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BORROWED TIME: SOVEREIGN FINANCE, REGIME TYPE, AND LEADER SURVIVAL

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This study explores the conditional influence of sovereign credit on leader survival. We specifically focus on credit's heterogeneous effect on leadership survival across regimes. We argue that non-democratic leaders are more sensitive to credit access and cost than democratic leadership. We use event history analysis to test the conditional relationship between sovereign credit and leader tenure from 1981 to 2004. Examining both domestic and global determinants of credit access and costs, our findings are consistent with the assertion that non-democratic leadership survival is linked to credit even when addressing issues of endogeneity.

1. INTRODUCTION

A prominent portion of the political science literature focuses on the bargaining exchanges between leaders and domestic groups and how policies emerge from these domestic processes. As part of the examination of these processes, researchers have looked at what factors affect both leaders and domestic groups' bargaining advantages, including the role of government revenue. In sum, the general consensus in this literature contends where fiscal resources originate from can constrain (enable) leaders to pursue policies that jeopardize (protect) a leader's position of power.

Given the importance of fiscal revenue sources to domestic bargaining dynamics, scholars have looked at the effect of oil production and foreign aid on political survival processes. We extend this literature by examining the role of sovereign credit – the financial resources governments borrow for fiscal purposes. While previous studies have conceptualized sovereign credit as a non-tax fiscal resource, we assert that credit's unique qualities affect domestic processes differently than other non-tax resources like oil and foreign aid. We argue that sovereign credit not only affects the domestic bargaining process but it also affects this process differently across various regime types.

Three factors suggest that credit is more important to non-democratic, relative to democratic, leadership survival. First, democratic institutional constraints prevent leaders from abusing sovereign credit access for personal political survival purposes. Second, democratic leaders get less political survival utility from credit because of their incentives to allocate public goods. Conversely, non-democratic leaders are more likely to use credit to allocate concentrated private goods to bolster political support. Finally, the lower discount rates of politicians in democratic regimes restrain the use of credit for short-term political survival purposes. In sum, while democratic leaders may be more sensitive to the preferences of their tax-paying constituents, they are less inclined to abuse borrowed funds for short-term political gain.

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Our argument focuses on both domestic and global determinants of credit access and costs. While most credit-related research focuses on state-specific creditworthiness, we assert that global capital liquidity can affect domestic political processes as well. Using event history analysis, we examine the role of credit access and costs in political survival processes and find that non-democratic leaders are much more likely to survive with better creditworthiness, whereas democratic leadership survival is not affected as much by sovereign creditworthiness.

Our argument and subsequent findings have several important implications. First, our analysis suggests factors that allow democracies to obtain better terms in the sovereign credit market, such as institutional constraints, also discourage democratic leaders from abusing credit access for personal political gains. This insight adds to our understanding of how states can access credit at affordable costs. Our results suggest that democracies are not only getting better terms of credit because of the institutional constraints on the decision to default but also because of incentives to avoid misusing credit for political survival purposes.

In addition, we provide evidence that sovereign credit, like other international capital flows, has a substantively interesting effect on leader survival. However, we demonstrate that credit's role as a fiscal resource is complicated by heterogeneity across regimes. While credit allows governments to raise revenue without relying on a domestic tax base in the short run, the promised obligation to repay debt in the future does not completely alleviate leaders' domestic obligations to their tax base and winning coalition. It is an important time to consider credit's role in politics, particularly in non-democratic regimes. China recently began to offer treasury bills in the London market with success.[1] In addition, natural resource-dependent states have turned to the credit market to compensate for lower commodity revenues.[2] These are just a few examples of the importance of sovereign credit for governments, a financial asset that accounts for 20% of global financial flows (Tomz and Wright, 2013).

The rest of this study is structured as follows. First, we review the domestic revenue bargaining literature to provide context to the role of credit in political survival processes. Next, we present our argument as to (1) why credit is important in prolonging leaders' tenure and (2) why this effect is more prominent in non-democratic regimes. Then, we test our arguments with survival models using the *ARCHIGOS* dataset on leadership and data on domestic and global credit access. To address the potential endogenous relationship between credit and leadership tenure, we employ several strategies including the use of an instrumental variable to parse out the direct effects of our argument. We also present several robustness model specifications to ensure the validity of our empirical inferences. Finally, we discuss further implications of our results and speculate on future research avenues related to this topic.

2. FISCAL REVENUE AND POLITICAL SURVIVAL

Government revenue is central to a leader's ability to remain in office since revenue facilitates policies that satisfy constituents. However, there are constraints on leaders,

[1]"China completes first London debt sale" by Elaine Moore in London and Gabriel Wildau. *Financial Times*, October 20, 2015. http://www.ft.com/intl/cms/s/0/01bfe6aa-76e1-11e5-8564-b4bb9a521c63.html#axzz3xFZz7EH2

[2]"Saudi Arabia seen opting for debt to fill fiscal gap," *Reuters*, June 21, 2015, https://www.zawya.com/story/Saudi_Arabia_seen_opting_for_debt_to_fill_fiscal_gap-GN_21062015_220646

as revenue is scarce and often drawn from the same constituents that leaders are attempting to satisfy. When others own the revenue resources that a leader needs, the bargaining position of the leader decreases, making her subject to the demands of others (Levi, 1988, p. 12).

However, there are sources of revenue that are not owned by constituents or other domestic groups, which can help increase the domestic bargaining position of a leader. Revenue sources such as natural resource wealth reduce a government's short-run dependence on taxed revenue (McDonald, 2010, p. 1096). These politically "free" revenue sources help leaders insulate themselves from making concessions to domestic groups. In general, these resources provide leaders greater autonomy and allow leaders to remain in office longer. "Free resources" can help leaders maintain their power by solidifying the loyalty of a leader's support coalition or by purchasing the new loyalty of opposition groups (McDonald, 2011, p. 152). In addition, these resources could be used to repress opposition groups or threaten to repress potential dissenters.

Given the importance of revenue in the domestic bargaining process, an emerging literature has begun to focus on a number of domestic and foreign revenue sources that affect the political survival of leaders. For example, Morrison finds that non-tax revenue helps stabilize regimes, in both democratic and autocratic regimes (Morrison, 2009). Bueno de Mesquita et al. (2003, pp. 200–205) examine kleptocracy and the rents from black market currency exchanges as opportunities for small winning coalition leaders to exploit for the benefit of political cronies. Other scholars have examined the role of foreign aid and remittances in regime survival and leader tenure (Lai and Morey, 2006; Wright, 2009; Bueno de Mesquita and Smith, 2010; Kono and Montinola, 2009; Licht, 2009; Ahmed, 2012). Researchers have found mixed results on foreign aid's effect on leadership turnover, although regime type appears to be a significant mediating factor (Lai and Morey, 2006; Bueno de Mesquita and Smith, 2010; Licht, 2009).

Some scholars have classified government borrowing, or sovereign credit, as a non-tax or "free" resource (McDonald, 2010; Morrison, 2009). For example, Morrison finds that sovereign credit has similar effects on regime stability as foreign aid (Morrison, 2009). Loans from the IMF or World Bank are often forgiven or rolled over into new loans, which makes these "political" loans more similar to foreign aid packages than loans floated in markets where investors expect repayment. In many cases, states have to ask for loans from the IMF or World Bank as a last resort because credit markets would not provide them the needed capital. Given that the IMF, World Bank, and some individual states act as lenders of last resort, regimes receiving these loans – which we designate as "political" loans – have different repayment expectations than if they were receiving loans from a private market – which we designate as "market" loans. States often take political loans with expectations that they will be forgiven in the future (Easterly, 1999). With these expectations, loans from governments or international organizations should have similar effects on political survival as foreign aid. Likewise, loans from other countries or from the IMF or World Bank have different motivations than loans that originate from commercial and secondary capital markets.

Market sovereign credit differentiates itself from other types of non-tax revenue in that there is an obligation to repay in the future. Given that market lenders have expectations of repayment, a market loan is a promise by the government to repay its debt in the near or distant future. This repayment is akin to a tax on the future, as

governments will have to find new revenue sources, most likely through taxes, to meet their market debt obligations.

Once states receive credit, it provides both political and economic benefits. Economically, credit provides a tax-smoothing effect, promotes macroeconomic stability, and generally lowers the short-term tax burden on society (Schultz and Weingast, 2003). More importantly for leaders, there are also political benefits from borrowing. Rulers' domestic bargaining position increases as their economic dependence on constituents decreases in the short run (Levi, 1988). Rulers who do not have to depend on their citizens for tax revenue or other economic resources have a freer hand in enacting policy (McDonald, 2009). Constituents facing lower tax rates will be less inclined to oppose government policy, thereby isolating the government from societal pressure in the short run.[3] We assume that political constituents have finite time horizons or are uncertain of future costs of borrowing in terms of interest rate, thus will be less inclined to pressure leaders who borrow in the present. We believe this is a reasonable assumption that is supported by strong theoretical arguments (Buchanan, 1976; Wagner, 1976) and a number of empirical studies (Banzhaf and Oates, 2013; Ricciuti and DiLaurea, 2003; Seater, 1993).[4]

Leaders can use credit to shield the public from current spending but unlike grants or natural resources sales, borrowed sums require repayment. In the long run, when debt obligations become due, leaders will face additional pressures from their constituents if the government has to increase taxes to meet debt obligations. Therefore, market-oriented sovereign credit is distinct from other non-tax revenue given long-term obligations to repay debt. If a state can maintain its creditworthiness, these long-term costs will be minimal because the sovereign will be able to maintain low borrowing costs to turnover debt. However, investors may increase the borrowing costs (i.e., interest rates) if governments abuse credit, limiting the long-term benefits of credit. In addition, global capital conditions may affect states' credit access and costs, thus affecting domestic political processes.

In the next section, we lay out our argument explaining why democratic leaders are less likely to abuse credit for personal political survival objectives, focusing on institutional constraints, incentives to allocate public goods, and differing discount factors across regimes.

3. ARGUMENT

From a domestic bargaining perspective, democratic leaders and elites are theoretically more sensitive to the preferences of their tax base given that tax payers have access to low-cost office removal mechanisms. Therefore, if democratic regimes can obtain credit, they may be able to ease the short-term burden imposed on their tax base and benefit from this additional source of revenue. However, while democratic leaders may

[3]Paler (2013) finds that taxes motivate citizens to monitor governments' fiscal policies.

[4]The Ricardian equivalence theorem (first outlined by David Ricardo and later revitalized by Barro (1989)) suggests that borrowing does not necessarily relieve tax payers, as they will curtail spending in the present in anticipation of higher taxes in the future to pay for a state's debt. The empirical validity of this theorem only holds if the capital markets are assumed to function perfectly with no liquidity constraints, which is unlikely. In addition, even Ricardo (1951, p. 186) saw limited empirical value to his theorem given that "people who pay taxes never estimate them, and therefore do not manage their private affairs accordingly." O'Driscoll (1977) argues that Ricardo's theory on the relationship on taxes and debt should really be a "non-equivalence theorem," which is consistent with our argument.

face stronger domestic bargaining pressures, we argue that they are less likely to use credit access to alleviate these pressures and, thus, their political survival will be less of a function of credit access and credit costs.[5]

To explain why democratic leaders are less likely to use credit for personal political gains, we first look at the institutional constraints that these leaders face. There is an extensive literature, well supported with empirical evidence, that contends that democracies receive better terms of credit because budgetary powers are diffused through the government (Beaulieu et al., 2012; Biglaiser and Staats, 2012; North and Weingast, 1989; Saiegh, 2009; Schultz and Weingast, 2003). This diffusion of budgetary authority makes it less likely that democratic leaders will make unilateral decisions to default given that democratic leaders are "constrained to obey a set of rules that do not permit leeway for violating commitments" (North and Weingast, 1989, p. 804).

We contend that the same credible constraint logic applies to how leaders use credit. If leaders attempt to use credit to maintain their own political survival, they are more likely to face institutional constraints that would prohibit such behavior. Democratic leaders who attempt to use credit for personal political survival purposes would face resistance from opposition parties that would not want their future election prospects hurt by predatory electoral behavior by incumbent leaders. Leaders may also face resistance from their own parties. Political parties have longer-term interests than individual leaders. Even if elections are lost, political parties are likely to participate in future elections. Therefore, democratic coalitions have incentives to promote long-term policies that can be touted in future elections.

In general, the larger the number of veto players that democratic leaders have in their government, the less likely the leader will be able to use credit for predatory purposes. This assertion is consistent with Tsebelis' veto player framework, which asserts that as the number of veto players increase in a political system, policy stability increases as well (Tsebelis, 2002). We assume that the status quo policy for most democracies is to use credit for the allocation of public goods given the incentives of the political system (discussed in more detail below) and because sovereign investors would be wary to lend to states that did not invest in revenue-generating activities. Therefore, with the larger number of veto players in democracies, democratic leaders have fewer opportunities to deviate from status quo fiscal allocation policies.

In sum, institutional rules reduce the likelihood that democratic leaders attempt to use credit for political survival purposes. In support of these assertions, more veto players are associated with more inertia in budgetary matters (Tsebelis, 2002; Tsebelis and Chang, 2004). Governments have incentives to promote this inertia, as it reduces uncertainty in policy and promotes general macroeconomic stability. For example, New Zealand bound its own hands with accrual and balance sheet accounting to ensure that governments could not engage in opportunistic behavior as elections approach (Scott, 1996, p. 66).

An additional reason why democratic leaders are dissuaded from using credit for short-term political gains is their valuation of the future. Given that credit is a promise of repayment in the future, the use of credit for either short-term or long-term

[5]Democracies do use credit or debt policy for political survival purposes, but this type of behavior is rarer in relation to non-democracies. One example appears to be Iceland in 2011, which brought its decision default directly to referendum. This example highlights how debt and credit can benefit or harm different segments of a democratic society (Curtis et al., 2015).

purposes will be a function of leaders' discount factors. We argue that these discount factors vary across regime type, specifically that non-democratic regimes discount the future more than democratic regimes.[6] Therefore, non-democratic regimes will be more willing to use credit as regime-stabilizing revenue because they discount the future obligations of credit.

There are several reasons to expect that non-democratic leaders and elites have higher discount factors than democratic leaders and elites. First, while leaders in democracies may serve shorter tenures, their winning coalitions (i.e., political parties) have longer-term interests because they are likely to participate in future elections (Axelrod, 1984; Blake, 2013; Chiozza and Goemans, 2004; O'Donell, 1994). Even in defeat, parties survive to compete in future elections and continue to participate in government. This gives leaders and parties incentives to think beyond the next election. Non-democratic leaders and coalitions are rarely allowed to participate in government once they are ousted.

In addition, while non-democratic leaders have longer tenures than democratic leaders, non-democratic leaders are more likely to be removed by irregular means.[7] Regimes with small winning coalitions (and thus narrow political interests) are more attractive targets to overthrow and thus are more unstable (Ndulu and O'Connell, 1999). Because dissent and opposition are co-opted into democratic governments, leadership turnover in democracies is institutionalized and expected. Conversely, non-democratic leaders are more concerned about the frequency of irregular turnover, which generally increases the instability of a regime. Leaders in more unstable regimes will be more likely to have higher discount factors (Blake, 2013; Cheibub, 1998; Geddes, 1994; Levi, 1988; Li, 2009). In turn, higher discount factors provide fewer incentives to allocate fiscal resources to policies that will benefit a country in the long run (Hankla and Kuthy, 2013). Instead, insecure leaders are motivated to funnel resources to their supporters to maintain power. This argument is consistent with evidence from Africa that executive transitions were associated with increases in predatory tax rates (McMillan, 2001).

Non-democratic leaders not only have to worry more about irregular removal than democratic leaders, they also have to be more concerned about their fates after office. Goemans (2008) finds that 80% of leaders who lost office through irregular measures faced exile, jail, or death. Since non-democratic leaders are much more likely to be removed through irregular means, the stakes of political survival are much higher in comparison to their democratic counterparts. This motivates non-democratic leaders to be more concerned about short-term political survival prospects rather than the long-term status of the state.

The higher uncertainty about the political future in non-democracies can also increase discount factors (Levi, 1988). Schedler (2013) notes that uncertainty can take two forms in authoritarian-like regimes. Institutional uncertainty results from challenges to leaders' rule and informational uncertainty results from the inability to gain full knowledge about these challenges. In regimes where leadership turnover is regular and institutionalized, leaders should have a clearer expectation about their future

[6]See Easterly (2002), O'Donell (1994), Oatley (2010) for similar assertions.

[7]Irregular removal is "when the leader was removed in contravention of explicit rules and established conventions." (Goemans et al., 2009). These removals are commonly the result of coups, revolts, and assassinations.

prospects in office and what threats challenge these prospects. In non-democracies, where leaders are uncertain about if/when leadership turnover will happen and who will orchestrate the turnover, discount factors should increase.

Furthermore, the repression of opposition groups compounds this issue in non-democratic regimes as opposition groups have larger incentives to hide motives and actions. This decreases the information about the future, thus increasing a leader's discount factor. In these regimes, a tension builds, where the more successful a government is in repressing the opposition, the more uncertain leaders are about how much support they have in the country. Wintrobe notes that even long-tenured leaders, such as Stalin, Mao Zedong, and Marcos, exhibited symptoms of anxiety and paranoia about maintaining power as a result of uncertainty (Wintrobe, 1998, p. 335). In democratic regimes, the opposition buys into the system, even when it is out of power. Thus, the opposition has more incentive to reveal preferences and strategies, reducing general uncertainty in democratic governments.

The final component of our argument examines leaders' incentives in different regimes to allocate either public or private goods. We argue that democratic leaders have incentives to allocate public goods, which will have less marginal personal political benefit. Drawing on selectorate theory, we assume that leaders will attempt to maximize the utility of the members of their winning coalition – subject to fiscal constraints –to maximize the probability of maintaining office (Bueno de Mesquita et al., 2003). Given their motivations to maintain political power through the maximization of winning coalition members' utility, leaders have incentives to use government revenue for the allocation of public or private goods to retain the loyalty of their winning coalitions. While the formal treatment of selectorate theory does not consider deficit spending, Bueno de Mesquita et al. (2003, p. 162) conjecture that small winning coalition leaders will engage in deficit spending more than large winning coalition leaders. Consistent with this conjecture, we expect small winning coalition leaders to use debt to increase the utility differences between coalition members and coalition non-members. In smaller winning coalitions (i.e., non-democracies), members receive a higher utility from private goods allocation than non-members.[8]

We expect that as the winning coalition grows, and states become more democratic, leaders have more incentives to allocate more public goods relative to private goods. The effective price of private goods increases as the size of the winning coalition increases, but the price of public goods remains constant. In other words, democratic leaders find it more difficult to buy off key supporters with private goods because of the expense. Therefore, democratic leaders will be more likely to rely on public goods as the size of the winning coalition increases. The provision of public goods is less likely to affect the electorate evaluation of the leaders in the short term because, by definition, members of the electorate cannot be excluded from the benefits of public goods. This is why Levi thought that while "elections raise the discount rates of challenged [democratic] rulers. . .the response [of the ruler] is more likely to be unkeepable campaign promises than plunder" (Levi, 1988, p. 179).

This component of our argument is consistent with Wintrobe, whose political economy approach to dictators' allocation decisions demonstrates that fiscal policy favors small, elite groups in non-democratic regimes (Wintrobe, 1998). There are numerous

[8]DiGiuseppe and Shea (2015) use a similar argument to argue that changes in creditworthiness will affect the political survival of non-democracies leaders more than democratic leaders.

examples that demonstrate this fiscal logic, including the Marcos regime in the Philippines, military regimes in Latin America in the 1970s, the Duvaliers in Haiti, and the South African *apartheid* system (Wintrobe, 1998).[9] In all of these regimes, leaders allocated resources to favored groups in exchange for political support or loyalty. Similarly, these regimes would use their influence and resources to repress non-winning coalition group members, or at least ensure that these groups do not enjoy the benefits of the governments' distributive policies. Again, South Africa, or the more extreme example of Nazi Germany, exemplifies this behavior.

In addition to allocating fiscal resources to supporters, non-democratic leaders can use credit to establish rent-seeking opportunities for their winning coalition. Bueno de Mesquita et al. (2003) examine how small winning coalition regimes are more likely to be associated with rent-seeking behavior such as black market premiums on exchange rates, corruption, and misappropriation of construction funds. However, rent seeking is a competitive market dynamic (Krueger, 1974) that does not always benefit winning coalition members. Sovereign borrowing, particularly on external markets, provides leaders access to foreign capital that helps facilitate rent-seeking behavior to benefit winning coalition members. For example, access to foreign capital allows the government to better control black market exchange rates. In addition, foreign capital allows the government to purchase more luxury imported goods, which can be distributed to reward-winning coalition loyalty.[10]

Thus far, we have argued that non-democratic leaders will be more willing and able to use their governments' credit to buttress their short-term political survival. In sum, because of lower institutional constraints, higher discount factors among non-democratic leaders, and the effectiveness of allocating private goods to winning coalition members, non-democracies will be more willing to use credit for political survival purposes and receive more benefit from this behavior than their democratic counterparts. As a result, non-democratic leadership survival will be more sensitive to changes in credit access and credit costs.

Non-democratic leaders without access to credit will have greater difficultly holding onto office than non-democratic leaders with access to credit. In addition, non-democratic leaders who can only borrow at higher costs (i.e., higher interest rates) will be less likely to hold onto power compared to non-democratic leaders who borrow at low costs. While the political importance of credit to non-democratic leaders make them more willing to borrow at higher costs, higher interest payments draw fiscal resources away from policies that can help leaders stay in power (Oatley, 2010). For example, the Argentinean military regime of the late 1970s and early 1980s relied heavily on debt to increase its military budget. However, rising credit costs as a result

[9]While some of these regimes faced international pressure for their domestic policies, credit access was still available. There are several examples of governments facing trade sanctions for predatory behavior but were able to still borrow. For example, South Africa's apartheid regime continued to borrow from private banks through the 1980s, although the UN Security Council imposed trade sanctions in 1985. In 1997, the IMF cut lending off to Croatia because President Tudjman incited violence against political opponents and implemented predatory fiscal policies. Despite international scorn, private banks lent an additional $2 billion to the Tudjman government before his death in 1999 (Jayachandran and Kremer, 2006, pp. 82–83).

[10]It may be the case that the debt used by non-democratic leaders for private political gain will be considered illegitimate or odious by subsequent regimes. If this were an accepted norm, investors would be wary to lend to any regime that used credit for the allocation of private goods. However, the concept of odious debt is not a widely held international norm given that any regime could declare inherited debt as illegitimate. Therefore, odious debt does not appear to affect lending decisions.

of a global capital shortages and concerns about Latin American creditworthiness caused interest payments to overwhelm the government and the economy. To make up for lost revenue, the military government pursued an inflation and debasement strategy to maintain military spending (Romero, 2002). After this fiscal strategy proved fruitless, the government attempted to consolidate power by initiating a diversionary war with Great Britain over the Falkland Islands. The war was a failure, and the military regime was soon replaced by a democratically elected government (Torre, 1993).

From this discussion we derive the following general hypothesis: *Better access to credit increases the likelihood that non-democratic leaders will maintain political power to a greater extent than credit affects the likelihood that democratic leaders maintain political power*. There are two components to this general conditional hypothesis. First, credit access costs are negatively associated with leader tenure. Second, we expect a larger marginal effect for non-democracies than democracies. While this study focuses mostly on the logic of non-democratic leaders' incentives to use credit for political purposes, we do not rule out the possibility that democratic leaders' credit use also produces political benefits. The use of credit for public good allocation may help democratic incumbents maintain power. However, given the argument above and the possibility that the benefits of public goods may take longer to materialize, we expect the marginal effect of credit to be higher for non-democracies.

Credit access and credit costs are affected by a myriad of domestic and global factors. Most studies on credit focus on domestic determinants of creditworthiness. Indeed, sovereign credit agencies assign credit ratings based on domestic economic, financial, and political conditions. These ratings are a function of the credit raters' assessment of the likelihood of default and have a direct effect on states' ability to access credit and on states' costs of borrowing. To remain consistent with this literature, we posit the following formal hypothesis:

H1 As states' credit ratings improve, the likelihood of maintaining political power increases more for non-democratic leaders than democratic leaders.

However, the existing literature on sovereign credit largely ignores the global determinants of credit access. Oatley (2011) argues that the neglect of global and macrofactors in empirical models is a serious shortcoming of current international political economy research that often results in omitted variable bias. Put simply, global capital liquidity greatly affects whether a state can access credit or not, independent of domestic creditworthiness attributes. The more credit in the global market, the more likely states will be able to access the market and the more likely the costs of credit will decrease. Therefore, we posit that

H2 As the global supply of sovereign credit increases, the likelihood of maintaining political power increases more for non-democratic leaders than democratic leaders.

We expect that the effects of the domestic and global determinants of credit on leadership tenure will not only be conditional on regime type but also on each other. Specifically, we argue that states with the lowest credit ratings will be less affected by changes in global liquidity. In other words, states considered the most credit unworthy for domestic reasons will have trouble accessing credit markets under any liquidity conditions. As states credit rating increase, they will be more sensitive to changes in global liquidity. Given these expectations, we posit the following conditional hypothesis:

H3 The most credit unworthy non-democratic leaders will experience limited changes in their risk of removal as a result of changes in global credit liquidity.

4. RESEARCH DESIGN & ANALYSIS

To test our hypotheses we require a dependent variable that captures the length of a leader's tenure and the circumstances surrounding her exit from office. We start with a dataset of leader tenure, the *ARCHIGOS* dataset of leaders (Goemans et al., 2009). While comprehensive, the dataset provides limited information regarding the political circumstances surrounding a leader's exit from office. More specifically, the data do not sufficiently distinguish departures resulting from political and non-political factors. As a result, others have attempted to append the *ARCHIGOS* data to address this shortcoming by identifying departures from office that likely stem from non-political sources (Clark et al., 2013; Crespo-Tenorio et al., 2013; Licht, 2009).

Since our argument stresses credit's ability to provide political benefits to help leaders remain in power, we are less concerned with departures from office that are unrelated to a leader's political performance. For example, leadership change resulting from term limits can reflect a political party's success rather than a political failure if the party retains power. To eliminate this and similar noise from the data, we adopt a modified version of Licht's supplement to the *ARCHIGOS* dataset, which identifies "winning coalition failure" (Licht, 2009). Licht codes failure as an "irregular" departure from office, as identified by *ARCHIGOS*, or a "regular" departure followed by a successor who is neither an heir nor political successor. We further restrict the operation of winning coalition failure by excluding removal by foreign powers or unsupported assassination from the failure category. We treat tenures without winning coalition failure as censored observations. We are confident that these coding decisions more accurately capture departures from office stemming from political circumstances, which are central to our theoretical framework.[11]

A government's credit access and costs are generally dictated by two factors. The first, a state's individual default risk reflects the domestic factors that influence creditors' perceptions that a state will make good on its debt commitments. The second, global capital liquidity captures the supply and demand of global capital that is unrelated to a country's domestic economic or political circumstances. Our hypotheses suggest that both factors influence leader survival, and thus we adopt variables that capture each influence independently.

To measure the sovereign creditworthiness of a leader's state, we rely on *Institutional Investor* (*II*) magazine's country credit ratings. The ratings reflect the collective assessment of sovereign risk by "senior economists and sovereign-risk analysts at leading global banks and money management and securities firms" surveyed by the magazine biyearly and then weighted in concordance with the expert's firm's investments (D'Ambrosio, 2005). The measure spans from 0 to 100, with 100 representing the lowest default risk. We employ the yearly mean of a country's biyearly ratings in our analysis, which we then lag by 1 year to minimize the possibility of an endogenous relationship.[12]

[11]We demonstrate that our results are robust to the original ARCHIGOS coding in the Appendix S1.

[12]Researchers in both economics and political science have often employed the *II* ratings to capture sovereign credit risk in empirical analyses (Ahlquist, 2006; Allen and DiGiuseppe, 2013; DiGiuseppe et al., 2012; Reinhart and Rogoff, 2008; Rose, 2005)

The *II* measure holds several advantages over the well-known letter-grade ratings published by credit rating agencies such as Standard & Poor's. First, the measure has greater cross-sectional coverage and diversity. States from all levels of development are included in the sample, where letter grades typically include highly developed states and a few emerging market sovereigns ratings that are more democratic than the excluded population. The measure also provides greater temporal coverage. Many emerging market states only received published letter-grade scores beginning in the mid-1990s, whereas many other states did not receive letter-grade ratings until the next decade, if at all. The *II* ratings, in contrast, provide coverage of a variety of states from 1980 to the present and thus avoid issues of selection bias that plague analyses employing agency ratings (Beaulieu et al., 2012). In all, our primary sample includes leaders from 149 states rated by *II* magazine, 125 of which are rated for at least 10 years.[13]

Since the *II* rating largely captures a state's individual risk absent systemic forces, it is necessary to also explore the effect of changes in global liquidity to test *H2* and *H3* and also to control for the impact of global conditions in the test of *H1*. To capture changes in global capital availability and also assess its conditional impact on winning coalition failure, we include the yearly average of the 6-month London Interbank Offer Rate (LIBOR) on US$ denominated currency and its interaction with regime type. The LIBOR rate reflects the weighted average of bank funding costs reported by leading banks and is often used as a baseline for loans to non-bank borrowers. Since the 1960s, sovereign loans have typically been priced by first factoring in the global price of credit as measured by the exogenous LIBOR rate and then adding a risk premium for a state's individual credit risk (Frieden, 1991, p. 55). As credit supply decreases and LIBOR increases, the cost of international capital for individual states also increases. Together, our central variable choices restrict our analysis of leader-years from 1981 to 2004.

To assess the conditionality of creditworthiness and international liquidity on leader survival, we employ a dichotomous indicator of democracy compiled by Cheibub et al. (2010). Democracies are identified as states where the chief executive is chosen by popular election or an elected body, the legislature is popularly elected, more than one party competes in elections, and changes in power are governed by electoral rules identical to those that the previous incumbent faced upon entering office (Cheibub et al., 2010, p. 69). This operation coincides with our conception of democratic regimes concerning responsiveness to constituent preferences, popular participation, institutional constraints, and the certainty surrounding changes in power as it relates to a leader's discount factor.[14]

[13]We also have concerns about bias and unreliability in S&P ratings. Scholars have found a "home bias" in sovereign credit ratings based on the location of the agency (Fuchs and Gehring, 2013) and the home origin of the credit analyst (Cornaggia et al., 2014). In addition, the variance of analyst characteristics – such as education or how long they have been analysts – distorts ratings (Fracassi et al., 2015). Finally, the credit rating agencies' incentive to increase market share also distorts ratings. Former S&P rating analyst, David Jacob, observed other analysts adjusting rating based on market pressures rather than country's creditworthiness ("Banks Find S.&P. More Favorable in Bond Ratings" by Nathaniel Popper. *New York Times*, July 31, 2013. Accessed January 24, 2015. (http://dealbook.nytimes.com/2013/07/31/an-analysis-finds-a-bias-for-banks-in-s-p-ratings/?_r=0).)

[14]We acknowledge other possible alternative measures that could have been used, including (Bueno de Mesquita et al., 2003) W measure. We examine W in the Appendix S1 and find largely consistent results. However, given the data-demanding nature of our conditional argument (i.e., triple interaction), we prefer to rely on a binary measure of regime type.

We also include several potentially confounding variables that relate to both our independent and dependent variables. First, we control for economic development and economic growth with the log of real gross domestic product (GDP) per capita and its lagged yearly percentage change to isolate general economic factors that may influence both creditworthiness and leader tenure. Wealthy and growing countries have a greater ability to repay their debts than poor and stagnant countries and consequently have lower credit risk (Cantor and Packer, 1996). By including these controls, we can be confident that creditworthiness is not simply capturing a state's level of economic development and growth, which likely have independent effects on a leader's political survival. We also control for trade openness, as it is also correlated with creditworthiness and potentially with leader survival (Rose, 2005). We measure trade openness as the log of the sum of imports and exports over GDP. Each of these variables is drawn from the World Development Indicators dataset.[15]

4.1 Duration Analysis of Winning Coalition Failure

Our primary analysis employs variations in the Cox proportional hazard model to estimate the duration of a leader's tenure as a function of a state's sovereign creditworthiness, global capital liquidity, regime type, and several control variables. We proceed to test the robustness of the results to the successive inclusion of several potentially confounding variables. We then use two methods to demonstrate that the results are not likely a product of endogeneity.

A central benefit of the Cox model is that the baseline hazard is left unspecified and thus the model makes no assumptions regarding its functional form (Box-Steffensmeier and Jones, 2004, p. 47). For our purposes, and more generally, this is important because there is little evidence to justify one functional form over another. One cost of this flexibility is the assumption that the covariate effects are proportional over the course of a subject's duration in the sample. Violating this assumption can generate biased estimates for both the non-proportional covariates and other covariates in the model. To protect against this bias, we identify variables that violate this assumption with the appropriate tests and include the interaction of each offending variable with the log of tenure in the model (Box-Steffensmeier and Zorn, 2001). The basic Cox model is specified as follows: $h_{ij}(t) = h_0(t)exp(\mathbf{X}_{ij}\beta)$. $h_0(t)$ is the baseline hazard and $\mathbf{X}_{ij}\beta$ represents the covariates and their estimated coefficients for leader j of country i.

Our hypotheses suggest that creditworthiness and international capital liquidity are both conditioned by regime type and that the effect of global liquidity is partially dependent on a state's credit terms. To estimate these interactive effects in the same model, we include four multiplicative terms: an interaction for each of our central independent variables with regime type, an interaction between the two independent variables, and a final term that multiplies the two independent variables and regime type. Thus, $\mathbf{X}_{ij}\beta$ takes the following form:

[15]World Bank Group (2012).

$$\begin{aligned}\mathbf{X}_{ij}\beta = {} & \beta_1 Dem_{ij} + \beta_2 II_{ij} + \beta_3 LIBOR_{ij} \\ & + \beta_4 (Dem \times II)_{ij} + \beta_5 (Dem \times LIBOR)_{ij} \\ & + \beta_6 (II \times LIBOR)_{ij} + \beta_7 (Dem \times II \times LIBOR)_{ij} \\ & + \beta CONTROLS_{ij} + \epsilon_{ij}\end{aligned}$$

Table 1 presents the coefficients and standard errors of four Cox models. Model 1 presents the estimates from a standard Cox model.[16] In Model 2, we include a shared-frailty term to capture unobserved country-level heterogeneity. This approach is analogous to including random effects in a linear regression model (Box-Steffensmeier and Jones, 2004). Including a frailty parameter is important for two reasons. First, instability and high leader turnover may adversely affect a country's ability to secure credit and this influence may be conditional on regime type. The shared-frailty term helps capture unobserved political instability that may otherwise contribute to an endogenous relationship in our model. Second, the shared-frailty term addresses other country-specific factors not captured by our explanatory variables.

Next, Model 3 presents another variation in the Cox model that estimates separate baseline hazards for democratic and non-democratic. Given our hypotheses regarding regime type's conditional role, we want to be certain that differences in the hazards across regime type are not driving our findings. Estimating separate baseline hazards allows us to remove direct variation due to differences in the hazard rates across regime type and thus allows us to isolate regime type's conditional effect on our relevant covariates.[17] As such, this gives us more confidence that the different effects of creditworthiness and global liquidity across regime type are not driven by the different baseline hazard rates of democracies and non-democracies.

Model 4 presents an additional stratified Cox model that excludes leaders of states with membership in the Organization for Economic Cooperation and Development (OECD) from the sample. OECD states are wealthy, advanced industrialized states that typically adhere to market-based principles and have preferential access to credit markets. Removing these observations from the sample provides an opportunity to test the hypotheses among states that have similar relationships with creditors and may be more sensitive to the global supply and demand of credit. States outside the industrial core may face greater policy constraints to maintain their access to credit and investment (Ahlquist, 2006; Mosley, 2003). As such, these states may pay higher interest rates or lose access to capital if their fiscal policy and use of borrowed funds diverges from creditor preferences. Because these states may have a different relationship with creditors in which they have diminished political autonomy, we believe this model provides a harder test of our hypotheses. Furthermore, one potential criticism of our preferred model is that we pool the leaders of wealthy, democratic states with favorable credit terms and the leaders of states with greater economic and political heterogeneity. Thus, it is possible that results of Models 1–3 may reflect the differences

[16]All models exclude observations from Switzerland because of its yearly rotation of the head of state. Its institutional structure does not provide an opportunity to observe leadership changes due to political concerns and thus we exclude it from our analysis.

[17]Consequently, the model does not estimate a coefficient for the independent effect of democracy, but we still interact our covariates by democracy to capture its conditional influence. We would like to thank an anonymous reviewer for this suggestion.

Table 1 Creditworthiness, Regime Type, and W Failure

	(1) Full sample	(2) Shared frailty	(3) Stratified	(4) Stratified, non-OECD
Democracy	6.145**	5.888***		
	(2.917)	(1.054)		
$IIRating_{t-1}$	−0.0427**	−0.0400**	−0.0334**	−0.0289**
	(0.0178)	(0.0174)	(0.0139)	(0.0137)
$IIRating_{t-1} \times Dem$	0.0409**	0.0400**	0.0287**	0.0505***
	(0.0176)	(0.0175)	(0.0133)	(0.0147)
LIBOR	0.0204	0.0222	0.0186	0.0367
	(0.0586)	(0.0548)	(0.0403)	(0.0407)
$LIBOR \times Dem$	−0.000554	0.00467	−0.00723	0.0404
	(0.0673)	(0.0692)	(0.0521)	(0.0637)
$IIRating_{t-1} \times Libor$	0.00230	0.00218	0.00150	0.00103
	(0.00157)	(0.00159)	(0.00124)	(0.00126)
$IIRating_{t-1} \times Libor \times Dem$	−0.00232	−0.00225	−0.00127	−0.00300*
	(0.00165)	(0.00174)	(0.00134)	(0.00168)
$ln(RealGDPpercapita)_{t-1}$	0.0304	0.00906	0.0943	0.0671
	(0.148)	(0.112)	(0.130)	(0.130)
$Growth_{t-1}$	−2.171***	−2.238***	−1.891**	−2.092***
	(0.712)	(0.846)	(0.801)	(0.806)
$ln(Trade\ Openness)$	−0.124	−0.0401	−0.184	−0.159
	(0.174)	(0.0916)	(0.142)	(0.142)
$Dem \times ln(t)$	−0.787**	−0.748***		
	(0.361)	(0.124)		
Observations	3,248	3,248	3,248	2,577
Leaders	675	675	675	524
Failures	382	382	382	291
θ		0.308***		

Note: Standard errors in parentheses.
*$p < 0.1$, **$p < 0.05$, ***$p < 0.01$.

in political stability in the industrialized and developing world and not differences in creditworthiness despite our inclusion of development, growth, and democracy on the right-hand side. Model 4 suggests that this is not the case.

The numerous interaction terms make it difficult to interpret the coefficients presented in Table 1. As such, Figure 1 illustrates the 95% confidence intervals around the mean percent change in the hazard resulting from a decrease in *II* from one standard deviation above the mean to the mean for each of the four models.[18] The dashed grey lines and solid black lines represent the uncertainty around the estimates of democracy and non-democracies, respectively. For each model, a decrease in credit terms is associated with a positive and significant increase in the hazard of winning coalition failure for non-democratic states. Furthermore, the uncertainty around the percent change in the hazard for democratic states overlaps with zero in each case. In other words, as a non-democratic country's credit terms decrease, its leaders are more likely to experience winning coalition failure. We see no evidence of a similar

[18]The percent change in the hazard is calculated as following: $\%\Delta h(t) = \frac{exp(\beta X_2) - exp(\beta X_1)}{exp(\beta X_1)} \times 100$, where X_1 and X_2 are two different values of the same independent variable. For each model, the percentage change in the hazard and the confidence intervals were simulated from 10,000 draws of the beta and variance–covariance matrices. In the simulations of both models, we hold tenure at 4 years to calculate the values and hold LIBOR at its mean value.

relationship among democratic states. Furthermore, the size of the effect among non-democratic states is non-trivial. Among non-democratic leaders, the standard deviation decrease increases the hazard of leaving office by approximately 86% according to the estimates of Model 3. Among non-OECD states (Model 4) the effect is slightly smaller at 79%.

We employ similar simulations to assess *H2* and *H3*. As we noted above, a state's credit terms are partially determined by global capital liquidity. A tightening (loosening) of the global supply of capital can increase (decrease) the price of borrowed sums and limit the funds a state can borrow. However, as we mentioned, global liquidity is of little consequence to the leaders of states with the poorest credit terms, whom creditors shun even when capital is abundant. As such, the effect of LIBOR on leader survival will be conditional on a state's individual credit rating in addition to regime type. Figure 2 reflects this conditional relationship by displaying the percent change in the hazard resulting from an increase in LIBOR from the mean to a standard deviation above the mean across values of *II* for both democratic and non-democratic states based on the estimates of Model 3. Higher values of LIBOR indicate tighter global credit markets and greater difficulty in accessing credit. As such, our hypothesis suggests that non-democratic leaders should face an increase in the hazard of losing office as LIBOR increases. In each panel, the lines represent the 95% confidence intervals around the mean percent change. The histogram details the observations of *II* for each regime type in the respective panels.

The first panel demonstrates that a standard deviation increase in LIBOR does not have a statistically significant effect on the risk of coalition failure for democratic leaders. The second panel, in contrast, indicates that at lower levels of creditworthiness the effect of LIBOR is not statistically significant from zero. However, among non-democratic states, the effect becomes significant at higher levels of *II* up until a point. Across higher values of *II*, a tightening of international credit markets increases the

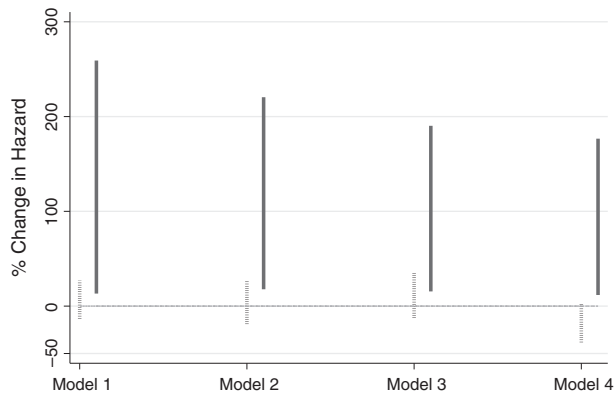

Figure 1. Effect of *II* rating decrease. 95% confidence intervals around the mean percent change in the hazard of winning coalition failure resulting from a change from 1 SD above the mean to the mean for both democratic and non-democratic states based on the estimates of each of the four models in Table 1. The uncertainty around estimates of democratic and non-democratic states is indicated by the dashed bars and solid bars, respectively. Confidence intervals were generated through simulations employing 10,000 draws of the betas and variance–covariance matrices for each of the eight models.

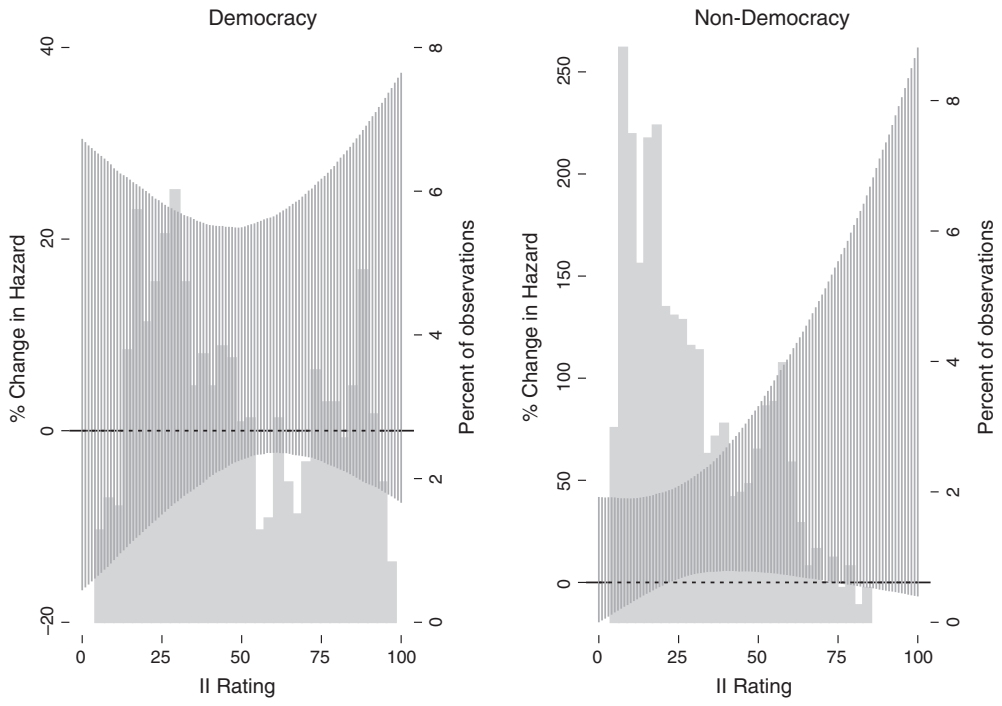

Figure 2. Effect of LIBOR across values of *II* rating (Model 3). 95% confidence intervals around the mean percent change in the hazard of winning coalitions failure across values of *II* Rating resulting from a change in LIBOR from 1 SD above the mean to the mean in democracies and non-democracies. The histogram in the background displays the percentage of observations across values of *II* rating. Confidence intervals were generated through simulations employing 10,000 draws of the betas and variance–covariance matrices.

risk of non-democratic leaders losing office. However, for those leaders with the highest credit terms among non-democracies, the tightening of global credit markets has little effect. It remains unclear if the greater uncertainty at the far end of the right panel is due to lack observations or some other structural factor. However, for a majority of the observations, the results correspond to the expectations of *H2* and *H3*.

Tighter international credit markets should make it harder for non-democratic leaders to remain in office. However, international credit markets should only impact leaders of states who have the prospects of accessing credit markets.[19] Compared to *II*, the substantive impact of global credit liquidity is notably smaller. Where statistically distinguishable from zero, a standard deviation increase in LIBOR is associated with a percent change in the hazard ranging from 22% to 63% based on the estimates of Model 3.

Thus far, our empirical tests are consistent with our expectations. The results show that individual credit terms have a significant and substantive relationship with the tenure of non-democratic leaders, while having no discernible relationship with the

[19]Due to space constraints, we could not present figures for each of the models in Table 1. We present these figures in the Appendix S1. We show that the conditional effect is significant for all non-democratic states above a minimum threshold of *II* according to the estimates of models 1 and 2 and find a similar relationship that presented in Figure 2 for the estimates based on non-OECD states (Model 4).

tenure of democratic leaders. The robustness of our results to different variations in the Cox model demonstrates that our results are not the product of unobserved characteristics of states that may make them more likely to have low credit terms and a high probability of winning coalition failure or the differences in the baseline hazards of democracies and non-democracies. Next, the robustness of our findings to the exclusion of OECD states has two implications. First, the consistency of the results across both samples demonstrates that our results are not a product of the differences between highly developed democratic and creditworthy states and less creditworthy states with greater institutional heterogeneity. Second, the political impact of sovereign creditworthiness is salient even among those states that are thought to be constrained by the policy preferences of creditors (Mosley, 2003).

Next, we test the robustness of our results to the inclusion of several potentially confounding variables and also empirically address the potential for an endogenous relationship between winning coalition failure and creditworthiness.

4.2 Potential Confounders

While the results above are supportive of our argument, several potentially confounding variables may threaten the inferences we have drawn. We successively introduce five such variables to our preferred specification (Model 3). We present the coefficient table in the online Appendix S1 and present substantive impact of our central variables for each model in Figure 3. In each case, the results are largely consistent with those presented above.

The frailty parameter introduced to Model 2 captures unobserved characteristics of a state that remain constant over time, such as a country's proneness to violence and political instability.[20] It does not entirely capture related developments in a state that may emerge and subside during a state's inclusion in the sample. First, a country's stability and distance from major political changes potentially influence both credit terms and leader survival. With this in mind, we control for domestic political violence and regime durability by including the lagged weighted index of domestic conflict from the Cross-Sectional Time-Series Data Archive and the years since a country's previous regime change as indicated by a three-point shift in its Polity score separately (Banks and Wilson, 2012; Marshall et al., 2010).[21]

Block and Vaaler (2004) find that elections generate policy uncertainty, which is often reflected in the risk premia of sovereigns. Thus, we control for the presence of competitive executive elections in the observed year and prior year using data from the Political Institutions and Elections Database (Regan et al., 2009). We then account for the possibility that creditworthiness is associated with aid level by including the natural log of official development assistance (ODA). It is plausible that states with better credit access make more attractive aid targets given that these states have shown competence in fiscal matters. If true, then it may be that ODA revenue, not credit terms, is driving our results.[22] Next, previous studies of creditworthiness have

[20]While we introduce controls to a stratified specification here, we find our results hold up with a shared-frailty specification.

[21]The Banks index captures the extent to which a state experienced guerrilla war, antigovernment demonstrations, political assassinations, purges, riots, and strikes. In subsequent analysis (not shown here) we included the sum of the individual types of violence that are used to construct the index, separately with little change to our central results.

[22]We doubt this possibility given that private credit flows are much larger than ODA flows.

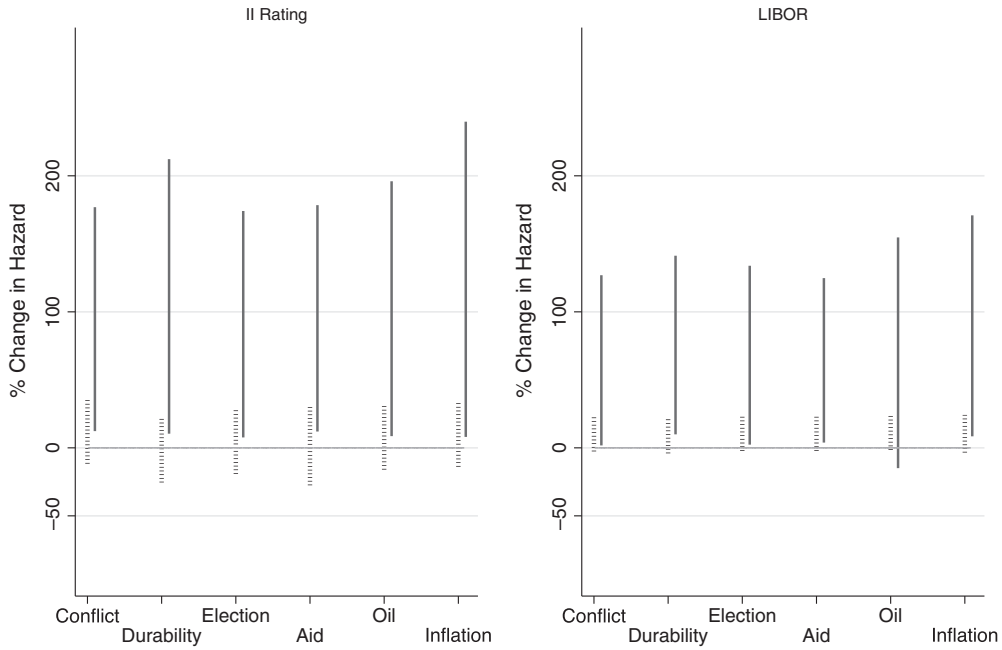

Figure 3. Effect of *II* rating decrease and LIBOR increase with various controls. 95% confidence intervals around the mean percent change in the hazard of winning coalition failure for democratic and non-democratic states across six models, each introducing a different potentially confounding variable. The percent change in the hazard reflects a 1 SD decrease in *II* rating (left) and a 1 SD increase in LIBOR (right). Each of the models is stratified by democracy similar to Model 3. The uncertainty around estimates of democratic and non-democratic states is indicated by the dashed bars and solid bars, respectively. Confidence intervals were generated through simulations employing 10,000 draws of the betas and variance–covariance matrices for each of the eight models.

shown that oil-rich autocracies obtain higher credit ratings (Archer et al., 2007; Beaulieu et al., 2012). As such, energy production and not credit access may explain our results. To account for this alternative possibility, we introduce a control for oil and gas production per capita as collected by Ross (2013). Lastly, we consider the role of inflation as it often serves to minimize debt burdens, where debt is denominated in a country's currency, and can also have independent effects on leader's tenure if excessive.

Again, we employ simulations to assess the substantive impact of our central variables in each additional model. Figure 3 illustrates the 95% confidence intervals around the mean percentage change in the hazard of coalition failure resulting from either a standard deviation decrease in *II* or a standard deviation increase in LIBOR in the left and right panels, respectively, for each of the five models.[23] In both panels, the uncertainty around the percentage change in the hazard is indicated by dashed and solid lines for democratic and non-democratic states, respectively. The effect of *II* is statistically significant across each of the models. LIBOR demonstrates a significant effect across all models except when controlling for oil and gas production.

[23]In simulations to assess LIBOR's effect, we hold *II* at a standard deviation above the mean to coincide with the expectations that its impact is relevant for states with higher credit terms.

4.3 Endogeneity?

We have thus far addressed the potential for endogenous relationship between a state's individual credit terms and leader tenure by lagging *II* 1 year, controlling for time dependence with our model selection, including a shared-frailty parameter, and including variables that may capture channels through which an endogenous relationship is likely to occur.[24] Our results remain robust to these measures, however, we still hold concerns that the causal arrow between creditworthiness and winning coalition failure may run in two directions. In this section, we employ two further strategies to address potential endogeneity.

Typically, researchers address the potential for an endogenous relationship with a two-stage model, in which exogenous regressors are used to identify the primary equation. Unfortunately, no analogous solution exists to address endogeneity within a duration model with time-varying covariates (Box-Steffensmeier and Jones, 2004, p. 47). As such, we abandon the Cox model for a binary outcome model in which we control for a leader's tenure on the right-hand side of the equation by including the log of a leader's tenure in office ($ln(tenure)$).[25]

We follow Wright and employ a probit model in the second stage of a two-stage approach to isolate the potentially endogenous relationship (Wright, 2009).[26] The first stage estimates the predicted value of *II* rating employing all the covariates.[27]

$$\text{First Stage: } IIRating_{i,t} = X_{i,t} + Z_{i,t} + \mu_{i,t}$$

$$\text{Second Stage: } WFailure = \hat{Y}_{II} + (\hat{Y}_{II} \times Dem) + X + \epsilon$$

First, we require regressors exogenous to winning coalition failure to predict *II* in the first stage. Sufficient variables must correlate with *II* and the errors of the first stage (μ) and must be orthogonal to the errors of the second stage (ε). There is little guidance in the credit rating literature to assist variable selection. However, we were able to uncover several indicators that we believe sufficiently satisfy these conditions. We rely on four such regressors to identify the equation: the lagged value of the yearly average regional *II* rating excluding a state's individual credit rating, the logged distances to the financial centers in London and New York City, and OECD membership. Creditors often lack sufficient information regarding a state's ability to repay debts and require informational shortcuts to assess a state's credit terms. As such, creditors often rely on the credit risks of neighbors and close trade partners to assess risk (Brooks et al., 2015; Gray, 2013; Mosley, 2003). Next, Rose and Spiegel indicate that states that are geographically distant from major international financial centers are less integrated into global financial markets and thus have more volatile business cycles (Rose and Spiegel, 2009). One reason for the volatility is that non-integrated states often lack access to external finance because their distance imposes additional informational costs on investors. As such, we include the logged values of the distances to New York City and

[24]The effect of LIBOR is not susceptible to this potential source of bias because it is unlikely that one country's political circumstances will dramatically influence the availability of international capital.

[25]Researchers have used binary outcome models in similar studies that address the impact of aid on leader survival (Kono and Montinola, 2009; Licht, 2009). We also show in the Appendix S1 that results remain similar using cubic polynomials. In addition, we also modeled this process by including cubic polynomials for time in office. This change did not lead to different conclusions.

[26]We also employ a full information maximum likelihood model which generates very similar results.

[27]For the sake of parsimony and ease of interpretation, we exclude the interaction between democracy and LIBOR and the additional interaction terms.

TABLE 2 ROBUSTNESS CHECKS

	(1) *II* rating	(2) Instrumented *II*
$IIRating_{t-1}$	−0.00919**	
	(0.00360)	
$IIRating_{t-1} \times Dem$	0.00725**	
	(0.00346)	
$\hat{Y}_{II}$		−0.0218***
		(0.00735)
$\hat{Y}_{II} \times Dem.$		0.0163***
		(0.00563)
Democracy	−1.413***	−1.606***
	(0.328)	(0.380)
$Democracy \times ln(t)$	0.261***	0.260***
	(0.0436)	(0.0492)
$ln(RealGDPpercapita_{t-1})$	0.0164	0.0944
	(0.0483)	(0.0748)
$Growth_{t-1}$	−1.094**	−0.946*
	(0.450)	(0.504)
$ln(Trade\ Openness)$	−0.0780**	−0.0261
	(0.0395)	(0.0531)
LIBOR	0.0184**	0.0161
	(0.00854)	(0.0110)
$ln(t)$	−0.263***	−0.258***
	(0.0325)	(0.0380)
$ln(Population)$		0.0293
		(0.0259)
Constant	−0.350	−0.540
	(0.620)	(0.669)
Observations	3,248	2,939
p_μ value	–	0.142
F-statistic	–	493.9
	Pr(*Failure*) *Diff.*	*Pr*(*Failure*) *Diff.*
Dem. 1 SD decrease	0.012	0.021
Dem. 95% CI	(−0.013, 0.034)	(−0.017, 0.052)
Non-dem. 1 SD decrease	0.016	0.019
Non-dem. 95% CI	(0.004, 0.025)	(0.011, 0.023)

Note: Robust standard errors in parentheses.
*$p < 0.1$, **$p < 0.05$, ***$p < 0.01$.

London as exogenous regressors. Lastly, we use OECD membership as an additional instrument given the advantage these states have in attracting global capital.

For the basis of comparison, Table 2 first presents the results of a probit model of winning coalition failure employing the original values of *II*.[28] The results of this model closely reflect the Cox models presented above. The next column displays the second stage of the two-stage approach employing the estimated values of *II*. The last line of Table 2 indicates the *p*-value of the error of the first stage (p_μ), when included in estimation of the second stage. If this variable is significant, we can reject the null hypothesis of exogeneity of the instruments. The *p*-value is greater than 0.10 and thus

[28]We include both the log of time and its interaction with democracy on the right-hand side of the equation. Because the Cox model diagnostics indicated that the effect of democracy was not proportional across time, we employed the interaction here to address the time-varying effect of democracy.

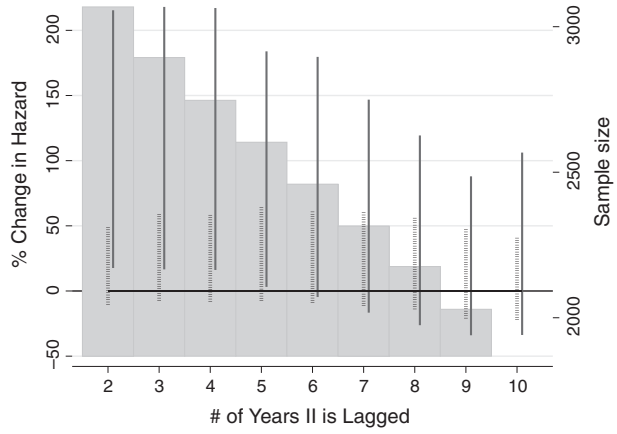

Figure 4. Effect of various lags of *II* rating. This figure illustrates the 95% confidence intervals around estimates of the percent change in the hazard of winning coalition failure for eight different models each lagging *II* rating from 2 to 10 years. The uncertainty around the estimates of democratic and non-democratic states is indicated by the dashed bars and solid bars, respectively. Confidence intervals were generated through simulations employing 10,000 draws of the betas and variance–covariance matrices for each of the eight models.

we have confidence that the errors of the two equations are orthogonal. Next, the *F*-statistic far exceeds the commonly accepted value of 10, indicating that our exogenous regressors are sufficiently correlated with *II*.[29] As such, the exogenous regressors satisfy both criteria and are sufficient to proceed. Next, $\hat{Y}_{II}$ is negative and significant indicating that higher credit terms reduce the probability of winning coalition failure in non-democratic states. The positive coefficient on $\hat{Y}_{II} \times Dem$ indicates that this negative effect diminishes among democratic states. Furthermore, the bottom of Table 2 reports the first difference in the probability of failure resulting from a standard deviation decrease in *II* (one standard deviation above the mean to the mean) based on the estimates of both models for democratic and non-democratic states. Consistent with the results presented above, the effect of the change is statistically significant for non-democratic states when employing either *II* or $\hat{Y}_{II}$, the change does not generate a statistically significant effect for leaders of democratic states in either probit model.

To allay remaining concerns of endogeneity, we also demonstrate that the results remain robust to successively longer lags of *II* (Bearce and Tirone, 2010; Wright, 2009). We carry out this robustness check utilizing the specification of Model 3 and substituting lags of *II* between 2 and 10 years. Figure 4 illustrates the percent change in the hazard resulting from the same standard deviation drop in *II* rating for democratic and non-democratic states for eight different models. The histogram indicates the sample size of each estimation. The results are consistent without initial evidence for lags of *II* 2–5 years after which they deviate from our expectations.

In all, we have taken several steps to address the potential for an endogenous relationship between perceived creditworthiness and winning coalition failure. The two-stage model and use of successive lags employed in the section go further to

[29]Furthermore, tests of over identifying restrictions indicate that we cannot reject the null hypothesis that the instruments are valid.

demonstrate that it is highly unlikely that the relationship between a leader's ability to finance government spending with borrowed funds and their political future is a product of reverse causality.

5 CONCLUSION

A central tenet of predatory rule is that "[b]argaining power rests on resources" [28] (Levi, 1988). Leaders who are able to secure more resources, especially resources not owned by domestic groups, will be in a more advantageous bargaining position. In this study, we argue that sovereign credit is an unique resource within the domestic bargaining framework given the different political incentives across regimes to use credit for political survival purposes. Specifically, we argue that non-democratic regimes that have low institutional constraints, higher discount factors, and incentives to allocate private goods will be more likely to use credit for short-term political survival policies than democracies. The results of our event history analysis support our assertions and demonstrate that both domestic and global determinants of credit impact domestic political processes.

Our argument and findings hold relevance for several different literatures. First, there is a growing literature demonstrating that external and internal sources of non-tax revenue have a substantial effect on political survival (Smith, 2008; Kono and Montinola, 2009; Licht, 2009; Bueno de Mesquita and Smith, 2010; Williams, 2011; Ahmed, 2012). Our results and argument also speak to a related literature that examines the impact of various policy tools on government survival (Clark et al., 2013; Hollyer and Rosendorff, 2012). Future research may also want to consider the role of sovereign credit in related outcomes like regime stability and democratization as existing research demonstrates that external economic shocks and other forms of non-tax revenue play a non-trivial role in regime transitions (Haggard and Kaufman, 2008; Morrison, 2009; van de Walle, 2001; Wright, 2009). Relatedly, the importance of credit may vary over the course of a leader's tenure, particularly if a non-democratic leader is able to consolidate power or if economic conditions change due to external shocks. In addition, there may be important variation within non-democratic regimes that help explain the connection between survival incentives and credit. Consistent with previous research (Geddes et al., 2014; Weeks, 2012; Wright, 2008), future research should consider the authoritarian institutional effects on credit dynamics.[30]

In addition, our argument and results have implications for theories that extend the domestic bargaining framework into international relations. For example, McDonald (2010, 2011) argues that governments that have access to "free" resources – including sovereign credit – have difficulty credibly committing to the international status quo. These states are not dependent on their societal wealth and thus "can sustain an arms race and shift the global balance of military power" (McDonald, 2011, p. 1096). However, our analysis suggests that democracies with access to sovereign credit will not face this commitment problem, as they are less likely to abuse their credit advantages.[31] In addition, other studies have connected the use of credit for military purposes, but did not fully consider discount factors (DiGiuseppe et al., 2012; Rasler and Thompson, 1985; Schultz and Weingast, 2003; Shea, 2014).

[30]We thank an anonymous reviewer for pointing out these research ideas.
[31]For example, see Shea (2016).

Our argument may potentially offer purchase on the theoretical mechanisms behind the perceived "democratic advantage" in sovereign creditworthiness. Beyond the political incentives surrounding the decision to repay or default on debts, the willingness to incur debt and use of borrowed funds may play a significant role in creditor appraisals. While further research is needed, we suspect that the incentives of democratic leaders to invest in public goods and the longer time horizon of their constituents, in addition to institutional constraints, may play a role in the willingness of creditors to extend credit to democratic states.

Our findings also have implications for the connection between global capital liquidity and domestic politics. Most of the existing literature on sovereign credit has focused on domestic characteristics of states as determinants of credit access. However, states' ability to access credit is also a function of how much credit is available in the global market, a factor mostly unaffected by domestic politics in a given state.[32] Our results with the LIBOR measure show that global credit liquidity is important for leadership survival. Therefore, more consideration should be given to external shocks to the global capital market when analyzing the role of credit in domestic politics.

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[32]The lone exception is the United States.

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SUPPORTING INFORMATION

Additional Supporting Information may be found in the online version of this article:
Appendix S1. Supplementary Material.