

Strength in Numbers? Testing the Effects of Alliance Size on Alliance Duration

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Abstract

The average number and size of military alliances has increased steadily over the course of the 20th century. Alliance expansion remains a concern for statesmen and policy makers, but international relations theory provides contradictory predictions regarding the effect of alliance size on alliance strength and duration. This paper begins by developing a theory of alliance size. What are the political and military costs and benefits of alliance expansion? Using a Cox proportional hazard model, this paper then tests the effect of alliance size on alliance duration looking at cases in the 20th century. The model indicates that all other things being equal, larger alliances tend to be more durable than smaller ones. It also finds that asymmetric and nuclear-armed alliances tend to be more durable, while heavily formalized and wartime alliances are less durable. Lastly, this paper looks at two case studies: the Arab-African Union and the Collective Arab Security Pact to examine in closer detail the effect of alliance size on alliance durability.

1 Introduction

Alliances shape expectations, structure foreign policy, channel conflict, and influence outcomes in war. Small and middle-sized states rely on alliances for survival while large states use alliances to project power and influence.

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Understanding the functioning of alliances is therefore a perennial concern of statesmen. What makes alliances work? What makes them fall apart? How can statesmen manage competing demands for unity, effectiveness, and sovereignty within alliances?

Alliance size, defined in terms of membership, has often been considered a key variable in alliance stability. This variable is particularly relevant today. The most recent North Atlantic Treaty Organization (NATO) summit in Bucharest saw sharp disagreement among allies over the merits of expanding the Alliance eastward to Georgia and the Ukraine. Moreover, grave concern has been expressed regarding the cohesion of NATO operations in Kosovo and Afghanistan. Future disagreement is likely. Careful consideration of the effect of size on the institutional efficiency of alliance is important since membership decisions tend to be hard to reverse (Koremenos, Lipson and Snidal, 2001).

Amidst ongoing concerns over the political effects of NATO expansion, surprisingly little direct empirical work has been conducted on the subject of alliance size (Holsti, Hopmann and Sullivan, 1973; Bennett, 1997). This paper intends to address this oversight. Specifically, this paper will test whether larger alliances are more likely to survive than smaller alliances. This paper will proceed in six parts. First, theoretical arguments regarding the positive and negative effect of alliance size on alliance duration will be outlined. Particular attention will be paid to the effect of alliance size on political cohesion and military effectiveness. Second, a model for estimating the effects of alliance size on alliance duration will be presented. This model will control for a number of plausible alternative explanations of alliance

duration. Third, basic trends among the alliances in the dataset will be reviewed. It will be noted that the number and the average size of alliances has generally increased during the 20th century. Fourth, the paper will test the effect of alliance size on alliance duration empirically using a Cox proportional hazard survival model. The paper's main finding is that, all other things being equal, larger alliances are more durable than smaller alliances. Fifth, this paper will examine whether different sized alliances terminate for different reasons. Sixth, a paired comparison of two alliances, the Arab-African Union and the Collective Arab Security Pact, will be undertaken. The final section summarizes the findings and concludes with general policy recommendations and avenues for further research.

2 Theory of Alliance Sizes

The question of alliance size on alliance duration touches on a wide range of debates in international relations: under what conditions cooperation can be sustained, whether international cooperation is possible in the realm of high politics, whether strength deters or provokes attack, the impact of identity and regime type on security arrangements, the role of international institutions in facilitating cooperation, and the effect of anarchy and uncertainty, to name a few. This section will list a working definition of alliance and outline competing views on the political and military effects of alliance size on alliance duration.

2.1 Definition

In order to understand how alliance size affects the duration of alliances, some definitional issues need to be cleared. There exists no consensus in the international relations literature on the definition of an alliance. Scholarly disagreement focuses on whether alliances can be informal arrangements or strictly formal agreements, whether neutrality and non-aggression pacts constitute alliances, and whether alliances require active military assistance or simply call for political consultation and coordination (Holsti, Hopmann and Sullivan, 1973; Liska, 1962; Singer and Small, 1966; Snyder, 1997; Walt, 1990). For the purpose of this study, we will consider an alliance “a written agreement, signed by official representatives of at least two independent states, that includes promises to aid a partner in the event of military conflict” (Leeds et al., 2002). This narrow definition excludes informal agreements and alignments, but helps ensure a greater degree of consistency in the empirical analysis.

2.2 The Risks of Large Alliance

2.2.1 Political Risk

Larger alliances are susceptible to four types of political risk: free riding, interest incompatibility, gridlock, and sovereignty erosion. First, Olson and Zeckhauser (1966) argue that allies will have incentives to free ride because defense is a public good that tends to be provided within an alliance regardless of individual contributions. The incentive to free ride is stronger in larger alliances since allies find that their individual contribution tends to have a

smaller effect on the overall capabilities of the alliance. Allies are therefore less tempted to muster additional effort for smaller marginal returns. In addition, allies recognize that coordinated and discriminate punishment of free riding tends to decline in larger alliances.

Second, larger alliances face the increased risk of interest incompatibility. States may share sufficient interest to become allies in specific circumstances, but may lack sufficient commonality to remain so over time. States naturally hold different interests due among other things to variance in geography, natural resources, culture, wealth, vulnerability, regime type, and demography. Interest incompatibility can affect how alliances assess threats, priorities, expenditures, strategies, and tactics. The likelihood of interest incompatibility increases monotonically with alliance membership. A particularly damaging area of interest incompatibility is threat perception. According to Walt (1997), alliances are formed to address threats. If common perception of threat disappears, alliance cohesion becomes fragile. Increasing the number of allies may also make it harder to identify areas of mutual interest (Oye, 1985). Even where common interests may exist, the number of potential equilibria for defense cooperation will increase exponentially with any expansion of an alliance. Each equilibria will present various costs and power sharing arrangements with different distributional consequences (Snidal, 1993). The distributional problems of larger alliances are more salient in offensive alliances. In offensive alliances, states will seek to assemble a minimum winning coalition, that is, the fewest number of states needed to achieve the objective in order to split the spoils of war among fewer partners (Riker, 1962). Lastly, it is also important to remember that

intra-alliance distributional disagreements can interact with uncertainty over intentions, both of which increase with alliance size.

Third, greater probability of interest incompatibility will make larger alliances more susceptible to gridlock. More allies will create more opportunities for dissention. Because alliances are virtually all governed by consensus, increasing the number of allies will simply increase the number of veto players, that is, single allies capable of preventing the entire alliance from undertaking a certain course of action (Tsebelis, 1995). Arrangements brokered to entice allies to join or remain in an alliance can also make any alliance more resistant to subsequent change, innovation, and expansion (Weitsman, 2003). Indeed, allies will be sensitive to any course of action that could weaken their position in the alliance power structure.

Fourth, larger alliances tend to weaken the political sovereignty of allies. Alliances allow states to realize economic and security gains, but at some cost to sovereignty (Morrow, 1991). In an alliance, states lose their monopoly over decisions relating to war and strategy. The likelihood of any given ally having a decisive impact on the policy of an alliance decreases with the number of allies. Allies will therefore be highly reluctant to join larger alliances, and will do so only so long as the security benefits outweigh the substantial sovereignty costs.

2.2.2 Military Risk

While designed to address security challenges, large alliances can also create five types of military risks: rigidity, counter-balancing, chain-ganging, expansion, and obsolescence. First, larger alliances are likely to suffer from

excessive rigidity. Rigidity exists at both the political and the military level, with greater variation in interests and a multitude of veto players. Larger alliances tend to face greater linguistic and cultural barriers, as well as issues of technical interoperability. Larger alliances create greater risk of disagreement on military strategies and tactics (Weitsman, 2003). NATO's painfully slow reaction to events in Bosnia shows how little institutions can accomplish when individual members are unwilling to act. Indeed, when interests are not aligned, there is little institutionalized alliances can do to overcome fundamental conflicts of interest (Walt, 1997). In the heat of combat, particularly when offensive weapons and doctrine confer an advantage, such friction generates military vulnerabilities by reducing efficiency. Expressing his frustration at the difficulties of coalition warfare in Kosovo, General Wesley Clark stated ironically: "I was operating with the starting assumption that there was no single target that was more important, if struck, than the principle of Alliance consensus and cohesion" (Priest, 1999).

Second, the literature on great power balancing suggests that larger alliances are more likely to trigger security dilemmas and counter-balancing by other states in the international system. This holds as much for defensive alliances as for offensive alliances since states can never be certain of the current or future intentions of foreign alliances (Jervis, 1978). This dynamic was evident between NATO and the Warsaw Pact during the Cold War as well as between the Triple Alliance and the Triple Entente prior to the First World War. Weitsman (2004) identifies this as the "alliance paradox", where the most successful alliances become the most likely to provoke dangerous counterbalancing.

Third, the benefits of larger alliances are often moderated by the vulnerabilities and political conflicts inherited from more allies. Indeed, each new ally may bring with it new fronts and new enemies, as well as more territory and population to defend. Those states most likely to want to join alliances tend to be the weak and vulnerable, precisely those who have the least to contribute to the alliance. Alliance expansion will weaken the alliance when the ratio of capabilities to territory and population of a new ally is inferior to the average ratio of the existing alliance.

Fourth, larger alliances can increase risk by spreading wars from individual allies to the broader alliance. According to former US Secretary of State Kellogg:

I know that military alliances and armament have been the reliance for peace for centuries, but they do not produce peace; and when war comes, as it inevitably does under such conditions, these armaments and alliances but intensify and broaden the conflict” (Haberman, 1926).

War is contagious within alliances; indeed that may be the alliance’s very point (Levy, 1982). The larger the alliance, the greater the risk that any one member will find itself at war and that other allies will be drawn in. Large and powerful alliances can create moral hazard problems, by which states act recklessly, expecting the alliance to shield them from retaliation. This problem is termed alternatively as “chain-ganging” or “entrapment” (Christensen and Snyder, 1990; Snyder, 1997). War can also cripple alliances, especially when catastrophic defeat undermines alliance credibility.

Lastly, and perhaps most paradoxically, some large alliances may terminate quickly because they may be more successful in war. If one assumes that large alliances will be more likely to triumph in war, they may also be more likely to defeat and neutralize the very source of threat that provided cohesion to the alliance. In short, they may win themselves out of business. The 42-member Allied Powers of the Second World War and the Seventh Coalition formed to defeat Napoleon, are cases in point.

2.3 The Benefits of Larger Alliances

2.3.1 Politics Benefits

If large alliances form at all, it should be assumed that they bring some benefits. Indeed, larger alliances are better than small alliances at maintaining stability, reducing concerns of alliance dominance, generating political audience costs, and reaching optimal decisions. First, larger alliances will be more stable because they will be less sensitive to the defection of any given ally. Small alliances, in contrast will be quite fragile. In the case of a bilateral alliance, the loss of any ally will lead to the collapse of the alliance. Since the probability that any given dyad will experience some major political disagreement over a given period of time is greater than the probability that all the members of a larger alliance will experience a disagreement simultaneously, larger alliances may prove to be more durable.

Second, larger alliances can serve to attenuate the effects of power asymmetries among allies. Minor powers will fear being dominated by great powers in bilateral alliances. Great powers will be unable to provide credible

commitments that they will not dominate minor powers. Broadening alliance membership can help alleviate these concerns by increasing the costs of dominating the alliance. According to Weitsman, (1997) “tethering” alliances are reached precisely in order to restrain hegemonic states. Lastly, increasing the membership of an alliance may attenuate ally concerns regarding relative gains (Snidal, 1993).

Third, larger alliances may be more cohesive because they are better at generating political audience costs among allies. This argument stands in contrast to Olson’s (1965) theory of collective action. By virtue to their greater membership larger alliances have more channels to press allies to contribute to collective goods. The more allies that are involved in a war, the most pressure a free riding ally will bear to join the war effort, and thus the more likely an ally will fulfill its alliance obligations (Siverson and King, 1980). In addition, it will be more politically costly for any given ally to defect against the many members of a larger alliance than against the few members of a smaller one, especially if such an alliance is long established and highly institutionalized. Lastly, because of the political value of larger alliances, commitment may come to be seen as more credible (Fearon, 1994).

Fourth, larger alliances may be more likely to make optimal decisions. Following Condorcet’s jury theorem, so long as each individual has more than a 50% probability of being correct on any given decision, the relative probability of a given group of individuals arriving at an optimal decision increases with the size of the group (de Condorcet, 1785). In this view, while larger alliances may find it harder to reach common agreement, the decisions they do reach will be superior. Presumably then, better decision-making will

help larger alliances survive.

Lastly, large alliances can avoid the problems of interest incompatibility, entrapment, and chain-ganging through the careful screening of prospective allies. The idea is to select allies based on their potential to maintain the political cohesion and security of the alliance. For example, NATO conditions admission into the alliance based on certain criteria. This criteria includes a level of democratization, firm civilian control of the military, the resolution of outstanding territorial disputes, equipment standards and interoperability, and ultimately the acquiescence of all other NATO allies. Based on these criteria, NATO rejected the admission of Georgia in 2008, and indeed in the process avoided being chain-ganged into a potential conflagration with Russia. Smaller alliances, of course, can also screen allies. However, there may also exist an interaction effect between screening ability of alliances and the ability of larger alliances to reach optimal decisions. Indeed, larger alliances may be strengthened by their ability to more effectively screen potential members.

2.3.2 Military Benefits

Larger alliances benefit from two significant military advantages: aggregate strength and risk diversification. First, the aggregate capabilities of larger alliances make them more likely to succeed on the battlefield, or at a minimum avoid a defeat that could destroy the alliance and its members. This proposition is a basic assumption of much of the literature on the balance of power (Kissinger, 1994; Mearsheimer, 2001; Morgenthau, 1993; Waltz, 1979). Capability aggregation supports deterrence, which makes it less likely that

an alliance will be challenged. Furthermore, through greater economies of scale and exploitation of comparative advantage, the capabilities of an alliance may become greater than the simple sum of their parts (Leeds, 2003). Such economies of scale can also be achieved when alliance members share contiguous borders, by reducing the number of fronts each ally needs to deploy resources to defend (Sandler, 1999). Lastly, because of the benefits of size, larger alliances may come to “crowd out” smaller alliances.

Second, larger alliances are better at spreading risk. States seek to increase their security and reduce risk by diversifying their sources of security. Risk can be considered systemic or non-systemic. Systemic risk refers to that which affects all states in the international community evenly (e.g. global warming, pandemics, or large scale military threats). Non-systemic risk refers to that which affects only certain states (e.g. specific regional wars or defection by an ally). While larger alliances are just as vulnerable to systemic risk as smaller alliances, they may be better at addressing non-systemic risk. In this sense, the formation of a large alliance is similar to a portfolio diversification strategy or to social security (Conybeare, 1992). Larger alliances are less likely to be devastated by non-systemic risk, increasing the probability that any given ally will be able to assist individually vulnerable allies.

2.4 Hypothesis

The international relations literature provides contradictory theories on the durability of larger alliances. In order to sort out this controversy, the following hypothesis will be tested:

Hypothesis 1 *All other things being equal, alliances with smaller membership will have greater survival rates than alliances with larger membership.*¹

3 Model Specification

This paper develops a survival model to test the hypothesis that larger alliances will be less durable than smaller alliances. The purpose of survival analysis is to estimate what is the probability at time t that a given unit will disappear given that it survived until time $t-1$, taking into account certain specific properties.

3.1 Independent and Dependent Variables

Given the lack of reliable data on certain key control variables over time, this model employs cross-sectional data.² The units of observation are alliances, using the aforementioned definition by Leeds et al. This paper looks at alliances in existence in between 1900 and 2000, the period of time where reliable data can be gathered for the control variables in the model. Alliances in existence in 1900 are coded by their start date prior to 1900. Alliances persisting past 2000 are right-censored. The alliances are drawn from the Alliance Treaty Obligations and Provision (ATOP) database (Leeds et al., 2002). ATOP provides data regarding the content of military alliance agreements signed by all countries of the world between 1815 and 2003. ATOP was chosen over the Correlates of War (COW) database because it provides

¹Clearly, the opposite hypothesis could have been formulated given the controversy in the field regarding the effects of alliance size on alliance duration.

²Should sufficiently reliable data become available in the future, a time series model of alliance size and alliance duration would provide a more accurate estimate.

information on a wider range of alliances, and because it provides information on the causes of alliance termination, an issue of interest in this paper. Restricting the definition to defensive alliances and looking specifically at the 20th century, we find 168 alliances, sufficient to conduct survival analysis.

The independent variable of interest in this model is alliance size, defined in terms of membership (MEMBER). Alliances can expand and contract over time, so alliance membership is coded for the largest membership of the alliance. The dependent variable in this model is alliance duration (DURATION), measured in years. It is important to note that some alliances are terminated because they are superseded by other alliances. Because the new alliance may contain different provisions than the original alliance, these alliances are coded as separate observations.

3.2 Control Variables

This model includes a number of control variables to account for plausible alternatives that could explain variation in alliance duration.

ASYMMETRY. This variable measures the spread of military and economic power among allies. A perfectly symmetric alliance would have allies with identical military and economic capabilities, whereas a perfectly asymmetric alliance would have one ally monopolizing all military and economic capabilities. Military and economic capabilities are calculated using the COW Composite Index of National Capability (CINC) (Singer, 1987).³ Each ally's CINC score is averaged for the time period of the alliance. A con-

³The CINC score is calculated using annual values for total population, urban population, iron and steel production, energy consumption, military personnel, and military expenditure of states.

tinuous alliance ASYMMETRY value is then calculated using the variance in the averaged ally CINC scores.

Asymmetry is expected to have a positive effect on alliance duration. According to Walt (1990) and Ikenberry (2000), hegemons can provide the leadership and coercive mechanisms necessary to hold alliances together. Olson (1965) argues that asymmetric alliances may function better because a larger ally may receive sufficient benefits from providing the public good even if it needs to bear all the costs. Morrow argues that asymmetric alliances may be more durable because members are seeking different and non-competitive benefits from such alliances. Great powers wish to control small powers and small powers may be willing to lose some margin of autonomy in order to free ride on the security umbrella provided by great powers. Lastly, according to Leeds, great powers may have strong incentives to maintain commitments to small powers because their credibility is interdependent with other commitments. Conversely, small powers will be less likely to break ties with a great power for fear of retaliation (Leeds, 2003).

BIPOLARITY. This variable measures whether the alliance existed during a period of multipolarity, bipolarity, unipolarity, or transition between the three. The international system was considered multipolar between 1900 and 1945, bipolar between 1946 and 1990, and unipolar between 1991 and 2000. Alliances are expected to be most durable under unipolarity and bipolarity and least durable under multipolarity or transition. According to Waltz (1979), “when the international system is multipolar, relationships of friendship and enmity are fluid”. Snyder and Christensen (1990) further argue that multipolar systems generate greater risk of either buck-passing

(avoiding addressing a common threat) or chain ganging. Bipolarity, on the other hand, drives states to create larger and more stable alliances to balance against their opponent.

CONTIGUITY. This variable measures whether the collective borders of the alliance are contiguous, that is, that there exists no break in the borders among alliance members. It is measured using COW direct contiguity data (Stinnett et al., 2002). Alliances that share continuous borders are expected to have greater survival rates because reinforcements can flow more freely among alliance members making defense more effective (Sandler, 1999). For example France could not assist its Polish ally in the run up to the Second World War because of geographic distance and non-contiguity. Furthermore, contiguity may increase the likelihood that allies will experience similar threats, thereby strengthening alliance commitment.⁴

CULTURE. This variable measures cultural similarity among allies. According to Huntington (1993), civilizations are the highest cultural groupings of people and have a profound effect on how states define their values and interests. Furthermore, Barnett (1996) argues “cultural identity often provides a better understanding of which states are viewed as a potential or immediate threat to the state’s security.” Thus, mono-cultural alliances are expected to be more durable than multicultural alliances, because cultural similarity creates common interests and trust while reducing misunderstanding and misperception. Because culture is a vague concept, it is defined broadly here in terms of religion (Christianity, Orthodoxy, Judaism, Islam,

⁴It should be noted that contiguity is often also associated with greater conflict between states since contiguity may increase the range of conflict issues. See Gibler (2008).

Confucianism, Hinduism, and Shintoism).

DEFENSIVE. This variable measures whether an alliance is strictly a defensive alliance or also an offensive alliance. Defensive alliances, which tend to be status quo oriented, are expected to survive longer than offensive alliances. Offensive alliances tend to be formed for specific purposes and therefore are likely to disband once this revisionist purpose has been achieved. Moreover, members of an offensive alliance, having revealed themselves as revisionist states, may come to view each other with suspicion, thus weakening trust and commitment. Alliances that are both defensive and offensive are coded as offensive since they will likely suffer from the same redistribution and commitment problems as offensive alliances.

INSTITUTION. This variable measures the degree of institutionalization of an alliance, operationalized as the number of institutional provisions incorporated in the alliance treaty. Institutionalization is coded by ATOP on a fourteen-point scale.⁵ Institutionalization is expected to have a positive effect on alliance duration. Institutions can help reduce the transaction

⁵The scale is determined by the following criteria. The treaty makes reference to the potential for conflict among members of the alliance. The treaty discusses mediation/arbitration or other means of settling disputes among the signatories. The treaty requires official contact among the military forces of the participating states. The treaty includes provisions for military aid (e.g., grants, loans, transfer of technology, training). The treaty provides for integrated command of military forces while the alliance is in effect (peacetime as well as wartime). The treaty requires subordination of the forces of one or more member states to another in the event of hostilities. The treaty establishes an organization. The treaty provides for joint military bases, or for one or more states to place troops in the territory of one or more other states. The treaty specifies contribution levels (funds, troops, etc.). The treaty contains provisions regarding coordinated increase of armaments, reduction of armaments, prohibition of weapons, or rules of warfare. The treaty explicitly permits or prohibits the acquisition of territory not currently held by either ally. The treaty include discussion of the division of gains from any future conflict. The treaty includes discussion of demobilization/withdrawal following conflict. The treaty contains other provisions that describe the means through which the states will coordinate their military efforts and policies.

costs of coordination. Reduced transaction costs and friction is likely to improve the military performance of alliances. Institutions can help solidify conventions, standards, and procedures where allies' expectations can converge. Thus institutionalized alliances are better at reconciling political differences. Institutions can also reduce uncertainty by improving the flow of information among allies (Keohane, 1984). Sunk investments in alliance institutionalization may improve trust and predictability among allies since it raises the perceived cost of defecting from an alliance. Lastly, institutions may create interest groups that promote the perpetuation of the alliance even after it has served its initial purpose (Wallander, 2000).

NONDEFEAT. This variable measures whether any member of the alliance has suffered a military defeat on its territory during the period of the alliance. Alliances that have not suffered defeat on the territory of any ally are expected to be more likely to endure because they are more likely to maintain political autonomy and military credibility. Indeed, according to Napoleon, "the allies we gain by victory will turn against us upon the bare whisper of our defeat" (1848).

NUCLEAR. This variable measures whether an alliance has at least one nuclear-armed member. Nuclear-armed alliances are expected to be more durable than non-nuclear alliances. Nuclear-armed alliances will be less likely to suffer catastrophic defeat, will be more credible, and will suffer less defection due to the unique political value of a nuclear umbrella.

OFFENSE. This variable measures whether military technology was perceived to favor the offense or the defense. When the offensive is dominant, it is easier to destroy another's army and take its territory than it is to

defend ones own. War is frequent and short. States cannot wait for unambiguous evidence of threats to recruit allies. Tight-knit, highly coordinated, and long-term alliances become more desirable (Jervis, 1978). Offense dominance should therefore favor more durable alliances. Periods as coded as either offense-dominant, defense-dominant, or mixed, according to the typology developed by Van Evera (1998).⁶

POLHOM. This variable measures the degree of political homogeneity of an alliance. Politically homogeneous alliances are expected to be more durable than politically heterogeneous alliances. Alliances are considered politically homogeneous when their members remain within 5 points on the POLITY scale (Marshall and Jaggers, 2008). Alliances that are politically homogenous may come to share similar ideological values, which will translate into shared preferences, interests, and threat perception. In the case of liberal democracies, common preferences may create greater channels of communication, economic interdependence, and consequently more credible commitment to allies. It may also be difficult to maintain credible commitment to allies that hold ideologically incompatible worldviews. Indeed, states may pay domestic “hypocrisy costs” for allying politically dissimilar states. This measure is imperfect since it examines only one dimension of political similarity, namely democracy. Therefore, we find Nazi Germany and the USSR as being politically homogeneous allies in 1939 although they were ideological foes.

WARTIME. This variable measures whether the alliance was reached

⁶It is important to note that the coding reflects perceived offense and defense-dominance, not actual offense or defense dominance, since perception is what drives alliance behavior.

during a period of interstate war. Alliances forged in the shadow of war are expected to be more fragile than those alliances reached in times of peace. Wartime alliances tend to serve an immediate purpose, which causes them to disband once this objective has been achieved.

Lastly, it should be recognized explicitly that the model does not control for variation in perceived threat. According to Walt (1990; 1997), perceived threat is a critical variable in the formulation and termination of alliance. The principle reason for the exclusion of threat as a control variable is that it is exceedingly difficult to measure and define. The source and degree of threat can change for different members of the alliance, and change over time. While alliance treaties occasionally refer to an enemy, in many cases alliances treaties are public and therefore omit references to specific states. In many cases, threats are endogenous, caused by regime changes within the alliances. In others, the very creation of an alliance may trigger a counterbalancing coalition, which subsequently is considered a threat. Thus it may be impossible to distinguish whether the alliance was created in response to a threat, or whether a threat emerged in response to an existing alliance.

3.3 A First Cut at the Data

Figures 2 to 5 below present an initial overview of alliance characteristics during the 20th century. These statistics cast some doubt on the hypothesis that alliances with smaller membership will have greater survival rates than alliances with larger membership. First, despite the purported challenges of collective action, we find a general increase in the number of alliances in the 20th century. Alliance formation is seen to surge in times of war but fall

Variable	Value
MEMBER	Maximum number of states in the alliance
DURATION	Maximum duration of the alliance in years
ASYMMETRY	Variance of the average CINC scores of allies
BIPOLARITY	Coded 0 if alliance existed in a transitional international system, 1 if it existed in a multipolar international system, 2 if it existed in a bipolar international system, and 3 if it existed in a unipolar international system
WARTIME	Coded 1 if alliance was signed in time of war and 0 otherwise
CONTIGUITY	Coded 1 if entire alliance shared contiguous border and 0 otherwise
CULTURE	Coded 1 if all alliance members shared same religion and 0 otherwise
DEFENSIVE	Coded 1 for defensive alliance and 0 otherwise
INSTITUTION	Number of institutional provisions contained in the alliance agreement
POLHOM	Coded 1 if alliance members remain within a 5 point range in the POLITY score, and 0 otherwise
OFFENSE	Coded 1 if the offense-defense balance favored the offense and 0 otherwise
NONDEFEAT	Coded 1 if no alliance member suffered a military defeat on its territory while a member of the alliance and 0 otherwise
NUCLEAR	Coded 1 if an alliance member possessed nuclear weapons, and 0 otherwise

Figure 1: Specification of Variables

apart at war's end. The rising tide of alliances following the Second World War may be a simple result of decolonization and the generation of more states as well as potential allies.

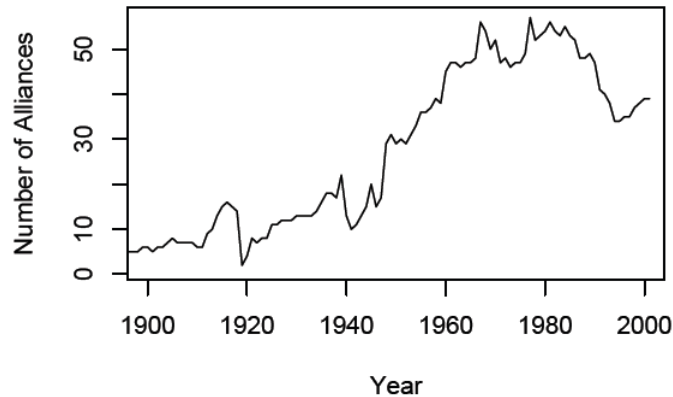


Figure 2: Number of Alliances over Time

Second, bilateral alliances are the most common form of alliance. Over the course of the 20th century, the average alliance contained 3.125 members, while the median alliance contained 2 members. The Allies Powers of the Second World War, the Arab League, and Organization of American states are the largest alliances in the sample with 43, 22, and 21 members respectively. The number of multilateral alliances - alliances with more than two members - has increased significantly over the course of the century. The average size of alliances has swelled from under three members to approximately five. The spikes in the average size of alliances in mid century can be almost entirely attributed to the Second World War, and the rebound of alliance size thereafter attributable to development of bipolarity during the Cold War.

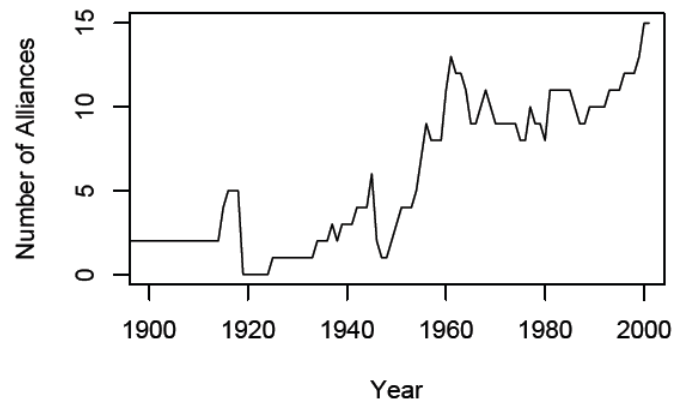


Figure 3: Multilateral Alliances over Time

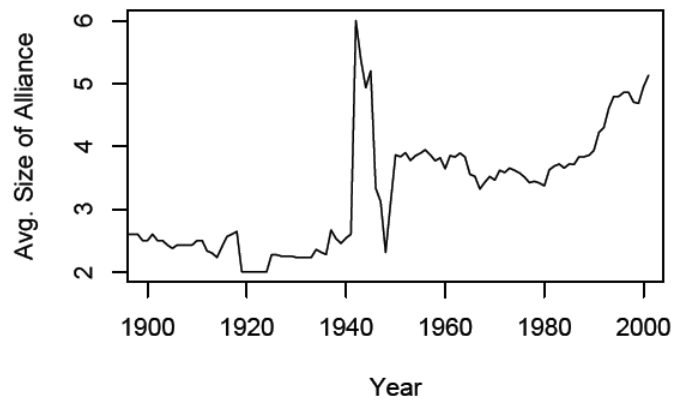


Figure 4: Average Size of Alliances over Time

Third, some states are more likely to join alliances than others. Great powers are far more likely to be join (and lead) alliances than small or medium-sized powers. Indeed, as security providers, great powers can leverage alliances to shape outcomes in the international system and in the domestic politics of their allies.⁷

Finally, a simple bivariate scatterplot does not display any relation, either positive or negative, between alliance membership and alliance duration. Notable outliers include NATO, the Warsaw Pact, the Arab League, the Western European Union, and Allied Powers during the Second World War.

Turning to the control variables, we find that politics do indeed make strange bedfellows: roughly 55% of alliances are struck between countries of different religions, while 44% contain politically heterogeneous allies. Alliances do not always form among neighbors since only 43% of alliances have members with contiguous borders. Institutionalization continues to be a fairly rare component of alliances. Some 48% of alliances contain no institutionalization provisions at all. Reflecting the propensity of great powers to be members of alliances, we find that 27% of alliances have nuclear-armed allies. The data shows some variation in the purpose and effect of alliances. Seventy-four percent of alliances are strictly defensive, 41% of alliances define a specific enemy, and 45% of alliance suffered a military defeat on the territory of an ally. Finally, some 32% of alliances existed under multipolarity, 40% under bipolarity, 2% under unipolarity, and 26% under changing

⁷States in central and eastern Europe are also some of the most active participants in alliances. This is due in part to the unique tendency of Warsaw Pact members to form separate bilateral alliances amongst themselves.

international systems.

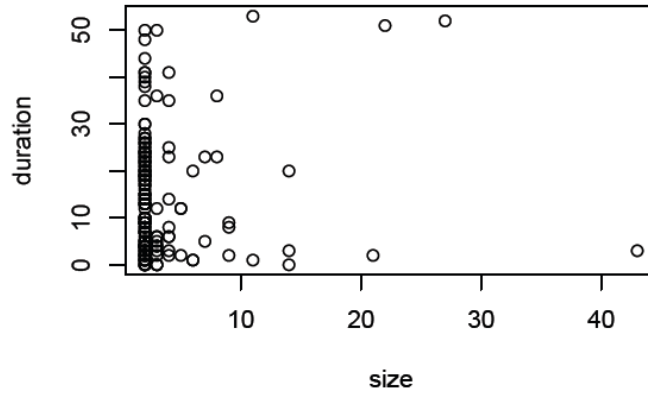


Figure 5: Alliance Duration and Alliance Size

This initial cut at the data gives pause regarding the hypothesis that smaller alliances are likely to be more durable than larger alliances. The next section will examine the issue further using econometric analysis.

4 Results and Analysis

4.1 Kaplan-Meier Estimate

A common method for examining survival data is the Kaplan-Meier or product-limit estimates of the survival function. This is a nonparametric technique for estimating the probability that an alliance will survive a given number of years given its membership size. While the Kaplan-Meier estimates provide an useful visual indicator of survival patterns, their central limitation is that they do not control for important alternative explanations.

Figure 6 displays the Kaplan-Meier estimates of survival rates of bilateral

and multilateral alliances. The results cast further doubt on the hypothesis that smaller alliances are more durable than larger ones. While we note that bilateral alliances have greater survival rates than multilateral alliances for the first 20 years of the alliance, the effect is reversed afterwards. Therefore, we find an effect that bilateral alliances are more durable than multilateral alliances in the short term, but that multilateral alliances are more durable than bilateral alliances in the longer term.

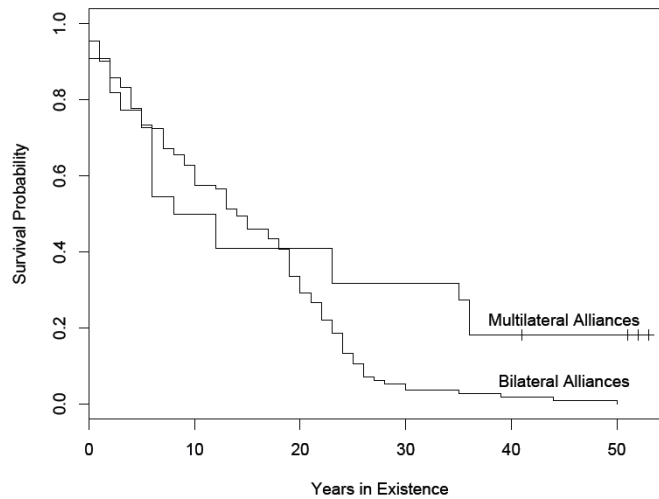


Figure 6: Kaplan-Meier Estimators for Bilateral and Multilateral Alliances

We can further refine our analysis of the effects of alliance size, by looking at bilateral, medium-sized (3-5 allies), and large alliances (6+ allies). Figure 7 displays the Kaplan-Meier estimates of survival rates of these types of alliances. Once again we find an effect of alliance size on alliance duration. Here, we note that the survival rates of medium and small alliances are statistically the same, the difference being attributable to sample size. There

is a strong difference, however, between large alliances and medium to small ones.

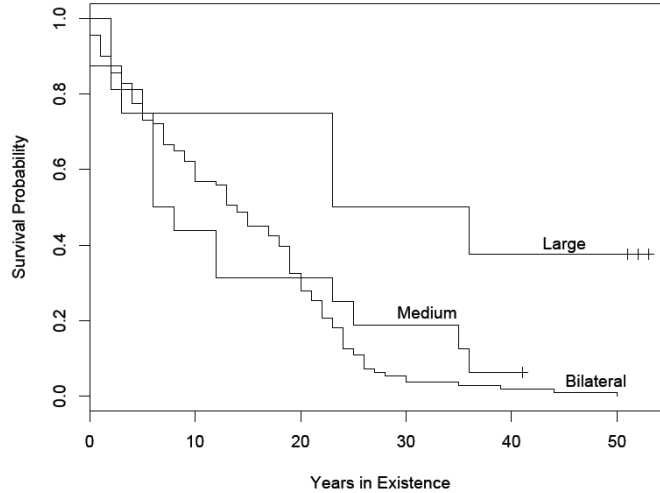


Figure 7: Kaplan-Meier Estimators for Bilateral, Medium-Sized, and Large Alliances

4.2 Cox Proportional Hazards Survival Model

To estimate the effect of alliance size on alliance duration, controlling for alternative explanations, we use a Cox proportional hazards survival model. The proportional hazard model is nonparametric, since it is not based on any assumptions concerning the nature or shape of the underlying survival distribution. The model assumes that the underlying hazard rate (rather than survival time) is a function of the independent variables (covariates).

The results of the Cox proportional hazard estimates are shown in the Figure 8 below. Coefficients indicate the effect of the variables on the risk of alliance termination. Positive coefficients indicate the variable is associated

with a higher risk of alliance termination. Negative coefficients indicate the variable is associated with a lower risk of alliance termination. Given the size of the dataset and the risk of multicollinearity among certain variables, we test five additional models with different specifications. These various specifications are not found to have an effect on the coefficient of alliance size.

The model produces a number of interesting results. First, and most importantly, the model directly contradicts the hypothesis that smaller alliances are likely to have greater survival rates than larger alliances. In fact, the results indicate the opposite. The hazard rate of alliance termination decreases by 9% with each additional ally. This effect is statistically significant regardless of model specifications. We can therefore be confident that the finding is robust. This result differs from those of Holsti, Hoppman, and Sullivan (1973), which found that alliance size is negatively associated with alliance duration. Potential reasons for this discrepancy may be their use the COW dataset, which includes fewer alliances. Furthermore, the timeframe used in their analysis (1815-1965) likely plays down the effect of alliance size on alliance duration since the average alliance size was far smaller in the 19th century than in the 20th century. However, the findings here are highly consistent with those of Bennett (1997). Some caveats, however, should be made clear in the interpreting the effect of alliance size on alliance duration. It is conceivable that there be a selection bias in the sample of alliances. Specifically, many larger alliances may have never been created precisely because they were foreseen to be so unwieldy. Therefore, the larger alliances that did emerge may have been unrepresentative insofar as they

Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
MEMBER	-0.0914 (-0.0317)**	-0.0893 (-0.0325)**	-0.0766 (0.0304)**	-0.0831 (0.0308)**	-0.0916 (0.0326)**	-0.0848 (0.0321)**
INSTITUTION	0.1297 (-0.0463)**	0.1241 (-0.044)**	0.15 (0.0444)***	0.1354 (0.045)**	0.1057 (0.0463)**	0.134 (0.0443)**
WARTIME	1.2109 (-0.2697)***	0.8224 (-0.227)***	1.0614 (0.237)***	1.1825 (0.2448)***	0.8407 (0.2218)**	0.669 (0.2386)**
ASYMMETRY	-1.5984 (-2.1249)	-3.3592 (-2.0354)*	-1.0934 (2.0605)	-0.9514 (2.0698)	-3.3731 (2.0557)*	-3.0831 (2.0917)
BIPOLARITY	0.449 (-0.1303)***	0.0856 (-0.106)	0.2945 (0.1131)**	0.3735 (0.1201)**		
NUCLEAR	-1.087 (-0.224)***		-0.9963 (0.2149)***	-0.9726 (0.2175)***		
CONTIGUITY	0.031 (-0.1704)				-0.1164 (0.1678)	
NONDEFEAT	-0.4194 (-0.1834)**			-0.3761 (0.179)**	-0.3276 (0.165)**	
POLHOM	-0.282 (-0.2135)				-0.0158 (0.1853)	
DEFENSIVE	-0.221 (-0.1956)					-0.3324 (0.1943)*
CULTURE	-0.2687 (-0.1764)					-0.0762 (0.1625)
OFFENSE	-0.1023 (-0.1826)					-0.13 (0.1884)*
N	168	168	168	168	168	168
R-Squared	0.316	0.154	0.267	0.286	0.174	0.166

***p ≤ 0.001, **p ≤ 0.05, *p ≤ 0.1

Figure 8: Cox Proportional Hazard Estimates of the Effect of Alliance Membership on Alliance Duration

were those that were considered particularly likely to survive. Moreover, it is likely that alliance size has a number of contradictory effects on alliance duration. Thus the hypothesized negative effects of alliance size on alliance duration may not be incorrect, but simply outweighed on average by the positive effects of alliance size on alliance duration.

Second, the INSTITUTION variable is associated with a higher risk of alliance termination. The effect is substantively and statistically significant. While the idea that institutionalization would make an alliance less durable seems counter-intuitive, it is important to remember that the INSTITUTION variable here measures institutionalization provisions in the alliance treaty as opposed to the actual institutionalization of any given alliance. Understood from this perspective, institutionalization provisions in a treaty may indicate an initial lack of trust among allies and therefore a greater probability of seeing an alliance collapse. Indeed, why would allies feel the need to write down commitments if they trusted each other?⁸

Third, the formation of alliances during periods of war substantially increases the hazard rate of alliance termination. Thus, consistent with our intuition, wartime alliances are likely to disband once the objectives of the war have been achieved (or the allies defeated).

Fourth, asymmetry whether there are large disparities in power among allies is seen to have an effect in reducing the risk of alliance termination. However, this effect is not consistent. Once a nuclear-armed ally (NUCLEAR) is added as a control variable, the effect all but disappears. This would indicate that nuclear weapons, rather than alliance asymmetry,

⁸For an argument in favor of writing down alliance treaties, see: Morrow (2000)

is what is accounting for increased duration of alliances. Indeed, the possession of nuclear weapons by an ally is shown to have a strong substantive and statistical effect on alliance survival. The possession of nuclear weapons by any ally reduces the hazard rate by some 36%. This may confirm the theory that nuclear-armed alliances are less likely to suffer defeat and more likely to provide unique military and political benefits that keep allies from defecting. The fact that the effect of nuclear weapons is still significant when taking into account the likelihood of defeat (Model 4) indicates that the value of nuclear weapons to an alliance may go beyond their utility in simply preventing military defeat.

Fifth, the model finds a negative effect of polarity on alliance duration. This run contrary to the concept that alliances existing during periods of unipolarity and bipolarity will be more stable than alliances existing during periods of multipolarity or transition. That being said, the effect of bipolarity is not statistically robust across different model specifications.

Lastly, border contiguity, non-defeat in war, political homogeneity, defensive alliances, cultural similarity, and offense dominance are not shown to have any statistically significant effect on alliance duration. These findings run against predictions by Siverson and Starr (1994), Huntington (1993), Jervis (1978), and Van Evera (1998). One reason for the divergence between Van Evera and Jervis' predictions and the empirical findings may lie in the definition of the offense-defense balance. Van Evera claims that his classification of the offense-defense balance applies to great powers (most of which were in Europe). Thus his measure, which does not take into account lesser powers, regional offense-defense balance, or geography, may simply be

a poor instrument for measuring the effect of the offense-defense balance.

5 Causes of Alliance Termination

The survival model contradicts the hypothesis that larger alliances are less durable than smaller alliances, controlling for a range of factors. What can account for this finding? Part of the answer may come from examining the causes of alliance termination for various alliance sizes. Fortunately, the ATOP database describes the causes of alliance termination. Alliance termination is coded either as censored (when the alliance is ongoing or one ally has disappeared), alliance fulfillment, alliance violation (due to political disagreements, war between allies, or failure to fulfill alliance commitments), or renegotiation of the alliance (to change the timeframe or the clauses of the alliance). The results are shown in Figure 9. One pattern that emerges is that smaller alliances are more likely than larger alliances to suffer from alliance violation. This would seem to validate the idea that small alliances may be more politically fragile since the defection of few even one allies can lead to the collapse of the alliance.⁹ This dynamic becomes more apparent in looking at specific case studies.

6 Case Studies

The large- n quantitative analysis tells us the degree to which alliance size has an effect on alliance duration. This section will use two case studies to

⁹That being said, we cannot infer too much from this comparison since there are too few cases in the large alliance category to ensure statistical significance.

		Cause of Alliance Termination**				
		0	1	2	3	TOTAL
Alliance	Bilateral (2)	17 (13%)	20 (15%)	45 (34%)	49 (37%)	131
	Medium (3-5)	2 (8%)	10 (40%)	9 (36%)	4 (16%)	25
Members	Large (6+)	4 (23%)	2 (12%)	2 (24%)	4 (41%)	12
	TOTAL	23	32	56	57	168

** Percentages in parentheses indicate the proportion of the alliance termination causes for a given alliance size category

Causes of Alliance Termination:

0= Censored data

1= Alliance fulfillment

2= Alliance violation

3= Renegotiation of alliance

Figure 9: Causes of Alliance Termination

illustrate some effects of alliance size on alliance duration. We will examine two alliances with variation on the independent variable, i.e. alliance size. The large- n statistical analysis controlled for a number of variables that could generate spurious relations. Such complete control is difficult in case studies. However, the Middle East and North Africa region provides a paired case of large and small alliances which allow to control for potential spurious variables. This section begins by examining a small and short alliance: the Arab-African Union signed between Morocco and Libya, in force between 1984 and 1986. The section then examines a large and durable alliance: the Collective Arab Security Pact, in effect since 1950 and comprising 21 members. Lastly, these alliances will be compared to explain why the Collective Arab Security Pact was so durable while the Arab-African Union was so weak. It will be shown that large alliances can survive longer because they are better able to generate political, military benefits as well as audience costs.

6.1 The Arab-African Union (1984-1986)

The Arab-African Union was signed between Morocco and Libya August 13th and ratified on September 1st, 1984. The treaty called for the establishment of an Arab-African Federation jointly presided by King Hassan of Morocco and Col. Qaddafi of Libya. The federation was to be supported by a general secretariat; defense, economic, educational, and political councils; a federal assembly; and an executive committee comprising the cabinets of both countries. Article 9 of the treaty called for cooperation in defense to safeguard of the independence of allied members. Article 12 of the treaty established the Arab-African Union as a collective defense alliance, whereby an attack on either member would be considered as an attack on the other (UNTS 23226).

The treaty surprised many observers since Morocco, a conservative monarchy, and Libya, a revolutionary republic, were rivals. Morocco supported the National Front for the Salvation Libya (NFSL), an opposition group. Libya, supported the Popular Front for the Liberation of Saqiet el-Hamra and Rio de Oro (Polisario), which was battling Morocco for control of Western Sahara. Yet, each state had individual motives for joining the treaty. Morocco was suffering from an economic crisis caused by prolonged drought, a drop in phosphate prices, decreased tourist revenues and remittances due to a recession in Europe, the high price of oil, the war in Western Sahara, and population growth. In January 1984, riots spread across Morocco to protest the dire economic situation (Parker, 1985). The Arab-African Union ended Qaddafi's support of Polisario in Western Sahara while allowing unemployed

Moroccans to work in Libya's lucrative oil fields. Furthermore, the alliance with Libya allowed King Hussan to counter the charge that he was too close to the US (Tessler, 1988). Through the Arab-African Union, Qaddafi sought to reduce Libya's diplomatic isolation, gain rhetorical support for its war in northern Chad, enhance regime legitimacy at home, check opposition from the armed forces, and end Morocco's support for NFSL. Lastly, both Morocco and Libya were concerned about the rising power of Algeria in the Maghreb. In March 1983, Algeria, Tunisia, and Mauritania had signed an Alliance of Brotherhood and Concord. The fact that the Arab-African Union was signed in the Moroccan town of Oujda adjacent to the Algerian border was a telling symbol of regional tensions (Deeb, 1989).

The Arab-African Union endured barely two years before collapsing in 1986. The causes of its demise were many. For King Hassan of Morocco, the Union was largely a tactical move to shore up domestic support. By 1985 the Union had achieved many of its objectives, having distracted Moroccans from economic problems, raised the prospects of future economic growth, and reduced Hassan's image as a close ally of the US. Once these objectives secured, Morocco grew impatient with Libya's international sponsorship of terrorism, expanding ties with Iran, and worsening relations with the West. In effect, the Union had done little to mollify Qaddafi's radical ways and the cessation of support for Polisario had failed to turn the tide in the war in Western Sahara. On the international stage, the Union was weakened by a Libyan rapprochement with Tunisia and Algeria (Mortimer, 1989). The treaty was formally abrogated by Morocco on August 29th, 1986, after Libya and Syria had issued a joint statement condemning as an "act of treason" a

proposed meeting between King Hassan of Morocco and President Shimon Peres of Israel (Degenhardt, 1986). Ultimately, the alliance broke down when one of the allies saw it more as a liability than as an asset.

6.2 The Collective Arab Security Pact (1950-Present)

The Collective Arab Security Pact was born out of the League of Arab States. The League of Arab States, commonly referred to as the Arab League, was founded in 1945. It possessed a Council composed of representatives of all member states, and responsible for the functioning of the League. The Council was assisted by 16 committees dealing with cooperation and coordination on political, cultural, social, and economic matters. The Arab League also established a secretariat, originally based in Cairo. On June 17th, 1950, members of the Arab League signed the Treaty of Joint Defense and Economic Cooperation Between the States of the Arab League (BFSP 157). The Pact included six key provisions. First, member states pledged to resolve their differences peacefully. Second, a collective defense clause considered any attack on one member of the Pact as an attack on all members. Third, a Joint Defense Council was established, consisting of foreign and defense ministers of member states, and intended to coordinate defensive measures. Fourth, the Pact established a permanent committee of the members' Chiefs of Staff, to draft joint defense plans and provide technical advice on defense matters. Fifth, an economic advisory committee, composed of the Ministers of National Economy, would be formed to carry economic measures complimentary to military decisions. Lastly, the Pact called for signatories to give each other priority in the exchange of goods and

services, and to cooperate on economic development (Degenhardt, 1986). In 1954, the Foreign Ministers of the Arab League agreed to a resolution stating that no alliance should be concluded outside the fold of the Collective Arab Security Pact. Subsequently as a result, Egypt, Iraq, and Jordan abrogated their defense agreements with the UK (MacDonald, 1965).

The Collective Arab Security Pact, as well as the Arab League more generally, suffered a number of setbacks. The Arab League failed to honor its collective security obligations during the 1956 Suez Crisis, the 1980-1988 Iran-Iraq War, the 1981 Osirak raid, the 1982 and 2006 Lebanon Wars, and the 1986 US bombing of Libya. Furthermore, the Collective Arab Security Pact failed to prevent conflict among the allies. Armed conflict occurred between the Lebanon and the United Arab Republic in 1958, between Morocco and Algeria in 1963 and 1976-1977, between Jordan and Syria in 1970, between Iraq and Kuwait in 1973 and 1990, and between Egypt and Libya in 1977. Egypt and Saudi Arabia fought on different sides of a proxy war in the member state of Yemen in the late 1960s. Flouting resolutions that no alliances be concluded with states outside the Pact, Iraq joined the Baghdad Pact with Turkey in 1955, and Egypt and Iraq signed ententes with Soviet Union in 1971 and 1972 respectively. Members of the Pact have suffered crushing military defeats during the 1967 Six-Day War and the 1973 War. At a political level, Pact members suffered incessant political divisions, most prominently when Egypt signed a separate peace with Israel following the Camp David Accords in 1979. Because of such disagreements and setbacks, the Arab League and the Collective Arab Security Pact are widely considered dysfunctional international organizations (Barnett and Solingen, 2007).

Yet the Arab League has proven itself to be a particularly durable alliance.

6.3 Comparison

A comparison of the Collective Arab Security Pact and the Arab-African Union provides insight into alliances dynamics while controlling for a number of variables. Both alliances were defensive and struck between countries in the same region, with the same religion, language, and broad culture. Both alliances involved non-democratic, non-nuclear, non-great power, and ideologically dissimilar states. The international system was for the most part bipolar in both cases, with an advantage for defensive military technology.¹⁰

First, the case studies confirm that small alliances are more vulnerable to defections by individual members. The Arab-African Union collapsed after a single member, Morocco, decided that the alliance no longer served its interests. Without Morocco, the alliance could not stand. By contrast, the Collective Arab Security Pact survived a wide range of disagreements and the expulsion of Egypt, its most powerful member. Indeed, because larger alliances are more costly to establish and less vulnerable to individual defection, they are less likely be founded as purely short-term tactical maneuvers in the first place. Morocco could strike an alliance with Libya to bolster its economy and cancel the alliance once its interests had been served. This risk did not apply to the Arab League.

¹⁰While the use of paired case studies is useful, it should be remembered that the use of a such controlled comparison makes it difficult to observe the effects of the control variables on alliance duration. In addition, these paired case studies do not necessarily exhibit all the hypothesized effects of alliance size on alliance duration outlined in Section 2.

Second, the case studies demonstrate how larger alliances are more durable because they are better able to generate audience costs. There was no popular protest in Morocco or Libya when the Arab-African Union was abrogated. The Libyan Foreign Ministry simply issued a statement regretting Morocco's decision (Degenhardt, 1986). In contrast the large membership of the Collective Arab Security Pact allowed it to generate political audience costs among member states. Pan-Arabism resonated strongly among the members of the Collective Arab Security Pact. Arab leaders could lose legitimacy and be punished domestically if they were seen as actively betraying the goals and aspirations of the Arab League. In addition, defection would mean isolation from most of their regional neighbors. The Baghdad Pact and the Camp David Accords provide examples of the power of the Collective Arab Security Pact to generate audience costs. In 1955, Iraq entered into an alliance with Turkey, in direct contravention with the Arab League agreement against outside alliances. In response to the treaty, the Arab League governments of Egypt, Jordan, Lebanon, Saudi Arabia, and Syria – that is, most of Iraq's neighbors and like-minded states – met in Cairo to uniformly condemn the Iraqi action as undermining the Collective Arab Defense Pact. In the same month, protests against the treaty erupted in Jordan, Syria, and Saudi Arabia. Egypt threatened to form a separate defense agreement with the remaining members of the Arab League. Fearing regional isolation, in 1958, officers within Iraq's very own military overthrew the government and had Iraq withdraw from the Baghdad Pact (Barnett, 1996).

The 1978 Camp David agreements provide a second example of the power

of larger alliances to generate political audience costs. Egypt's diplomatic overture to Israel in 1978, followed by the Camp David accord in 1979, caused outrage among members of the Arab League. The Arab League condemned Egypt's decision, Egypt's membership to the Arab League was suspended, and the headquarters of the League were moved from Cairo to Tunis. Ultimately, while the political audience costs did not prevent states from violating the Pact, they did raise the risks of doing so. Indeed, because large alliances such as the Arab League can tap into a broader community of states, they can play more powerful role in legitimating the foreign policy of allies (Barnett and Solingen, 2007).

Third, the case studies show how larger alliances are better able to bolster international influence. To the members of the Arab League, the Collective Arab Security Pact was seen to increase the political and military clout of the member states. For much of the first half of the 20th Century, Arab nationalists had fought for self-determination from Ottoman, French, and British tutelage. Arab nationalists asserted that state borders were the arbitrary creations of colonialism and designed to weaken and exploit the Arab world. Common to the pan-Arab discourse was that Arab states shared a degree of "policy interdependence" insofar as the decisions taken by some states in one part of the Middle East and North Africa affected intentionally or unintentionally other actors' policy decisions (Keohane and Nye, 1975).

The defeat of Arab forces against Israel – a country with only a fraction of the Arab world's size and population – in the 1948 Arab-Israeli War, served as a shocking reminder that political coordination needed to be coupled with military coordination (Barnett and Solingen, 2007). To many, the Pact

established vital political credibility to the Arab League. Indeed, six months after the signature of the Pact, the UN finally recognized the Arab League as a regional organization. In establishing a mediation and collective security function, the members of the Arab League could prevent aggression and pre-empt outside interference in the affairs of the region (MacDonald, 1965). While the Pact was not always successful at preventing internal conflict and deterring outside aggression, the collective benefits of the Pact – if only at a symbolic level – outweighed the costs. Indeed, the Collective Arab Security Pact indicates how alliances do not necessarily need to be military effective to be durable.

In contrast, the Arab-African Union demonstrated the limits of smaller alliances. Membership in an alliance involves certain costs and benefits. Since the benefits tend to be larger in larger alliances, they are more likely to withstand some disagreements (Berkowitz, 1983). By itself, the Arab-African Union could not solve Morocco's predicament in Western Sahara or Libya's diplomatic isolation. It did not completely redress the imbalance of power in the Maghreb. If anything, Morocco felt Libya's reckless behavior was endangering its security. Because the Union, like many smaller alliances did not provide reliable long-term benefits, it easily became vulnerable to political disagreements and collapse.¹¹

¹¹In comparing the Arab-African Union and the Collective Arab Security Pact, an important caveat should be acknowledged. The Arab-African Union was "nested" within the Collective Arab Security Pact, that is, Libya and Morocco were both also members of the Pact. It could be argued that the demise of the Arab-African Union does not demonstrate the weakness of smaller alliances as much as the weakness of redundant ones. This may be, but questions remain as to why Morocco, when faced with redundant alliances, chose to maintain its membership to the Collective Arab Security Pact and not to the Arab-African Union.

7 Conclusion

The number and average size of alliances has increased steadily over the course of the 20th century. International relations theory draws divergent conclusions regarding the political cohesion and military effectiveness of larger alliances. This paper has sought to empirically appraise contending theories using data from defensive alliances between 1900 and 2000. Using a Cox proportional hazard survival model, alliance size was found to have a positive effect on alliance duration, reducing the risk of alliance termination. This result was found to be robust across a number of controls and model specifications.

The model found that asymmetric and nuclear-armed alliances are also more durable. Institutionalization provisions and wartime alliances, however, were found to have a negative effect on alliance survival rates. Bipolarity, territorial contiguity, non-defeat, political homogeneity, defensive agreements, cultural similarity, and offense-dominance were not found to have a statistically significant effect on alliance duration. A paired comparison of the Arab-African Union and the Collective Arab Security Pact illustrated some of the hypothesized effects of larger alliance size on alliance duration, such as enhanced international clout and audience costs.

The results bear some policy implications. If much larger alliances are found to be more durable than smaller alliances, this may indicate that all other things being equal, alliance expansion can be a viable and desirable policy. The findings here also indicate some avenues for future research. While larger alliances were found to be more durable, the exact strength

of various possible causal mechanisms is not yet clear. In addition, with more data, survival analysis could look at what should be the optimal size of alliances.

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