives the regime of resources to continually provide benefits and maintain cooptation policies, but it also provides political opponents with windows of opportunity to argue that they are better able to deliver stable growth policies than the government.

Interestingly, they reference important case examples which reveal some of the key financial

vulnerability mechanisms I posit, such as in Turkey in the 1950's where a massive build-up in foreign debt along with a decline in the countries gold and foreign exchange reserves was putting a significant strain on the economy.

Tang, Huhe, and Zhou (2017) undertake a thematically very similar study by showing that "economic crises" lead to democratic transitions only when the government plays a large and active role in the economy, which is thus evocative of the Reuter and Gandhi (2011) study since this is arguably precisely the role played by hegemonic parties'. They specifically state that "authoritarian rule built on material incentives is likely to collapse when dictators' can no longer provide sufficient resources to sustain pollical support as a result of the crisis."

Contrasting Tang et al (2017), in the context of this study on economic sanctions I do not argue that the history of government involvement in the economy is *explicitly* necessary, since financially vulnerable countries will still face the same incentives to cooperate regardless. However, their study does highlight the key issue involved which is that *failure to respond appropriately* during times of economic stress can signal the incipient failure of the regime itself.

We can therefore distill from these literatures some important points. First, the key to understanding whether human rights sanctions only lead to *increased repression* is contingent on the leaders' understanding and ability to insulate their supporters from the economic distress which the sanctions creates. This is especially important since repression itself is likely to exacerbate such economic conditions. Further, since the literature has found convincing evidence that economic weakness in the form of either slow growth, recessions or general economic crises causes political instability for the regime, it suggests that political leaders under

economic sanctions would be highly sensitive to domestic economic conditions and their perceived ability to weather such financial storms. As a consequence, sanctioned' leaders should theoretically pay close attention to how vulnerable their economy is to such economic shocks and, when the level of financial vulnerability is high, should be much more willing to acquiesce to demands over human rights' practices because failure to do so may only hasten their political demise.

### **Financial Vulnerability Conditions**

My above discussion therefore illustrates how sanctioned regimes have different incentives to repress depending on their level of financial vulnerability. When their elites are well insulated from economic risk, governments retain the desire to repress due to the imposition of sanctions, much as Peksen and Drury have argued. However, when they are financially vulnerable, they understand that resisting sanctions and using repression are perilous, self-defeating exercises. I argue that there are several conditions which demonstrate how elites are insulated or exposed to financial risk during an episode of economic sanctions. First, a key measure of financial vulnerability is a countries level of external liabilities. This measure is an indication of what percent of the economy is indebted to foreign actors, and thus demonstrates to what degree the economy will be harmed by a negative economic shock such as the imposition of sanctions. It represents, in other words, the degree to which the domestic economy is reliant on foreign sources of financial capital. An abrupt economic shock would thus be very harmful, because being literally cut off from financial flows due to sanctions implies a dramatic increase in the cost of business finance (Alfaro, Chari, and Kanczuk 2017; Alfaro,

Kalemli-Ozcan, and Volosovych 2007), and for highly indebted countries this directly indicates increased risk of defaults and debt crises (Catão and Milesi-Ferretti 2014).

It is also important because, in the event that economic sanctions lead to currency depreciations (Dreger et al. 2016), it also implies that the cost of foreign indebtedness will rise in the amount of the currency depreciation. Peksen and Son (2015) find that sanctions lead to the onset of currency crises, which further demonstrates the financial risks to domestic actors in the wake of a sanctions episode, *especially*, I argue, when the level of external liabilities is high. For instance, a high level of liabilities indicates foreign investors willingness to take on the risks involved in doing business in/with the target country (at least prior to the onset of sanctions). A large component of this risk is currency risk, and large depreciations of the national currency would mean that countries with high levels of external liabilities suddenly are dramatically more exposed to financial risk and liquidity crises because not only is *risk* itself higher because of political turmoil, but the depreciated currency makes it even costlier to repay international debts.

Additionally, Trade flows and trade openness do not clearly capture this specific dynamic of economic loss, because trade flows can more easily be offset or replaced by purchases or transactions with businesses from other countries (McLean and Whang 2010). External liabilities, as here discussed, involve a contracting type of relationship which raise the level of frictions involved given a shock to these economic relationships. Catão and Milesi-Ferretti (2014) highlight this vulnerability channel, demonstrating that a countries' level of external liabilities is a very strong predictor of economic crises. While it was not part of their study, it stands to reason that a high level of liabilities will exacerbate the costs of a different economic

shock (sanctions), as discussed above. Further, the exceptional volume of these liabilities represent risk to the wealthiest actors in society, since typical individuals themselves do not take out foreign-denominated loans, receive equity stakes, or incur foreign exchange risk. I therefore argue that this measure more clearly taps into the financial incentives of the ruling class than other considerations of the international economy, and leads to the first hypothesis of the paper:

**H1:** Human Rights Sanctions will lead to *lower* levels of repression as the level of external liabilities increases

A related measure of vulnerability, similar to external liabilities, is a countries' current account deficit, which is a *net* approximation of foreign financial flows. While overall financial exposure is captured by the stock of external liabilities, the current account balance (deficit) can capture more immediate movements in exposure and thus help to identify how political actors would relate to the political risk of economic shocks. Beyond this, it also reveals important signals about the exposure to economic shocks. Teixeira et al (2018), for instance, find that during periods of economic crisis current account deficits lead to lower sovereign credit ratings, arguably because its indication of reliance on external creditors implies long-run unsustainability. Additionally, Davis et al (2016) show that current account balances interact with levels of externally financed debt to significantly increase the probability of banking crises. This also resonates with recent experience in the US, since the current account balance has been much discussed for its potential role in the build-up of systemic risk prior to the US

financial crisis of 2008<sup>44</sup>. Current Account Deficits therefore track a distinct dimension of financial vulnerability and this leads to the second hypothesis of the paper:

**H2:** Human Rights Sanctions will lead to lower levels of repression as current account deficits increase

Another important component of financial vulnerability considers a country's level of foreign exchange reserves, which is considered to be a form of financial insurance against the potential for negative international shocks (Rodrik 2006; Obstfeld, Shambaugh, and Taylor 2010; Jeanne 2007). Foreign reserves can be used in order to guard against currency exchange risk, and can act as emergency financing when international shocks stop the flow of funds and domestic banks face increased risk of default (Corneli and Tarantino 2016). Dominguez, Hashimoto, and Ito (2012), for instance, found that countries with substantial accumulated foreign reserves prior to the 2008 financial crisis experienced higher ensuing growth and recovery rates. Because foreign reserves are so crucial to stabilize economies against sudden shocks, it thus represents a clear and important indicator of how vulnerable a country would be to the imposition of economic sanctions. It is worth noting that, in this case, a large level of reserves *insulates* a country from economic risk, whereas the other vulnerability conditions *exacerbate risk*. It is therefore the only hypothesis which predicts an increase in repression due to sanctions, rather than a decrease. Thus, we can state the third hypothesis:

**H3:** Human Rights Sanctions will lead to *higher* levels of repression as the level of foreign exchange reserves increases

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<sup>44</sup>See, for instance, a prominent speech by Fed chairman Ben Bernanke  
<https://www.federalreserve.gov/boarddocs/speeches/2005/200503102/>

Another measure of financial vulnerability is a country's level of external debt. This is important for a similar reason regarding why the level of liabilities can indicate how dramatic an economic shock may be: currency risk. If a country has a large volume of external debt, then a sharp depreciation induced by sanctions can suddenly spark a significant increase in de facto debt costs, leading to higher risk of debt defaults and debt-finance costs for all business (Gaillard 2011; Ahlquist 2006). Corneli and Tarentino (2016) argue, for instance, that high external debt significantly increases the likelihood of a liquidity shock, which is notable because even if it did not have this effect *directly*, the imposition of sanctions may easily *cause it to be so*.

Additionally, the term-structure of debt is also considered to be an important indicator of financial risk. For instance a number of works have demonstrated that when debt is largely financed via short-term loan terms, sudden shocks to financial capital can exacerbate crises because businesses are then unable to “rollover” their debts and thus adapt by curtailing their financial activities. This leads to increased risk of crises (Ekici and Nemlioğlu 2017; Benmelech and Dvir 2013), in addition to significantly higher lending costs as the ratio of short term debt increases (Wang, Chiu, and King 2017). For governments, this means that default risk is higher and in the event of economic difficulties, raising necessary funds becomes especially difficult. Consequently, high levels of short-term debt would make it more difficult to survive the onset of economic sanctions. Combined, these debt conditions regarding *overall* external debt and the its related term structure portends significant costs for the economy. It thus leads to the final hypotheses of the paper:

**H4:** Human Rights Sanctions will lead to lower levels of repression as the levels of external debt increases

**H5:** Human Rights Sanctions lead to *lower levels* of repression as ratio of short-term to total debt increases.

I have now stated the relevant financial vulnerability conditions which indicate the degree to which sanctioned governments perceive they can insulate their support base from economic costs. While the literature argues that leaders can try to use other policies like tax incentives or subsidies to offset the economic harm of sanctions, to the extent that each of these financial vulnerability conditions is binding for an economy it implies a very severe constraint on the leaders' ability to successfully offset this increased vulnerability. Further, as each of these conditions are having an influence (rather than considering these in pure isolation), it further complicates the ability of the government to be able to deploy sufficient resources to offset the combination of these costs. This would especially be the case during a recession, when government resources dwindle via automatic stabilizers.

An important issue is that the concept of financial vulnerability which I have outlined above is such a multifaceted issue that it is better represented by an index which accounts for all of these vulnerability dimensions simultaneously. Examining each issue in isolation could easily lead to obscure inferences because other aspects of the international economy may counterbalance it. This is even implied by the theory itself, since I posit that foreign exchange reserves represents financial insurance which enables governments to insulate their supporters from the financial costs of sanctions. Thus, high levels of liabilities may increase vulnerability, but ignoring the levels of reserves may not give an accurate picture. Because of this fact, there is tremendous advantage to combining these measures into a unified index describing the aggregate level of financial vulnerability for a country at a specific point in time. Thus, one main



contribution of the paper is to create an Index describing financial vulnerability, the FVI Index, and use it to examine in more straightforward fashion the impact of financial vulnerability on a countries susceptibility to economic coercion. Therefore, I create an overall financial vulnerability index (FVI), an examine the broadest overarching hypothesis of the paper:

**H6:** Human Rights Sanctions lead to *lower levels* of repression as the overall level of financial vulnerability increases.

### **Research Design and Data**

I utilize the Threat and Imposition of Economic Sanctions (TIES) database version 4. Similar to Peterson (2014) I transform this data, which is based on sanctions episodes as the unit of analysis, into country-year format. To examine the impact of sanctions, I mainly utilize sanctions which were imposed principally due to concerns regarding human rights abuses and are imposed by western democracies or the EU. For data on government repression, I utilize the Varieties of Democracy version 6.2 measure “Physical Violence Index”, which is created by Bayesian factor analysis<sup>45</sup>. I use this measure, rather than more traditional measures of human rights abuses such as PTS or CIRI, mainly because it is arguably a more robust and precisely estimated measure which offers greater variability and has a longer time span, permitting the use of all years of the TIES data conditional on the covariates. It combines measurement on the use of political killings by government agents in addition to government sanctioned torture. In the analysis, I use as the dependent variable the *future 5 year* average of Physical Violence, in order to show persistence in the changes of political repression. As a robustness measure, I also utilize Christopher Fariss’ measure of human rights practices, which accounts for changes in the

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<sup>45</sup> This measure is described with more detail on page 74 of codebook 7.

reporting of human rights conditions over time (Fariss 2018b). Because I present both measures in the main output tables, it should be noted that these measures predict opposite effects: one is a measure of repression (VDEM Violence) whereas the Fariss measure is an estimate of respect for human rights.

For the financial vulnerability conditions, the first measure of vulnerability, the *level of external liabilities to GDP ratio*, comes from the external wealth of nations<sup>46</sup> database (Lane and Milesi-Ferretti 2006). The rest of the financial vulnerability measures – *foreign reserves/Debt*, *External Debt/GNI*, *Short-term Debt/Total Debt*, and *Current Account Deficits*– are acquired from the World Bank’s WDI database. The measures of total liabilities, foreign reserves and external debt are logged because the distributions of these variables are skewed, whereas the other measures are fairly symmetric.

To create the *FVI Index (Financial Vulnerability)*, I normalize each of the financial vulnerability measures and then add them together with equal weight<sup>47</sup>, multiplied by 100. This creates an index which theoretically ranges from 0 to 100, although in practice the maximum is approximately a value of 71.

As controls, I use economic growth from the World Bank, in addition to the Geddes regime typology measure from the GWF database. From the Varieties of Democracy database I use the electoral democracy index as a democracy indicator, and from VDEM I also use a measure of International War based on COW criteria. A dummy variable for civil wars and separately oil

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<sup>46</sup> <https://www.imf.org/en/Publications/WP/Issues/2016/12/31/The-External-Wealth-of-Nations-Mark-II-Revised-and-Extended-Estimates-of-Foreign-Assets-and-18942>

<sup>47</sup> I invert the foreign reserves variable, so that the direction of the relationship between reserves and vulnerability is the same as the other variables in the Index.

wealth comes from Bodea, Elbadawi, and Houle (2017). To capture additional incentives for repression I also utilize the Banks' measure of "violent dissent", acquired from Clay and DiGiuseppe (2017) replication data.

Because the literature on economic sanctions has been concerned with the potential for unmodeled omitted-variables bias as a confounder when modeling repression policies, and because the expected impact of human rights sanctions partly implies a within country effect, I mainly utilize Bayesian Fixed Effects models to examine these relationships. I do, however, also estimate several random coefficient, random intercept models and show that the relationships hold with either specification. All models used a burn-in period of 40,000 simulations and 100,000 simulations for inference, and use standard diffuse and uninformative priors on all parameters. Additionally, while I do not present these in the main text, I performed standard visual and statistical tests of MCMC convergence to assess the validity of producing summary estimates from the MCMC chains. For all models reported in this paper, the MCMC diagnostic criteria support the inference that the chains converged<sup>48</sup>. Because I posit that financial vulnerability conditions the effect of sanctions on human rights practices, each of the models takes the form of an interaction effect between human rights sanctions and the financial vulnerability condition. I present output tables of these effects, but the main interpretation will rely on marginal effects plots, all of which report 95% Bayesian credible intervals. The maximum time sample ranges from 1961 to 2011, though some of the external wealth of nations measures only begin in 1970. All of the models of the paper exclude Western Europe

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<sup>48</sup> This is more precisely stated by noting that I failed to find evidence of non-convergence, since convergence of MCMC chains can never be proven.

and North America from the sample, since these countries are the *originators* of human rights sanctions and their inclusion in the sample only biases the estimated effects.

The concern over endogeneity is an issue which has arisen in the literature on economic sanctions, as is demonstrated in Peksen (2017), though it does not have a large impact on the study in his case. This is because a concern over endogeneity in the case of how sanctions influence human rights practices in this case should lead to *conservative* estimates, meaning that it shouldn't be expected to bias the estimates in favor of my theory. For instance, Nooruddin (2002) argues that selection bias is a reason why some have had difficulty finding a positive effect of economic sanctions. In essence, the argument is that countries who are willing to be coerced do not allow themselves to reach the sanctions stage, and so this tool of foreign policy may be effective even while most researchers have not found a positive effect. Thus, actually finding a positive influence of sanctions is against expectations, according to this concern.

## **Results**

First, I present the evidence regarding all of the hypotheses regarding the FVI subcomponents which correspond to hypotheses 1:5. Table 3.1 reports the output of Bayesian linear fixed effects models on the future 5 year average of the Physical Violence Index (repression). These estimates report the summaries of the posterior density estimates of the parameters, with the mean and standard deviations. I also report the probability that a coefficient estimate is greater/less than 0, depending on the direction of the estimate. In this context, the probability is simply the number of simulated values which lie to the left or right of zero, which approximates inference from a frequentist perspective. Thus, these display the estimated

coefficients of the estimated interaction with each FVI condition and human rights sanctions. So far the results are strongly supportive of theoretical expectations. Table 3.1 reports that all but one measure (short term debt) exhibit significant relationships and lie in the expected direction. Foreign Reserves and CA Deficits both had fully 100% of posterior simulated draws on the correct side of 0, while Liabilities and External Debt had 97% of simulated draws on the correct side. Short term debt displays a mean estimate of essentially zero and only 54% of draws were on the theoretically correct side. This is not too surprising in the sense that the short term nature of debt may not matter considering other important factors. For instance, if overall debt is low, then arguably the importance of the short-term debt ratio is dubious. While I do not report the estimate in the table, I further explore the role of short-term debt by then estimating a triple interaction model of [HR Sanctions \* Short-term Debt \* External Debt]. This would be a sensible estimate because the term-structure of debt should clearly rise in importance with the level of overall debt. This triple interaction seems to reveal what we would expect to find based on theoretical expectations. The coefficient is negative and 97% of simulated posterior draws are on the correct side.

Thus, we see that the imposition of sanctions leads to *reduced* repression over 5 years when Liabilities, External Debt, and CA Deficits are high, and these estimates clearly show that the preponderance of these estimates are below zero. Conversely, we also see that sanctions imposition when the level of foreign reserves is high *increases* the level of repression. This makes sense based on theoretical expectations, because these resources allow the government to try and stabilize the economy and lend to major financial institutions in an effort to weather the sanctions episode. In effect, this allows them to insulate their supporters from the negative

Table 3.1: Effect of Sanctions on Government Repression (FVI Subcomponents)

<i>CA Deficits</i>				<i>Short Term (ST) Debt</i>				<i>External Debt/GDP</i>			
	Mean	SD	Pr		Mean	SD	Pr		Mean	SD	Pr
(Intercept)	4.432	0.548	100%	(Intercept)	5.158	0.646	100%	(Intercept)	4.46	0.807	100%
(lag) Physical Violence	0.588	0.014	100%	(lag) Physical Violence	0.594	0.016	100%	(lag) Physical Violence	0.603	0.017	100%
HR Sanctions	-0.022	0.011	98%	HR Sanctions	-0.009	0.02	67%	HR Sanctions	0.074	0.053	92%
CA Deficits	0	0	94%	Short Term (ST) Debt	-0.001	0	100%	(log) Ext Debt	-0.007	0.003	98%
<b>Sanctions * CA Deficits</b>	<b>-0.004</b>	<b>0.001</b>	<b>100%</b>	<b>Sanctions * ST Debt</b>	<b>0</b>	<b>0.001</b>	<b>54%</b>	<b>Sanctions * Debt</b>	<b>-0.027</b>	<b>0.015</b>	<b>97%</b>
Democracy	-0.257	0.019	100%	Democracy	-0.212	0.022	100%	Democracy	-0.196	0.022	100%
International War	0.023	0.008	100%	International War	0.032	0.009	100%	International War	0.02	0.01	98%
Civil War	0.005	0.006	79%	Civil War	0.001	0.007	58%	Civil War	0	0.007	52%
(log) GDP pc	0.001	0.004	56%	(log) GDP pc	-0.002	0.005	67%	(log) GDP pc	-0.002	0.005	64%
Growth Rate	0	0	54%	Growth Rate	0	0	93%	Growth Rate	0	0	85%
Time	-0.002	0	100%	Time	-0.002	0	100%	Time	-0.002	0	100%
<i>N = 4,662</i>				<i>N = 3,094</i>				<i>N = 2,606</i>			
<i># of Countries = 134</i>				<i># of Countries = 93</i>				<i># of Countries = 92</i>			

<i>Liabilities/GDP</i>				<i>Reserves/Debt</i>			
	Mean	SD	Pr		Mean	SD	Pr
(Intercept)	5.995	0.813	100%	(Intercept)	5.487	0.745	100%
(lag) Physical Violence	0.579	0.016	100%	(lag) Physical Violence	0.589	0.018	100%
HR Sanctions	0.138	0.068	98%	HR Sanctions	-0.132	0.043	100%
(log) Liabilities/GDP	0.006	0.004	90%	(log) Reserves/Debt	0	0.003	53%
<b>Sanctions * Liabilities</b>	<b>-0.034</b>	<b>0.018</b>	<b>97%</b>	<b>Sanctions * Reserves</b>	<b>0.037</b>	<b>0.013</b>	<b>100%</b>
Democracy	-0.228	0.022	100%	Democracy	-0.206	0.024	100%
International War	0.031	0.01	100%	International War	0.021	0.011	97%
Civil War	-0.002	0.007	59%	Civil War	0.001	0.007	58%
(log) GDP pc	-0.002	0.005	63%	(log) GDP pc	0.001	0.006	60%
Growth Rate	0	0	97%	Growth Rate	0	0	92%
Time	-0.003	0	100%	Time	-0.003	0	100%
<i>N = 3,937</i>				<i>N = 2,323</i>			
<i># of Countries = 132</i>				<i># of Countries = 84</i>			

*Dependent variable is the future 5 year average of the (VDEM) Physical Violence Index. Models estimated are Bayesian linear models with country fixed effects*

Table 3.2: FVI Index and the Impact of Government Repression

<i>(A) FVI Basic</i>			<i>(B) FVI Full Model</i>			<i>(C) FVI - Fariss Measure</i>			<i>(D) HLM Model</i>		
	Mean	SD		Mean	SD		Mean	SD		Mean	SD
(Intercept)	6.04	0.475	(Intercept)	13.337	1.497	(Intercept)	-22.787	4.863	(Intercept)	2.378	0.049
<b>(lag) Physical Violence</b>	<b>0.698</b>	<b>0.013</b>	<b>(lag) Physical Violence</b>	<b>0.445</b>	<b>0.024</b>	<b>(lag) Human Rights</b>	<b>0.63</b>	<b>0.019</b>	<b>(lag) Physical Violence</b>	<b>0.312</b>	<b>0.004</b>
<b>HR Sanctions</b>	<b>0.292</b>	<b>0.066</b>	<b>HR Sanctions</b>	<b>0.477</b>	<b>0.119</b>	<b>HR Sanctions</b>	<b>-0.961</b>	<b>0.393</b>	<b>HR Sanctions</b>	<b>0.408</b>	<b>0.012</b>
FVI	0.000	0.000	FVI	<b>0.001</b>	<b>0.001</b>	FVI	<b>-0.012</b>	<b>0.002</b>	FVI	0.000	0.000
<b>Sanctions * FVI</b>	<b>-0.009</b>	<b>0.002</b>	<b>Sanctions * FVI</b>	<b>-0.013</b>	<b>0.003</b>	<b>Sanctions * FVI</b>	<b>0.029</b>	<b>0.01</b>	<b>Sanctions * FVI</b>	<b>-0.012</b>	<b>0.000</b>
<b>Time</b>	<b>-0.003</b>	<b>0.000</b>	<b>(log) Population</b>	<b>0.14</b>	<b>0.039</b>	<b>(log) Population</b>	<b>-0.297</b>	<b>0.128</b>	<b>Democracy</b>	<b>-0.364</b>	<b>0.003</b>
			<b>Democracy</b>	<b>-0.249</b>	<b>0.031</b>	<b>Democracy</b>	<b>0.248</b>	<b>0.08</b>	<b>(log) Population</b>	<b>-0.098</b>	<b>0.003</b>
			<b>Personalist Regime</b>	<b>0.016</b>	<b>0.012</b>	<b>Personalist Regime</b>	<b>0.099</b>	<b>0.04</b>	<b>Personalist Regime</b>	<b>0.071</b>	<b>0.001</b>
			<b>Party Regime</b>	<b>-0.028</b>	<b>0.011</b>	<b>Party Regime</b>	0.041	0.037	<b>Party Regime</b>	<b>0.016</b>	<b>0.001</b>
			<b>(log) GDP pc</b>	<b>0.03</b>	<b>0.008</b>	<b>(log) GDP pc</b>	-0.017	0.028	<b>(log) GDP pc</b>	<b>-0.013</b>	<b>0.001</b>
			Growth Rate	0.000	0.000	<b>Growth Rate</b>	<b>0.002</b>	<b>0.001</b>	<b>Growth Rate</b>	<b>-0.001</b>	<b>0.000</b>
			International War	0.015	0.013	International War	-0.008	0.043	<b>International War</b>	<b>0.029</b>	<b>0.001</b>
			<b>Civil War</b>	<b>0.011</b>	<b>0.008</b>	Civil War	0.006	0.028	<b>Civil War</b>	<b>0.032</b>	<b>0.001</b>
			Violent Dissent	-0.001	0.002	<b>Violent Dissent</b>	<b>-0.023</b>	<b>0.006</b>	Violent Dissent	0.000	0.000
			<b>Oil Wealth</b>	<b>-0.036</b>	<b>0.009</b>	<b>Oil Wealth</b>	<b>0.073</b>	<b>0.03</b>	<b>Oil Wealth</b>	<b>-0.035</b>	<b>0.001</b>
			<b>Time</b>	<b>-0.008</b>	<b>0.001</b>	<b>Time</b>	<b>0.014</b>	<b>0.003</b>			
<i>N = 2,515</i>			<i>N = 1,611</i>			<i>N = 1,611</i>			<i>N = 1,611</i>		
<i># of Countries = 101</i>			<i># of Countries = 80</i>			<i># of Countries = 80</i>			<i># of Countries = 80</i>		

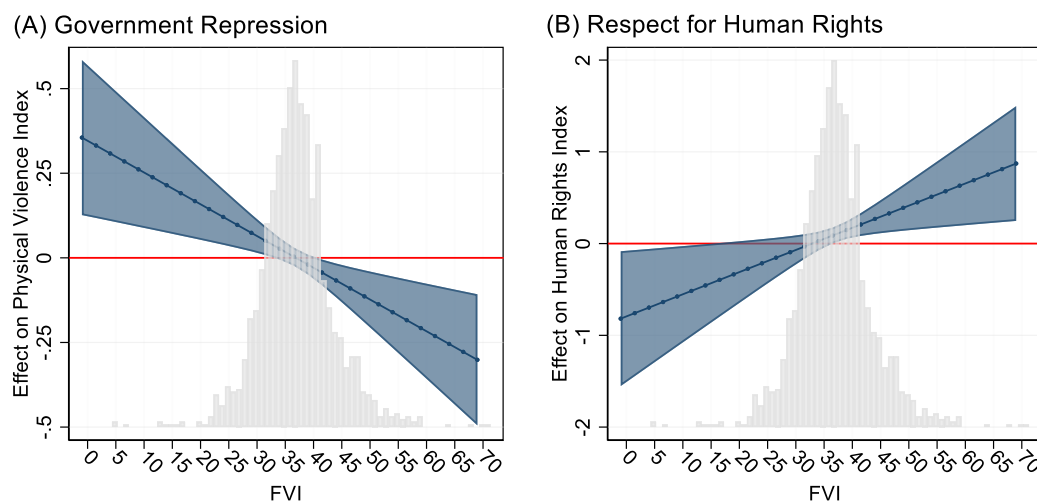
effect of sanctions, which would indicate their freedom to increase repression in order to crack down on dissident formation. Additionally, exploration of the range of the interactions reveals that that the effects have meaningful effects at various ranges of data.

Next, Table 3.2 presents the results from several different specifications. To conserve space in the table, I omitted the column for the probability of a positive/negative effect of the coefficient and simply bolded all measures estimated to have at least a 90% probability of being positive or negative. I note, however, that the choice of 90% probability does not influence any of the interaction effects, all of which had 100% of simulated posterior draws below zero. In an effort to maximize the sample size as well as show that the results are not driven by overfitting bias, I estimated a basic fixed effects model wherein the only included measures were the interaction of sanctions and FVI, the lagged level of repression, and a time trend. Model 3.2 (B) shows these same results but expanded to include a broader range of control variables, and Model 3.2 (C) shows the estimated effects of the future 5 year average of the Fariss Human Rights measure. Across these models we see evidence consistent with theoretical expectations, that sanctions lead to *reduced* levels of repression for countries which are financially vulnerable. We should note that in model 3.2 (C), using the Fariss measure, this estimated interaction effect is positive, as expected. Because the Fariss measure predicts *respect* for human rights, it shows the inverse relationship as that indicated by the VDEM index of Physical Violence. Thus the opposite sign is anticipated. Model 3.2 (D) shows the results of the Bayesian random coefficient, random intercept model, for which I allowed the estimated impact of FVI to vary across countries. Here we see estimates consistent with the other estimations.



Finally, inferences are best made by examination of the marginal effects plots. Figure 3.1 shows the marginal effects produced by simulating the range of the interaction from the hierarchical model in Table 3.2 (D), although marginal effects plots from all models are highly similar. Thus, these are the full models but estimating for both VDEM Regression and then in the second plot for Respect for Human Rights practices. We see that sanctions have much different impacts depending on the level of financial vulnerability. When FVI is low and countries are financially secure, then sanctions increase the future level of repression significantly, in keeping with the literatures previous findings. However, as FVI increases approximately past its mean value, the future level of repression declines significantly. Conversely in the Fariss plot (B), we don't find strong evidence that sanctions reduce future levels of human rights practices when FVI is low,

Figure 3.1: Marginal Effect of HR Sanctions



but we see that as FVI increases sanctions significantly improve the level of respect for human rights.

Consequently, we can see that the sub-measures of vulnerability seem to have a strong mediating influence on the impact of human rights sanctions on government repression, although in some cases it depends on context. We recall that short-term debt is only significant in a triple interaction with the level of debt, and the marginal effects plot for liabilities does not appear strongly supportive although it appears very close to conventional levels of significance (and, were we to reduce the credible intervals to 90% widths, it would be so). However, considering the multidimensional nature of overall risk the best analysis resides from the FVI index itself. In considering the FVI index we find the strongest evidence and is robust to multiple model specifications, and appears to have a strong impact across a range real world values in the data.

## **Conclusion**

The literature on the use of economic sanctions has always largely held that these sanctions negatively influence human rights abuses, in addition to a range of undesirable features such as eroding democracy and political rights, media freedoms, and potentially harmful social costs. Recently, it has been shown that human rights sanctions can have positive effects on human rights practices but for external actors. This paper thus makes an important contribution to the literature by demonstrating how sanctions can meaningfully lead to positive human rights improvements even for sanctioned countries. By examining specific cases of vulnerability and then developing an index of this vulnerability, we can more clearly discern how leaders fear they cannot sustain the costs of sanctions when their economic is financially vulnerable. This

also leads us to an improved understanding of the specific tools which may be more useful in deploying sanctions in ways that lead to the positive outcomes sanctions are designed to impose.

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