



# Do Democracies Engage Less in Coup-Proofing? On the Relationship between Regime Type and Civil–Military Relations<sup>1</sup>

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The existing literature on military effectiveness established the robust claim that democracies are more successful and effective in winning interstate wars. One mechanism that explains this relationship heavily draws upon the underlying effect of regime type on civil–military relations. Still, this relationship has not yet been explored systematically, and rigorous empirical research on this issue remains surprisingly scarce. In order to address this shortcoming, this study investigates the patterns of civil–military relations according to different regime types, that is, democracies and nondemocracies. More specifically, the authors examine whether and how democracies invest in coup-proofing, that is, strategies employed to prevent the military from seizing power. The main argument is derived from a principal-agent logic and claims that coup-proofing is both a relatively less attractive and necessary instrument for democratic principals. By analyzing newly compiled time-series cross-sectional data on states' coup-proofing efforts in 1975–1999, the core hypothesis is tested in a quantitative framework.

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Democracies are more likely than other regimes to win in the interstate wars they fight (Reiter and Stam 1998a,b, 2002). Reiter and Stam (2009:195), for example, summarize that democratic regimes won 93% of the wars they initiated (65% when draws are considered) and 63% of the ones in which they were targeted (52% when draws are considered) between 1816 and 1990. These findings are robust across many subsequent studies with not a single work being able to find a negative relationship between democracy and war success (see Desch 2002, 2008; Rasler and Thompson 2005; Downes 2009).

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Two major theoretical mechanisms have been suggested as an explanation for democratic war success.<sup>2</sup> First, democratic war initiators are better at selecting “winnable” wars.<sup>3</sup> This proficiency stems from the vulnerability of democratic leaders to public dissent and from a more effective strategic assessment, which in turn is a result of a public and free discussion of foreign policy in democratic states (Reiter and Stam 2002:19ff). Second, the military success of democracies has also been explained with their superior war-fighting skills (Reiter and Stam 2002). The central assumption underlying this claim points to the military advantages accruing to democracies because of their more benign civil–military relations. Reiter and Meek (1999:370ff), for instance, draw upon this assumption and argue that democracies are more likely to grant their militaries the necessary autonomy for implementing doctrines based on—usually militarily successful—maneuver strategies. The authors find empirical support for this hypothesis using data on the military doctrines of states between 1903 and 1994 (see also Wallace 2008). Similarly, Reiter and Stam (2002:60ff) argue that democratic political leaders who do not fear being overthrown by their militaries perceive coup-proofing, that is, strategies for preventing the military from seizing political power, as less important than merit or skill for the promotion of officers. Empirically, they demonstrate that armies of democratic states displayed a higher quality of leadership on the battlefield in interstate wars between 1800 and 1982. Similarly, Valentino, Huth, and Croco (2010) examine interstate wars between 1900 and 2005 and demonstrate that democratic combatants could implement maneuver strategies to minimize the number of casualties occurred due to their higher confidence in the loyalty of their armed forces.

On the other hand, critics of this argument emphasize that there is a substantial variation within democratic as well as autocratic civil–military relations. Democracies may consequently not necessarily enjoy advantages in terms of the institutionalized civilian control of the military (Brooks 2003b:175f; 2008:12). For example, Biddle and Zirkle (1996) explain the highly differing abilities of North Vietnam and Iraq, two autocratic states, to employ air defense technologies by differences in the tactics employed to prevent the military from seizing power. In a related vein, Brooks (2006; see also Brooks 2008:62ff) shows how a dramatic shift in the civil–military balance of power in a single authoritarian regime, Egypt between 1967 and 1973, contributed to a vast improvement of military performances. Finally, Brooks’s (2008:143ff) case studies of Britain before and during the first World War reveal considerable variation in civil–military relations over time within a democratic state.

Overall, systematic research on the effect of regime type on civil–military relations remains scarce (Biddle and Long 2004:540f; see also Brooks 2008; Maoz and Siverson 2008:180). We intend to contribute to the literature by examining differences in the coup-proofing behavior between democracies and nondemocracies. We elaborate our claims with a principal-agent argument that contends that democratic leaders expect lower benefits and face higher costs when they engage in coup-proofing. More specifically, democracies are first less likely to experience extreme agency drifts in the form of coups. Second, democratic leaders are more likely to be punished politically for a loss of military effectiveness that in turn results from coup-proofing. Third, democratic leaders are better able to correct problematic agent behavior through the use of *ex-post* control

<sup>2</sup> Reiter and Stam (2002; see also Reiter and Stam 1998a,b) actually offer a variety of additional explanations for why democracies might be superior war fighters. Since these arguments are not supported in their empirical analyses, however, we do not list them here.

<sup>3</sup> This selection argument has inspired a substantial amount of research, including statistical work on the effects of war and crisis participation on the political survival of leaders (see Chiozza and Goemans 2004; Goemans 2008).

mechanisms. Ultimately, we therefore expect coup-proofing to be less common in democracies. We test our hypothesis using a theoretically derived new measure of coup-proofing that is based on states' force structures.

The remainder of the article proceeds as follows. In the next section, we outline our theoretical rationale that seeks to explain why nondemocratic leaders engage more than democratic ones in coup-proofing. We then test our hypothesis with newly compiled time-series cross-sectional data on states' coup-proofing efforts, covering the years from 1975 to 1999. The article finishes with a summary of our findings and the implications for further research.

### Theory: The Impact of Regime Type on Coup-Proofing

Political leaders may employ a variety of institutional coup-proofing strategies for subordinating their militaries and preventing them from seizing political power (see Pilster and Böhmelt 2011:335, 336).<sup>4</sup> First, state leaders fearing coups often exploit political, family, ethnic, or religious loyalties when recruiting, promoting, or assigning soldiers (Quinlivan 1999:140f). To illustrate this, Niger's first president between 1960 and 1974, Hamani Diori, created a praetorian guard exclusively composed of hand-selected ethnic Tuareg, a group that comprises <10% of the country's population (Decalo 1989:363). Similarly, the primary criteria for the promotion of officers in coup-proof states are affiliation and loyalty—not merit, skill, or expertise. Seyni Kountché, who ruled Niger from 1974 to 1987, for instance, placed his cousins in charge of both the armed forces and the competing Praetorian Guard (Decalo 1989:564).

Second, political leaderships fearing coups are likely to stress their direct control over the armed forces by institutionalizing political commissioners and constraining the discretion of all levels of the military command chain (Feaver 1992:168f). For example, the Chinese leadership has maintained its control over the People's Liberation Army down to the platoon level by using political commissioners who hold a disciplinary status equal to the respective military commanders, but are solely responsible to the Communist Party (Shambaugh 1991:546ff). Likewise, the lack of accountability of the South African National Defence and Police forces in the 1980s toward civilian oversight “stopped at the desk of the State President [P.W. Botha] who was on top of everything in the military” (Howe 1994:34).

Finally, coup-proofing divides a country's military manpower into rivaling organizations, inducing an artificial balance between these institutions. This “counterbalancing” technique not only seeks to create rivalries between existing military units, but also establishes paramilitary organizations with command structures outside the regular army. As a result, any military unit that may intend to overthrow a current regime in power has to take into account a likely confrontation with independent capacities of military and/or paramilitary forces that are loyal to the political leadership (Quinlivan 1999:141f; Belkin 2005). The government that originated from the Free Thai movement in the 1940s, for example, ensured that naval marine infantry units were better equipped than their politically less reliable army counterparts (Heginbotham 2002:105). Equally, Philippine dictator Ferdinand Marcos sought to neutralize his two most important

<sup>4</sup> Primarily due to two reasons, we solely focus here on a subset of the plethora of policies that governments use to subordinate their militaries (for a broader overview, see Quinlivan 1999; Belkin 2005). First, we restrict our analysis to governments' institutional coup-proofing means, and thus, we do not consider a government's ability to manipulate psychological factors such as an ethos of military professionalism (see Welch 1976; Feaver 1999:225ff). The rationale behind this decision stems from the fact that the effect of ideational factors—especially of military professionalism—on civil–military relations remains disputed and that the relevant literature is increasingly turning toward institutional explanations (Feaver 1999:233f). Second and given the likely implications of this research for the literature on military performance, we only focus on those coup-proofing strategies that have been shown elsewhere to be associated with military effectiveness (Pilster and Böhmelt 2011).

rivals within the armed forces by assigning them competing positions as the army chief of staff and the chief of the Philippine Constabulary, respectively (Lee 2008:495).

Employing concepts from the principal-agent theory, these institutional coup-proofing strategies can be understood as *ex-ante* instruments, that is, control mechanisms implemented by political principals that design the structure and processes of agencies (the military) in order to favor/prevent specific agent behaviors before they actually occur. The alternative to this kind of control instrument is permanent monitoring to gain sufficient information for applying sanctions and enforcing behavioral changes *ex-post*, that is, after undesirable agent behavior has occurred. *Ex-ante* and *ex-post* instruments are mutually substitutable, while the optimal “mix” is determined by their respective costs and benefits (see Bawn 1995, 1997; Epstein and O’Halloran 1996).<sup>5</sup>

We argue that nondemocratic leaders experience higher benefits and lower costs from implementing *ex-ante* instruments and instead enjoy lower benefits from *ex-post* instruments than democratic leaders. The former therefore are likely to depend less on monitoring and sanctioning instruments, and tend to exert influence on their military agents by implementing institutional coup-proofing (see Pilster 2011:58–60). First, the expected benefits from institutional coup-proofing are likely to be higher in nondemocratic regimes as these are more likely to experience agency drift in its most radical sense, that is, the military agent trying to overthrow the principal via a coup. Empirically, for example, democratic political leaders actually have been significantly less likely to be removed through irregular means such as coups than have leaders of other forms of government. Democracies, on the other hand, are usually characterized by mass political participation, strong civil societies, and publicly accepted formulas for power transfers or political change. Any military would therefore face substantially higher governance costs after toppling a democratic regime, which deters overt military intervention (Finer 1988:77ff; see also Jackman 1978; Belkin and Schofer 2003, 2005; Huntington 2006:229ff; Staniland 2008:334f).<sup>6</sup>

Second, institutional coup-proofing hampers countries’ military effectiveness through its negative impact on soldiers’ leadership qualities and initiative and on the ability of military organizations to implement combined arms warfare (Pilster and Böhmelt 2011). An ineffective military that loses disputes or wars, however, has a much higher impact on the probability of a democratic leader being removed from office, as these depend more on good public policy performances (Bueno de Mesquita, Smith, Siverson, and Morrow 2003; see also Pachter 1982:611; Chiozza and Goemans 2004; Goemans 2008). Democratic leaders therefore face potentially higher political costs from *ex-ante* control in the form of coup-proofing.

Third, the probability of detecting problematic agent behavior and being able to correct it via sanctions is lower in nondemocratic states. On the one hand,

<sup>5</sup> Our theory is based on the assumption that *ex-ante* and *ex-post* mechanisms of control are mutually substitutable. Note, however, that the relevant principal agent literature emphasizes that *ex-post* and *ex-ante* instruments may actually serve as complementary goods as well (see Epstein and O’Halloran 1996; Bawn 1997:108ff). Under certain circumstances, intensive *ex-ante* control of military agents, for example, in the form of rivaling military organizations that have independent intelligence capacities (Quinlivan 1999), might decrease the costs of *ex-post* control of agents via monitoring or sanctioning. Nevertheless, although institutional coup-proofing could make *ex-post* control cheaper, the latter still does not come for free. Political leaders are always constrained in their (financial, human, or political) resources to expend for the control of their military agents, and they are therefore forced to decide whether to focus on *ex-ante* or *ex-post* control. Against this background, the three causal mechanisms we postulate below for why nondemocratic leaders are more inclined to resort to *ex-ante* control mechanisms still hold under these conditions.

<sup>6</sup> In this context, Thyne and Powell (2010:3ff) show that only 17% of all military coups between 1950 and 2010 occurred in democratic regimes, while there was no coup occurring in the most democratic states (that is, countries with combined *Polity* scores of 10).

many of the cost-efficient “fire alarms,” that is, third parties like news media, think tanks, or the civil society in general that gather and provide information about military agents, do generally exist in democratic societies only (Feaver 2003:80ff; Belkin 2005:28f).<sup>7</sup> On the other hand, the credible threat and effective application of punishments depend on the universal acceptance by the military in the first place that these possibilities do exist, are justified, and can thus be enforced by the political leadership. This self-understanding is usually guaranteed in established democracies, but nondemocratic leaders have to fear triggering a coup through sanctions intended to discipline the military (Feaver 2003:89ff).

To recap, we argue that democratic leaders will invest less into institutional coup-proofing strategies, as they are less likely to experience extreme agency drift in the form of a coup, more likely to be punished politically for a loss of military effectiveness resulting from coup-proofing, and as they are better able to correct problematic agent behavior through the use of *ex-post* control.<sup>8</sup> This enables us to formulate the following hypothesis:

**Hypothesis:** *Democratic states are less likely to engage in coup-proofing.*

### Research Design: Dependent Variable and Data

The counterbalancing of forces is likely to be the central element of any coup-proofing approach (Belkin 2005:29). Compared with other strategies, counterbalancing has the advantage that it does not only manipulate the military's disposition to intervene, but also checks the ability of any other military organization to engage in a coup d'état. Ethnically or politically induced loyalties to the head of state may be transitory, while the coercive capacities of other military and paramilitary units cannot be tossed aside by coup plotters (Belkin 2005:29ff; see also Feaver 1999:233).<sup>9</sup> We therefore estimate a state's degree of institutional coup-proofing by its level of counterbalancing. Belkin and Schofer's (2003:613f; Belkin and Schofer's 2005:155f) pioneering research suggests a two-dimensional measure. The authors count a country's number of military and paramilitary

<sup>7</sup> The relationship between political institutions and the strength of civil society has also been documented empirically. Barro (1999, 177), for example, reports that the Freedom House measure for electoral rights (a measure of a state's political institutions) is highly correlated with the measure of civil liberties: “the electoral rights indicator is a narrow procedural measure that focuses on the role of elections. In contrast, the Freedom House index of civil liberties is a broader concept that covers freedoms of speech, press, and religion and also considers a variety of legal protections. In practice, however, the civil liberties variable is highly correlated with the electoral rights index.”

<sup>8</sup> One might object to our argument that the literature on coup-proofing frequently highlights the monitoring of the military by various domestic intelligence and security services (see Quinlivan 1999; Brooks 2003a). The function exerted by these domestic intelligence services, however, is conceptually different from monitoring as part of an *ex-post* mechanism of agent control. The latter refers to the accurate identification of direct agent misbehavior that has already occurred or is in the course of occurring. The main coup-proofing function of domestic intelligence services, on the contrary, is different. Purges and show trials against former members of the security forces based on (at most) dubious intelligence claims and denunciations seem to be commonplace in many coup-proof regimes. Instead, the regular targeting of members of the security apparatus is supposed to deter undesired agent behavior such as military coups *ex-ante*. The logic behind this is akin to the application of selective violence in counterinsurgency: the domestic intelligence agencies must convince military agents “that they are able to monitor and sanction their behavior with reasonable accuracy. [...] They can achieve this goal without being perfectly accurate in their targeting,” as long as intelligence agencies credibly signal their potential to be selective, avoid blatant mistakes in picking the members of the military which they target, and as long as the usual secrecy of coup-plotting prevents other members of the armed forces from telling whether soldiers targeted by the security services actually have been involved in coup attempts (Kalyvas 2006:190ff).

<sup>9</sup> Empirical studies also support the “ubiquity” of counterbalancing in portfolios of coup-proofing strategies. All sub-Saharan African states that did not experience a military coup by 1980, for example, had created various rivaling military and paramilitary organizations (Goldsworthy 1980:73). Similarly, Janowitz (1977:3ff) identified the creation of multiple paramilitary organizations as one of the central causes of regime stability in the 1960s and 1970s.



organizations, calculate the ratio of troop members in the paramilitary vs. the regular military, and then combine these two figures in an index.

However, we believe that their measure can be improved (Pilster and Böhmelt 2011:338–341). Belkin and Schofer's (2003, 2005) index incorporates all military and paramilitary organizations, including navy and air force units. According to their measure, a country with a navy and an air force is consequently more engaged in counterbalancing than a nation without. It does not appear plausible, however, that leaders create these forces with the purpose of using their coercive capacities to balance military units aiming at overthrowing the regime. On the contrary, the weapon systems typically employed by navies and air forces are only of limited suitability in the tactical activities entailed by the conduct or prevention of a coup. Coups d'état usually do not—at least if they proceed as planned—involve the large-scale use of direct force. Instead, they employ infantry units for the seizure of key public buildings, such as presidential palaces, radio stations or airports, and the elimination of high-ranking politicians. The purpose is to quickly gain control and ensure the support of the existing state apparatus—not to destroy it. Neither tactical bombing of a country's capital nor the shelling of naval towns seems suitable for achieving this goal (Janowitz 1964:32f; Luttwak 1968:61). A similar logic holds for the prevention of military coups, as the central idea behind counterbalancing “is to prevent troops from moving on the centers of the regime, a task best accomplished by a ground-based (parallel) military” (Quinlivan 1999:142). A measure of counterbalancing—and consequently coup-proofing—should therefore focus on ground-based forces, as these are the only forces whose independent coercive capacities can be used to balance any military unit considering or trying to overthrow a regime.

Against this background, we devise a new measure of counterbalancing (Pilster and Böhmelt 2011:338–341). We incorporate information on both the number of rivaling military organizations and their respective strengths to capture the degree to which a state divides its military manpower into rivaling organizations.<sup>10</sup> In a first step, we identified all ground-combat compatible military organizations of a country using the “Military Balance” statistics from the International Institute for Strategic Studies (1975–1999). In terms of the regular forces, army and marine corps troops, for instance, are considered ground-combat compatible—unlike navy or air force units. When compiling the data on paramilitary organizations, we did not consider “coast guards” and any organizations referring to the terms “port,” “aviation,” “fishery,” “maritime,” “marine police,” “air police,” “air wing,” or “naval” in their names. For navies including marine units or air forces including paratroopers, we considered only these units to be ground-combat compatible.<sup>11</sup> Afterward, we gathered information on the personnel in each of these organizations, focusing on regulars and active reserves, but excluding standing reserve forces.

<sup>10</sup> A measure of counterbalancing should incorporate both kinds of information. If a military unit trying to conduct a coup is supposed to be balanced by units loyal to the leadership, these forces have to be sufficiently large to possess an independent coercive capacity (see Quinlivan 1999:141ff). A country that has a presidential guard of, for example, 1,000 men, in addition to an army of 99,000 troops should consequently not receive the same value on our counterbalancing measure as a country that possesses two equally sized military organizations of 50,000 men each.

<sup>11</sup> Note that a considerable number of states have navies disposing of marine units, which explains the occasionally prominent role of naval forces in the conduct and prevention of coups in spite of the dominance of infantry units at the tactical level (see Heginbotham 2002; see also Thompson 1976:269ff). More specifically, we found that out of the 3,519 country-years between 1975 and 1999 in our data, 700 (19.89%) country-years had naval forces that included marine units with substantial troop sizes. This information has been incorporated into our coup-proofing index. Moreover, anecdotal historical evidence indicates that these marine units have played prominent roles in the conduct of coups, for example, in Thailand in February 1949 (Heginbotham 2002:105f), in the prevention of coups in Thailand before November 1947 (Heginbotham 2002:105), or in Indonesia after 1999 (Heginbotham 2002:115ff).

We then operationalized the degree to which country  $i$  engages in counterbalancing in year  $t$  with  $i$ 's effective number of ground-combat compatible military organizations (see Laakso and Taagepera 1979):

$$C_{it} = \frac{1}{\sum_j s_{jit}^2}$$

where  $s_{jit}$  is the personnel share of the ground-combat compatible military or paramilitary organizations  $j$  in country  $i$  in year  $t$ . A  $C_{it}$  value of 1 consequently stands for only one effective ground-combat military organization, while higher values signify that rivaling military organizations do exist. The higher the value of that measure, the higher the effective number of military organizations in a country. This in turn signifies higher institutional coup-proofing efforts in the form of creating an artificial balance between various rivaling military organizations. In our empirical analysis, we use the natural logarithm of  $C_{it}$  to alleviate the problem of the variable's non-normal distribution and to reduce the influence of outliers.<sup>12</sup> Based on these data collection efforts, we constructed a monadic data set that essentially covers all countries from 1975 to 1999.<sup>13</sup> Therein, we use the individual country-year as the unit of analysis.

A few caveats of the Military Balance data that are relevant to our counterbalancing measure and related coding decisions deserve being mentioned.<sup>14</sup> First, early editions of the Military Balance—which has been published since 1959—strongly focused on the military dimensions of the US-USSR rivalry, which induced that only a limited number of countries have been covered (Powell 2010:17). We solve this problem by setting 1975 as the start year of the time-series cross-sectional data. In this year, the share of states in the international system covered by the Military Balance increased for the first time to about 80%, allowing us to treat these data nearly as universal coverage.

Second, the amount of inconsistencies and errors in the Military Balance data, especially with regard to paramilitary forces, remains controversial (see Belkin 2005:156; Sechser and Saunders 2010:491). We encountered three kinds of problems in the course of our own data collection. First, although the Military Balance restricts the classification of a paramilitary organization to “forces whose training, organization, equipment, and control suggest they may be used to support, or replace, regular military forces” (International Institute for Strategic Studies 1999:6), some of the forces listed in this category actually seem to have a focus on primarily civilian tasks (for example, the Burmese Pearl and Fishery Ministry). We address this problem by our focus on ground-combat compatible troops. Second, there are various paramilitary organizations in the Military Balance that do not display any information on their troop sizes. These paramilitary forces are consequently dropped from our measure of coup-proofing.<sup>15</sup> Third, there is a certain level of inconsistency and fluctuation in the Military Balance's reporting of the troop levels of both regular and paramilitary forces (for example, Panama in the 1980s). We partially solve this problem by only relying on active or

<sup>12</sup> Our measure for the effective number of ground-combat compatible organizations takes on a value of 1 for 909 out of the 3,519 country-years between 1975 and 1999 for which we were able to code our dependent variable.

<sup>13</sup> Following Sechser and Saunders (2010:502), we drop Switzerland from our following analysis, however. The Swiss manpower system is unique to the extent that ca. 100,000 Swiss citizens rotate in and out of the Civil Defense Forces for training purposes each year. Thus, it remains unclear whether these forces should be classified as active reserves or standing reserve forces. Note that including Switzerland does essentially not change the substance of our findings, though.

<sup>14</sup> We thank an anonymous reviewer for highlighting this issue to us.

<sup>15</sup> If we assume that democracies are more likely to report defense-related statistics such as the troop strengths of paramilitary organizations (see Lebovic 2006), we do concur that this might create a systematic underestimation of the coup-proofing efforts of autocratic states. Note, however, that this potential bias would actually make it harder to find support for our hypothesis.

TABLE 1. Contributors to “Top 5” Coup-Proofing Countries per Year List, 1975–1999

<i>Country Name</i>	<i>Number of “Top 5” Country-Years</i>	<i>Country Name</i>	<i>Number of “Top 5” Country-Years</i>
Philippines	17	Afghanistan	3
Mali	15	Bangladesh	3
Portugal	14	Yugoslavia	2
Cuba	9	Bulgaria	2
South Africa	9	Vietnam	2
Italy	8	Malaysia	2
China	8	German Democratic Republic	1
Ivory Coast	6	Central African Republic	1
Niger	5	Zimbabwe	1
Thailand	4	Algeria	1
Russia	3	Saudi Arabia	1
Poland	3	South Korea	1
Egypt	3	Singapore	1

activated reserve forces in our counterbalancing index, thereby excluding reserve forces, whose strength is—by their very nature—harder to gauge.

We believe that our coding decisions certainly solve a couple of problems with the Military Balance data but, at the same time, errors remain. In order to illustrate that our counterbalancing index, nevertheless, provides plausible and reliable estimates of countries’ coup-proofing efforts, Table 1 and Figure 1 provide information on the “Top 5 countries” in counterbalancing scores for our time period under study, that is, 1975–1999.

We would like to emphasize three important conclusions here. First, there is indeed a substantial degree of consistency in states’ coup-proofing efforts as captured by our measure of the effective number of ground-combat compatible military organizations. Only 26 states form the 125 “Top 5 country-years” in our sample, while 19 of these states are represented at least twice among the five states with the highest counterbalancing score in a given year. This shows the reliability of our indicator. Second, Table 1 and Figure 1 also demonstrate the plausibility of our measure as an indicator of states’ coup-proofing efforts. For each of the ten states in Table 1 that were most often represented among the “Top 5” per country-year, historical accounts exist that support the notion of the use of counterbalancing in a context of coup-proofing.<sup>16</sup> Finally, these descriptive statistics also offer some preliminary support for our hypothesis, as the vast majority of the countries with very high counterbalancing efforts is treated as nondemocratic in the time period under study.

### Research Design: Explanatory Variables

Our core explanatory variable for the analysis is a state’s regime type. We employ a dichotomous variable where we consider a country as democratic if it has a combined polity score of +7 or higher; countries falling below this threshold are consequently categorized as nondemocratic (Marshall and Jagers 2004).

Leaving a state’s political institutions aside, we also have to control for other variables that may influence coup-proofing in order to avoid spurious correlations or omitting variables and thereby biased results. The threat configuration

<sup>16</sup> More specifically, for the Philippines, for example, Lee (2008); for Mali, for example, Decalo (1989:562); for Portugal, for example, Wheeler (2003:124); for Cuba, for example, Goure (1989); for South Africa, for example, Howe (1994:46) and Ellis (1998:209); for Italy, for example, Mondini (2006:457); for China, for example, Liu (1979:829); for Ivory Coast, for example, N’Diaye (1999); for Niger, for example, Decalo (1989:563); and for Thailand, for example, Heginbotham (2002).



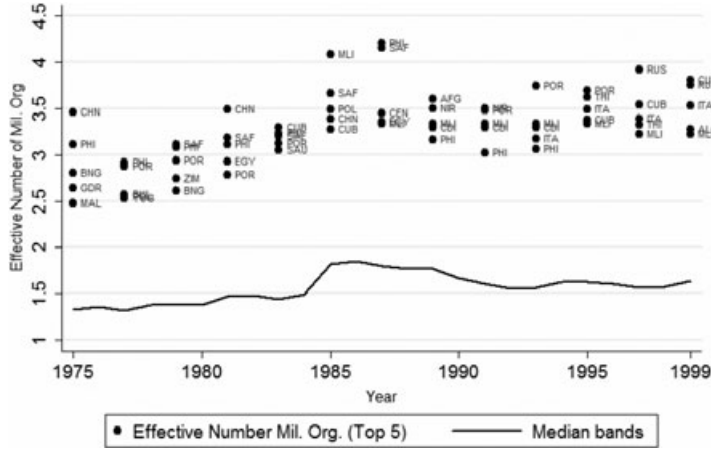


FIG 1. Coup-Proofing Efforts According to Counterbalancing, 1975–1999

(Notes. The solid line signifies the median band. The dots list the “top 5” countries in coup-proofing efforts per year.)

faced by political principals is another major determinant of civil–military relations. A challenging international security environment may focus state leaders’ attention, their winning coalitions, and their armed forces on external threats. This reduces the probability of agency drifts in the form of military coups and increases the political costs from a loss of military effectiveness. External threats can therefore be expected to reduce the need for and attractiveness of institutional coup-proofing as an *ex-ante* control mechanism. Internal threats such as political movements hostile to the armed forces or insurgencies, on the other hand, often draw the military into domestic politics. Inward-oriented military organizations, in turn, are significantly more likely to attempt to overthrow political principals, which increases the benefits of coup-proofing for the latter (Staniland 2008; see also Welch 1976:24ff; Finer 1988:64ff; Desch 1999). Accordingly, we first conceptualize a state’s international security environment and distinguish between direct and indirect security threats. Direct security threats are measured by a state’s number of strategic rivals (Thompson 2001) while we capture the degree of indirect threats by the number of ongoing militarized interstate disputes in a state’s politically relevant international environment without involving the specific state itself (Kimball 2010).<sup>17</sup>

Second, we operationalize internal threats by covariates, which influence the probability that domestic insurgents will challenge the current regime in power. Using data from Fearon and Laitin (2003), we identified nine variables that are related to the rise of insurgencies: per capita income, logged population, logged percentage of mountainous terrain, a dummy variable identifying states with non-contiguous territory, the logged share of export revenues derived from fuel exports, indicators for recently independent states and states having experienced political instability, and indices of ethno-linguistic as well as religious fractionalization. Finally, we also include a variable on the size of the land forces in relation to the population. Relatively large armies are politically more central, which deters internal threats in the form of insurgencies or leaders’ implementation of institutional coup-proofing strategies (see Jenkins and Kposowa 1992:273ff; Wang 1998).

Table 2 summarizes the descriptive statistics of our dependent variable and the core explanatory variables that are used in the time-series cross-sectional model estimations below.

<sup>17</sup> Note that Kimball’s (2010) data cover the period until 1996 only.

TABLE 2. Descriptive Statistics of Core Variables Used in Time-Series Cross-Section Models

	<i>N</i>	<i>Mean</i>	<i>SD</i>	<i>Min</i>	<i>Max</i>
Log (Coup-proofing)	3519	0.440	0.363	0	1.474
Democracy	3536	0.329	0.470	0	1
No. Strat. Rivals	4045	0.624	1.064	0	6
Per Capita Income	3418	4.366	4.630	0.196	35.674
Log (Population)	3561	9.120	1.474	5.493	14.029
Log (% Mountainous)	3561	2.089	1.432	0	4.557
Noncontiguous State	3561	0.159	0.365	0	1
Log (% Fuel Exports)	3323	1.708	1.503	0	4.615
New State	3561	0.016	0.124	0	1
Instability	3561	0.152	0.359	0	1
Ethn. Fraction.	3561	0.407	0.285	0.001	0.925
Relig. Fraction.	3561	0.380	0.219	0	0.783
Military Centrality	3553	5.656	8.966	0	91.787

### Empirical Findings

We examine the relationship between regime type and civil–military relations in the form of coup-proofing by two different empirical strategies. On the one hand, Model 1 reports a cross-sectional OLS regression examining the impact of democracy on a country’s average level of coup-proofing (logged) between 1990 and 1999. In order to avoid problems with simultaneity, all binary explanatory variables are measured as of 1989, while we use the 1980s averages for continuous covariates. Apart from avoiding some of the methodological challenges associated with time-series cross-sectional data, this approach allows us to deal with the existing inconsistencies in the Military Balance’s reporting of troop levels: averaging the dependent variable over an entire decade eliminates some of the year-to-year random fluctuations in states’ effective number of ground-combat compatible military organizations.

On the other hand, we employ a time-series cross-sectional data format for the years 1975–1999. All independent variables are lagged by 1 year, thereby making 1976 the *de facto* starting year of the analysis. Note, however, that these kinds of data may induce a number of estimation problems. First, errors might display panel heteroskedasticity and contemporaneous as well as serial correlation. Models 2–5 in Table 3 thus follow Beck and Katz (1995, 1996); see also Beck (2001), since we include the lagged dependent variable on the right-hand side of our models. This addresses serial correlation and allows us to estimate the degree of year-to-year inertia/consistency in states’ coup-proofing efforts (see also Sechser and Saunders 2010:499). In order to correct for contemporaneous correlation and panel heteroskedasticity, the empirical models employ panel-corrected standard errors, while Models 3–5 additionally include a spatially weighted average of the coup-proofing values lagged by 1 year.<sup>18</sup> Models 4 and 5 also contain year fixed effects to control for exogenous systemwide shocks common to all countries in our data (see Desch 1999).<sup>19</sup>

<sup>18</sup> Estimating this kind of spatial autoregressive model requires the specification of a connectivity matrix that defines the degree of closeness between two units (see Beck, Gleditsch, and Beardsley 2006). We define two countries as connected if they belong to the same region, applying Danilovic’s (2002:111ff) delineation of geopolitical regions on the basis of historical and geographical sources. This definition seems more appropriate than constructing a connectivity matrix based on geographical contiguity or trade, as political leaders are most likely to be influenced in their force structure decisions by those countries they interact with politically (Sechser and Saunders 2010).

<sup>19</sup> Note that we were only able to estimate a year fixed effects model by restricting the sample to countries that participated in the panel for at least 15 years. The number of countries therefore decreases to 120 in Models 4 and 5.

TABLE 3. The Impact of Regime Type on Coup-Proofing, 1975–1999

	<i>Model 1 (OLS, Robust SEs)</i>	<i>Model 2 (OLS, LDV, PCSEs)</i>	<i>Model 3 (Spatial Lag)</i>	<i>Model 4 (Year FEs)</i>	<i>Model 5 (FEVD)</i>
Democracy	<b>-0.168 (0.076)**</b>	<b>-0.024 (0.008)***</b>	<b>-0.024 (0.008)***</b>	<b>-0.025 (0.010)***</b>	<b>-0.038 (0.008)***</b>
No. Strat. Rivals	-0.019 (0.027)	-0.000 (0.004)	0.002 (0.004)	0.002 (0.005)	0.002 (0.004)
No. MIDs PRIE	0.002 (0.002)				
Per Capita Income	<b>-0.023 (0.008)***</b>	<b>-0.002 (0.001)**</b>	<b>-0.002 (0.001)**</b>	-0.002 (0.001)	<b>-0.005 (0.001)***</b>
Log (Population)	0.005 (0.023)	0.002 (0.004)	0.000 (0.004)	0.001 (0.005)	<b>0.007 (0.004)**</b>
Log (% Mountainous)	0.007 (0.019)	0.001 (0.002)	0.001 (0.003)	0.001 (0.004)	0.002 (0.003)
Noncontiguous State	0.127 (0.092)	<b>0.017 (0.007)**</b>	<b>0.021 (0.008)***</b>	<b>0.024 (0.009)***</b>	<b>0.044 (0.008)***</b>
Log (% Fuel Exports)	<b>0.040 (0.021)*</b>	<b>0.005 (0.002)*</b>	<b>0.004 (0.002)*</b>	0.004 (0.003)	<b>0.009 (0.002)***</b>
New State		<b>0.126 (0.049)**</b>	<b>0.125 (0.049)**</b>	-0.111 (0.319)	-0.107 (0.245)
Instability	-0.071 (0.084)	-0.000 (0.010)	0.002 (0.011)	0.003 (0.014)	0.003 (0.015)
Ethn. Fraction.	0.089 (0.102)	0.005 (0.017)	0.004 (0.017)	0.005 (0.022)	0.002 (0.021)
Relig. Fraction.	<b>-0.547 (0.128)***</b>	<b>-0.053 (0.015)***</b>	<b>-0.052 (0.016)***</b>	<b>-0.057 (0.019)***</b>	<b>-0.101 (0.015)***</b>
Military Centrality	<b>-0.007 (0.004)*</b>	-0.001 (0.001)	<b>-0.001 (0.001)*</b>	-0.001 (0.001)	-0.001 (0.001)
Lagged DV		<b>0.871 (0.026)***</b>	<b>0.864 (0.026)***</b>	<b>0.869 (0.031)***</b>	<b>0.696 (0.048)***</b>
Spatially Lagged DV			0.042 (0.035)	0.040 (0.047)	0.120 (0.081)
Unit FE		No	No	No	Yes
Year FE		No	No	Yes	Yes
Constant	<b>0.653 (0.206)***</b>	<b>0.076 (0.036)**</b>	<b>0.074 (0.038)*</b>	0.055 (0.047)	0.055 (0.042)
Observations	128	2873	2825	2698	2698
$R^2$	.327	.801	.802	.816	.840
t(cta)					23.81***
F-statistic/Wald $\chi^2$	8.95***	6626.33***	6365.10***	46245.04***	194956.10***

(Notes. Standard errors in parentheses; \*significant at 10%; \*\*significant at 5%; \*\*\*significant at 1% (two-tailed); significant coefficient estimates in boldface.)

Second, time-series cross-sectional data pose the risk of unit-specific heterogeneity correlated with the explanatory variables. Not controlling for this may result in omitted variable bias; modeling this heterogeneity using fixed effects, on the other hand, could lead to the inefficient estimation of rarely changing variables such as democracy and may even drop time-invariant covariates such as a country's share of mountainous terrain. Therefore, we also employ a fixed-effects vector decomposition (FEVD) estimator, which partitions the variance of the fixed effects into explained and unexplained shares and allows for the estimation of time-invariant variables as well as a more efficient estimation of rarely changing ones (Plümper and Troeger 2007).<sup>20</sup> The results are reported in Model 5.

The findings from the data analysis strongly support our hypothesis. The variable capturing countries' regime type is negatively signed and significant at least at the 5% level in all model estimations. More substantially, our findings emphasize that the coup-proofing efforts of democracies are smaller by 16.80% than in autocratic regimes (Model 1). When using the lagged dependent variable specification in Models 2–4, this value changes to –4.50% (Model 2), –4.47% (Model 3), and –4.67% (Model 4), respectively. In Model 5, where we employ the FEVD estimator, democracies invest <6.44% in coup-proofing than nondemocracies. Hence, democratic states indeed engage less in coup-proofing as measured by their level of counterbalancing.

Interesting findings also emerge from several other variables. First, the lagged dependent variable's coefficient in Models 2–5 displays a fairly large size. On average, we obtain a coefficient of 0.825. Hence, a substantial amount of variance in the dependent variable at point  $t$  is explained by its values in  $t-1$  (Haggard and Kaufman 2008:383). This further strengthens our confidence in the validity as well as reliability of our results, since it is unlikely that we would obtain such a high (and robust) value if the Military Balance's inconsistencies we discussed above were too severe.

Second, we do not obtain any significant results for the external threat measures and the spatially lagged dependent variable. This stands in contrast to Sechser and Saunders (2010) study of military mechanization, which finds evidence that strategic factors and security environments are the major determinants of this aspect of states' force structures.

However, our analysis supports the idea that higher internal threats increase the benefits of coup-proofing. More specifically, we generally find evidence that leaders in countries with a higher per capita income are less likely to implement *ex-ante* controls of their military agents using coup-proofing. Higher state capacity and opportunity costs of rebellions make wealthier states less likely to face insurgencies that could draw the military into domestic politics (see Fearon and Laitin 2003:80). Also, the results largely suggest that noncontiguous states, that is, countries with territory that is geographically separated from the area of the capital city, are more engaged in institutional coup-proofing. Noncontiguous territory offers potential rebels suitable bases and thereby makes insurgencies more likely. At the same time, military units conducting counterinsurgency operations in remote locations might develop capacities for independent action, which makes them better suited to engage in agency drifts by challenging political leaders after their return from the field (see Fearon and Laitin 2003:81; Victor 2010:220). Furthermore, the variable measuring the share of export revenues derived from fuel exports has a positive and significant impact on coup-proofing. Leaders in oil-rich countries have a higher need to prevent military coups for a variety of reasons (see, for example, Ross 2006:287ff). The variable for newly

<sup>20</sup> We use a ratio of 1.7 of between-unit to within-unit variation for distinguishing between time-varying covariates and time-invariant/nearly time-invariant variables.

independent states also attains conventional levels of significance in the time-series cross-sectional models that do not include year fixed effects.<sup>21</sup> The political principals in newly created states are usually more dependent on their military to shield them from internal threats, rendering them an easier prey for a military intervention (see Janowitz 1964). In addition, our data analysis strongly indicates that more religiously fractionalized countries are less engaged in coup-proofing. This finding is in accordance with research on African military coups, which suggests that cultural pluralism decreases the chances of internal threats by making it harder for a single group to overthrow the state (see Jackman 1978:1273). Finally, we find some evidence that leaders are less likely to impose *ex-ante* controls on their military agents the more politically central the armed forces are; the variable capturing the relative size of the army in relation to the population is negative and significant at the 10% level in two models.

### Robustness Checks

We conducted several diagnostic, robustness, and specification checks in order to increase the confidence in our core finding. First, our model specifications may suffer from unit roots, that is, the individual time series might not be stationary to the extent that their expected values and population variances are not independent from time. Tests indicate that our dependent variable is stationary, however.<sup>22</sup>

Second, Lagrange multiplier tests suggest that a small, but statistically significant amount of serial correlation remains due to the large sample size—despite the fact that the lagged dependent variable is largely successful in addressing this problem.<sup>23</sup> We therefore re-estimated all panel models dropping the temporally as well as the spatially lagged dependent variables and used a Prais–Winsten (AR1) transformation to model the dynamics instead. The results for the democracy variable do not change independent of whether we combine the Prais–Winsten models with panel-corrected standard errors or robust standard errors clustered on individual countries.

Third, parameter heterogeneity does not constitute a problem for our findings either. We included interaction terms between democracy and 5-year period dummies into our models; the null hypothesis that all interaction terms are simultaneously equal to zero could not be rejected at the 5% level for any model.

Fourth, variance inflation factors (VIFs) for the individual variables never exceed the value of 2.14, indicating that multicollinearity does not influence the precision of our coefficient estimates. In terms of specification issues, we found that neither the use of different cutoff values of the *Polity* scale (Marshall and Jaggers 2004) or of the continuous polity variable, nor the inclusion of a binary variable representing anocracies questions the substance of our core finding. Also note that employing the Freedom House index yields very similar results as our *Polity* measure. We also do not find evidence of a detrimental impact of heteroskedasticity or high leverage data points. The results do also not change when employing the ordinary OLS estimator of the standard errors. In other words, our finding that democracies invest significantly less into coup-proofing

<sup>21</sup> The variable on new states does not display any variation during the 1980s and thus had to be dropped from the cross-sectional sample. The variable itself is also highly correlated with the year dummies, as new states during the first 2 years of their existence are only found from 1975 to 1978 and in 1990 as well as 1994.

<sup>22</sup> We estimated the fixed-effects models including the lagged dependent variable on the right-hand side only. *F*-tests allow us to reject the null hypothesis of the lagged dependent variable's coefficient being equal to 1 for all estimated models above.

<sup>23</sup> More specifically, a regression of the residuals obtained from Model 2 on the lagged residuals and all the other right-hand side variables yields a significant coefficient estimate for the lagged residuals ( $p=.001$ ) and an  $R^2$  of .0091. We obtained similar results for the other models.

strategies is robust across many different model specifications and the substance of this result is not changed accordingly.

Finally, we re-estimated all our models using the original Belkin and Schofer (2005) counterbalancing measure that does include navy and air force units. Although we still obtain a highly significant negative impact of democracy on coup-proofing that also mirrors our results in terms of the coefficient's size, the models using the Belkin and Schofer (2005) index have a significantly worse model fit. This implies that naval or air force units add atheoretical and unexplained noise to the coup-proofing measure, which in turn increases the confidence into our findings as well as our new operationalization of states' coup-proofing efforts.

### Conclusion

This article has sought to increase our understanding of the relationship between regime type and civil-military relations, which essentially represents one fundamental and underlying claim of the argument that democracies are militarily more effective. More specifically, we argued that democratic principals expect lower benefits and face higher costs from coup-proofing. Democratic leaders are less likely to experience extreme agency drift in the form of a coup, more likely to be punished politically for a loss of military effectiveness resulting from coup-proofing, and as they are better able to correct problematic agent behavior through the use of *ex-post* control. Our core hypothesis received strong and robust empirical support using newly compiled country-year data covering coup-proofing efforts between 1975 and 1999.

Against this background, we believe that our theoretical rationale and the empirical results contribute to several bodies of the literature. We have developed a more refined theoretical argument connecting regime type with civil-military relations and presented empirical evidence for the hypothesized links. Above all, our work adds to and may additionally provide support for the argument that democracies are superior war fighters (Reiter and Stam 2002; see also Desch 2002, 2008). Further, we also contribute to the existing work that studies the determinants and consequences of civil-military relations and military force structures (Sechser and Saunders 2010; see also Lyall and Wilson 2009).

In terms of future research, we hope that our work will prove useful in at least two ways. First, the vast majority of studies analyzing the influence of military power on war duration or outcomes, military interventions, and multilateralism have yet to consider civil-military relations theoretically or empirically as an explanatory item (see, for example, Choi 2004; Slantchev 2004; Sullivan 2008). Second, it may well be the case that coup-proofing hampers military effectiveness not only in conventional interstate wars (Pilster and Böhmelt 2011) but also in counterinsurgency campaigns (see Byman 2006). A systematic quantitative test of this proposition might draw on the data and the results obtained in this study (see also Powell 2010). Finally, another interesting avenue of research might investigate in how far the creation of rivaling official military and para-military organizations is also related to the proliferation of pro-government armed groups that are not part of the official security apparatus (see Carey, Mitchell, and Lowe 2009).

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