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Author(s): Mark J.C. Crescenzi, Jacob D. Kathman, Katja B. Kleinberg and Reed M. Wood

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Reliability, Reputation, and Alliance Formation¹

MARK J.C. CRESCENZI

University of North Carolina at Chapel Hill

JACOB D. KATHMAN

University of Mississippi

KATJA B. KLEINBERG

Binghamton University, SUNY

AND

REED M. WOOD

Arizona State University

In this paper, we examine how the past alliance behavior of nations affects the likelihood that these states will be involved in alliance formation. We contend that nations evaluate the reputations of potential allies when searching for alliance partners. Reputation information is processed by governments along with other immediate concerns. By introducing a model and developing subsequent measures of reputational alliance histories, we improve upon our current understanding of the factors that drive alliance formation. Using alliance reputation data derived from the ATOP project (1816–2000), we find support for the hypothesis that a reputation for upholding one's agreements significantly improves the likelihood of membership in future alliances.

In the closing years of the 19th century, Britain began to emerge from the “splendid isolation” it had enjoyed during previous decades. Continued conflicts over colonial boundaries, the mounting costs (both in terms of military expenditures and in terms of reputation) of the Boer War, and particularly the recent completion of the Franco-Russian Alliance illustrated to British leaders a disturbing decline in the state's power and prestige relative to other European states. To many senior British diplomats, strategic alliances represented the most efficient means to re-assert Britain's position in world affairs and allow it to more easily defend its vulnerable overseas colonies (Monger 1963; Weitsman 2004). British leaders were eager to locate a suitable ally whose military capabilities would complement Britain's and who likewise shared a desire to check the expanding power of France and Russia, especially in the Far East. Russian expansion

to the East was deemed particularly worrisome, and British interests in China and the Pacific required the UK to shore up its continental defenses while committing greater resources to the Far East. To that end, Britain opened alliance talks with two potential partners in the late 19th century: Germany and Japan.²

In the first case, British diplomats and foreign policy decision makers viewed Germany as a natural ally for Britain and a strong counterweight to the Franco-Russian alliance (Langer 1935:718, 732–733; Monger 1963:12; Kennedy 1980:224, 231). Despite rising economic and military competition between the countries, neither appeared particularly hostile at the turn

¹ This research was supported by the National Science Foundation (SES-0450111 and SES-0729405). Data assembly was conducted with the help of EUGene 3.03 (Bennett and Stam 2000). The authors would like to thank the two anonymous reviewers, Navin Bapat, Skyler Cranmer, Stephen Gent, Brian Lai, Ashley Leeds, and Timothy Nordstrom for their helpful comments and for making data and replication files available. Data and replication files for the analysis in this article can be found at <http://www.unc.edu/~crescenzi/data/ckkwISQ12.zip>.

² Indeed, the alliance environment was quite malleable at the turn of the century. Various alliance arrangements were floated among British decision makers. The most popular permutation seems to have been an alliance among Britain, Germany, and Japan, or these three plus the United States. A parallel hypothetical agreement included an alliance with Italy and Austria. However, at his time, Japan was viewed in many British foreign policy circles as a progressive, rising power with a shared interest in checking Russian and French power. Germany was likewise a rapidly expanding power with an acute interest in balancing the Franco-Russian Alliance. Austria and Italy, however, were generally seen as weaker, less involved in broader geopolitics, and less stable, while the United States was generally perceived as aloof and reluctant to engage in foreign alliances (see Chang 1931; Langer 1935; Kennedy 1980).

of the century; in fact, relations were generally warmer than they had been in decades. Russia, rather than Germany, was largely viewed as the most proximate threat to British interests. Moreover, the 1894 alliance between France and Russia created significant tensions and pressed both states to examine various strategies to balance a growing threat to their interests (Langer 1935:656, 717; Weitsman 2004:118–121). Thus, alliance talks continued at intervals between the countries over several years.

Despite the perceived value of an Anglo-German military alliance, negotiations between the two ultimately broke down in 1901 in large part due to British skepticism of Germany's likelihood of upholding its alliance commitments. During the course of Anglo-German negotiations, the UK came to believe that Germany had failed to fully comply with its treaty commitment terms with Japan and the UK over Russian incursions into China. The British believed that Germany had balked at opposing Russia precisely after it encouraged the UK to stand up to it (Monger 1963; Miller 2004). Senior British diplomats expressed significant doubt as to the sincerity of the German leadership and mistrusted their intentions in a potential alliance (Kennedy 1980). Some diplomats likewise pointed to Germany's recent history of poor reliability and ill treatment of alliance partners as a possible cue to what Britain might expect (Gooch and Temperley 1927:73–74). Arguably, British policymakers feared that despite the obvious military advantage of a formal alliance with Germany, an alliance could become a strategic vulnerability if Germany were to shirk on its responsibilities to the UK in any subsequent crisis with Russia.

During roughly the same period as Anglo-German alliance negotiations, a parallel set of discussions were taking place among British and Japanese diplomats. In some ways, Japan was less valuable to England strategically because British officials perceived that it was still not sufficiently prepared militarily to weather a significant conflict with European powers; nor would it be able to credibly defend British interests outside of its immediate Far East arena (Chang 1931:43, 52; Langer 1935:491). However, Japan was able to demonstrate certain features that made it a particularly attractive alliance partner. The principal benefit to the UK offered by Japan was its shared desire to check Russian expansion in the Far East. Additionally important was that it aroused less suspicion among British foreign policy elites than did Germany. Like Britain, Japan had not become entangled in alliances in recent years and therefore had not developed a questionable reputation for reliability. Moreover, it had demonstrated its resolve and reliability by committing troops to the British effort during the Boxer Rebellion in 1900 (Chang 1931; Ion 2004; Nish 2004). Coupled with its victory over China in the Sino-Japanese war, the commitment Japan showed to Britain during the rebellion helped demonstrate Japan's potential as a credible alliance partner, thus

contributing to the formalization of the Anglo-Japanese alliance in 1902.³

The twin examples of Anglo-German and Anglo-Japanese alliance formation beg the broader question of how states' reputations for credibility and reliability influence international political phenomena. Specifically, they raise questions regarding the extent to which states value compliance reputations when making their alliance formation decisions. Indeed, from the example above, it appears that reputations for reliability are an important dimension of the alliance formation calculus. While we do not intend to argue that reputation is the primary factor in a state's selection of alliance partnerships, the notion that reliability is an important factor when states consider new alliances is intuitively appealing. In other words, while states hope to satisfy a number of interests by carefully considering the characteristics of potential allies, the expected reliability of future partners is also a component of an alliance seeker's decision calculus. Thus, our specific focus in this paper is on the question of whether a state's historical reputation for alliance reliability influences its likelihood of being sought as an ally.

States form alliances for multiple reasons. Behind these reasons lies an assumption of reliability. That is, states choose to ally with partners when they have some positive expectation that the alliance will hold in the event of conflict. Otherwise, the basis for the alliance is undermined. Any alliance in which a partner fails (or is expected to fail) to live up to its commitments is largely devoid of merit. Moreover, the failure of an alliance likely renders the abandoned partner more vulnerable than it was prior to its formation. Indeed, the level of security that a state hopes to achieve by forming an alliance is only relevant to the extent that the alliance seeker believes its partner will live up to its responsibilities. Consequently, states choose their partners carefully, preferring those likely to honor their agreements.

Based on this intuition, we investigate whether reliability reputations affect alliance formation choices. In the following pages, we briefly outline the role of state reputation in international relations research. We then delineate our theory of alliance reputation, which generates the functional form of our reputation model. This model is used

³ It is interesting to note that Japan directly examined Britain's past alliance behavior prior to signing the Anglo-Japanese Alliance. During treaty discussion in the fall of 1901, the Japanese Foreign Ministry researched Britain's reputation for fulfilling its alliance obligations. The findings indicated that while Britain had at times violated treaties, it had not abandoned its alliance partners (Nish 1985; Miller 2004). Indeed, senior diplomats also questioned why Britain was considering breaking its reputation for isolation by pursuing alliances with Japan and Germany and whether this might be a cue regarding its intentions toward Japan and the Far East (Langer 1935:767). Such examinations almost certainly played into Japan's alliance decisions. The general perception among Japanese diplomats was that a formal alliance with England would be both more reliable and less costly than attempting to reach an understanding with Russia over Korea and Manchuria (Langer 1935:783).

to construct several measures of alliance reliability that are used to test our arguments about alliance formation. Notably, these measures include both direct and indirect experiences of states with regard to past compliance events weighted by their relevance to the alliance seeker. We test our arguments on the global population of alliances from 1816 to 2000. The findings indicate support for our theory.

State Reputation and International Relations Research

Reputation as a motivator of state behavior has received growing attention in international relations research. Similar to arguments in economics about the behavior of firms in the marketplace, scholars have invoked processes of reputation formation and learning to explain phenomena as diverse as military deterrence (Schelling 1966; Alt, Calvert and Humes 1988; Huth 1988; Nalebuff 1991), recurring conflict (Leng 1983, 1988; Diehl and Goertz 2000; Crescenzi 2007; Crescenzi et al. 2007), multilateral cooperation (Milgrom, North and Weingast 1990; Downs and Jones 2002), and international lending (Simmons 2000; Simmons and Elkins 2004; Tomz 2007). Yet the depth of analysis and theory building on the role of reputation in international relations scholarship is scant compared to the attention it has received in the business and economics literature. Looking to this literature sheds some light on the role reputation plays in the formation of interstate alliances.

Given their similarities, scholars have analogized the behavior of states in the international system to the behavior of firms in an open market (Waltz 1979). While some key differences between the marketplace and the international system obviously exist, with respect to alliance formation the two systems are quite similar. In both, the decisions of the central actors are made in relatively anarchic, competitive environments characterized by limited information. Moreover, in both systems, actors desire resource aggregation and seek partners with complementary or supplementary strengths as a means to expand their prestige in and control over their strategic environment. Because partnerships are important (and common) features of both systems, firms and states alike are acutely aware of the costs imposed by the defection of an ally. For states, defection can leave them vulnerable to aggression from adversaries or can result in declining political influence; for firms, contractual breaches or the dissolution of partnerships can exert strong negative influences on market share, stock values, or net revenues. Consequently, states and firms both seek information that can shed light on the potential partner's loyalty.

One key difference between the systems is the presence within domestic markets of legal structures that can punish firms that renege on their contractual obligations. While the government's power to

enforce a contract between two independent firms is often limited, domestic legal structures in most developed capitalist states allow the aggrieved party to reclaim at least some portion of the losses accrued from its partner's defection. Unexpected departures, however, can still exert unrecoverable costs. In the international system, states enjoy even less recourse to damages wrought by defection. While limited international legal structures exist, the real potential for one state to extract compensation from another is comparatively small. With the exception of the compensatory mechanisms available through the WTO or various regional trade organizations for trade-related offenses, states are seldom able to appeal to higher bodies to enforce treaties or to seek compensation for losses resulting from a partner's defection. In this sense, the importance of selecting a reliable alliance partner is even greater for states.

Firms often attempt to limit the likelihood of future costs by forming alliances with partners that boast a reputation for credibility in upholding their obligations (Das and Teng 1998:504). A reputation for honoring commitments functions as a strategic asset in the process of alliance formation (Barney and Hansen 1994). Past empirical research has shown that a firm's reputation is a powerful signal of its likelihood to cooperate or defect on its future agreements (Weigelt and Camerer 1988). Accordingly, a firm with a reputation for past reliability is increasingly likely to be selected as an ally in future business dealings (Dollinger, Golden and Saxton 1997). The effect of reputation is present in both dyadic and extra-dyadic relationships. That is, the firm's history of trustworthiness may be created through its direct history with its potential partner but also through its dealings with other past partners as well as its "general image in the marketplace" (Das and Teng 2002:734). Interestingly, research in the business, economics, and marketing fields has demonstrated that the historical reputation of a firm in the open market is an important predictor of its ability to attract other firms for profitable mergers (Dollinger et al. 1997), and attract quality employees (Chauvin and Guthrie 1994). On the other hand, firms with poor reputations lose market share and earning potential by selecting themselves out of future transactions. In a parallel to states in the international system, these studies often note that in a marketplace of incomplete information where firms are unable to portray their true intentions, a firm's reputation acts as a primary information source on which actors make transaction decisions.

While a level of consensus has been reached in the business literature on the importance of corporate reputation, work on interstate conflict processes has not arrived at a similar agreement. Select quantitative studies report a significant effect of reputation on deterrence outcomes (Huth and Russett 1984; Huth 1988, 1997). While some research using case analyses casts doubt on the

logic of reputations in deterrence and interstate bargaining (Mercer 1996; Press 2005), recent work suggests that reputation affects alliance dynamics. In examining the First Morocco, Bosnia-Herzegovina, and Agadir Crises, Miller (2003) specifically addresses the effect of state reputation on alliance formation. He notes that reputations were an important factor in Britain's choice of alliance partners in the early twentieth century. Specifically, he finds that "the more reliable a state appears to be, the more autonomy it will have in its alliance choices (Miller 2003:77)." Most recently, Gibler (2008) found support for his expectation that heads of state form reputations that affect their prospects of forming future alliances. These findings provide evidence of the role of historical interactions and reputation in alliance formation.

We contribute to this line of inquiry by advancing a refined conceptualization of alliance reliability reputation. We argue that alliance seekers measure one another's reliability by observing how potential partners have performed in upholding their alliance commitments to other states in the system, assigning a reputation for (un)reliability to each of its potential partners. We further argue that states assess the relevance of this historical information based on how recently past alliance commitments were upheld (or violated) and how similar the affected state is to the alliance seeker. Below we elaborate on the nature of alliance agreements and our theoretical expectations for the importance of reputation in the alliance formation process.

Reputation and Alliance Formation

Alliances are formal agreements made between two or more states to coordinate their actions. They make plain the commitments between the parties and the conditions under which these commitments are activated. States forming an alliance thus agree to take certain actions when specified conditions arise. A variety of benefits motivate decision makers to pursue such agreements. Previous research has indicated that states ally in order to improve their security through capability aggregation and enhanced autonomy of action (Morgenthau 1967; Waltz 1979; Walt 1987; Morrow 1991; Powell 1999). Alliance agreements also act as signals of the signatories' intentions to come to one another's aid in times of crisis (Sorokin 1994; Smith 1995; Morrow 2000). Such signals, when credibly conveyed, should deter challengers, induce concessions from targets, or encourage the settlement of disputes short of war. Furthermore, alliances serve to reduce the resource commitments necessary for an effective defense (Altfeld 1984; Morrow 1993; Conybeare 1994). Alliances produce economies of scale that can allow states to spend less individually while increasing their overall security by pooling resources. Other research suggests that alliances improve the prospects of peace among treaty signatories (Long, Nordstrom and Baek 2007).

Despite the advantages offered by forming alliances, an underlying issue remains: the aforementioned benefits from alliances only materialize if an ally upholds (or is expected to uphold) its commitments. Unreliable allies are unlikely to add to a state's security regardless of the additional capability offered. To the extent that the existence and terms of the formal agreement are public knowledge, an alliance member's failure to fulfill its obligations is observable to all states in the international system. As a consequence, for instance, a potential adversary is less likely to be deterred by the combined strength of a coalition if either alliance partner is perceived as unreliable.⁴ Furthermore, the calculus of a state contemplating conflict initiation is made more tenuous if it cannot be reasonably assured that its partners will aid it in this endeavor. Similarly, the bargaining strength of a state embroiled in a crisis is determined at least in part by its allies and the perceived reliability that they bring to the bargaining table.

In addition to providing the benefits described above, alliances also impose costs upon their signatories. These costs can be thought of as a tradeoff between security and autonomy because all alliances require some degree of foreign policy coordination between partners (Altfeld 1984; Morrow 1987, 1991, 2000). Such coordination may mean that one or both allies must abandon some preferred policies. Military coordination may limit the tactical flexibility of each ally if war should come, and the specialization of forces may leave an ally exposed to other threats (Morrow 1994). States are loath to incur these costs if the benefits from an alliance are uncertain due to fears that an ally will be unreliable in a future crisis. Such uncertainty generates risks that states wish to avoid. The very nature of an alliance is meant to condition a state's expectation of its partner's future actions. Yet alliances are essentially unenforceable contracts. While technically binding, there typically exists limited recourse for states whose partners breach the terms. Consequently, the abandoned partner absorbs the high cost of defection.

The primary obstacle to choosing reliable allies is that in an anarchic system, the intentions of states and the credibility of their commitments function as private information. Moreover, states likely to renege on their commitments have an incentive to mask this quality in order to persuade other states to ally with them, thereby accruing the benefits outlined above at little cost. Indicating one's true intention to honor one's commitments relies on the credibility of such claims, as states lack the institutional framework necessary to enforce cooperation. Consequently, states seeking alliance partners must, by some mechanism, assess the likely reliability of potential partners

⁴ In fact, previous research suggests that states consider the credibility of their target's alliances before attacking (Gartner and Siverson 1996; Smith 1996). In addition, Mattes (2010) suggests that states may try to overcome reputation problems by altering the commitment mechanisms within the alliance structure itself.

beyond simple assurances, given that such assurances may evaporate in a crisis. One way states achieve this objective is by observing one another's compliance with past obligations. States use this information to form expectations about the future reliability of potential alliance partners.

In other words, states form alliances when they believe there is a reasonable probability of successful cooperation (Downs, Rocke and Barsoom 1996; Leeds 1999). Indeed, Leeds, Long and Mitchell (2000), Leeds (2000), and Leeds (2003) show that the majority of alliance commitments are honored. This finding prompts questions regarding the nature of alliance formation: If abiding by alliance commitments is costly, what drives states to so often fulfill their obligations despite incentives to shirk? One answer is that by limiting their commitments to those they expect to fulfill, states help ensure that they will not have to renege on their promises at a later date, thus negatively affecting their reputation for reliability. States that preserve positive reputations put themselves in a position for obtaining future rents. In this sense, the maintenance of a reputation for reliability plays an integral role in the alliance formation process.

Despite the intuitive nature of the reliability thesis, existing research has focused largely on common interests and regime characteristics to explain the credibility of alliances. Research on regime characteristics hints at the reliability thesis (Lai and Reiter 2000). For example, Leeds (1999) suggests that the commitments of democracies are more credible because democratic executives are held accountable at home for breaking foreign commitments. However, this should not be taken to mean that nondemocratic regimes lack the ability to form reliable alliances.⁵ Also, capability aggregation models often take reliability as given. When alliances form on the basis of a common security interest, reliability is assumed to flow from a common goal. However, the temptation to shirk makes collective action on any common interest difficult (Olson 1965).

Thus, states must use some credibility assessment criteria in order to choose among potential alliance partners. Reputations for reliability serve as one such factor. We suggest that states have access to readily available information about a prospective ally's future reliability: historical behavior. States prefer to choose partners that possess reputations for upholding their prior alliance commitments. By picking allies on the basis of their reputations, states are more likely to realize the benefits of an alliance while limiting their risk of abandonment. As such, perhaps the way in which alliance seekers calculate one another's reliability is by observing (i) how potential partners have performed in upholding their alliance commitments to other states in the system, assigning a reputation for (un)reliability to each of its potential alliance partners, and (ii)

determining the relative significance of that historical information based on the similarity between the alliance seeker and the potential ally's previous partners.

The arguments made above can thus be summarized in the following simple hypothesis:

Hypothesis 1: *A state is more likely to select an alliance partner that has a reputation for honoring its alliances.*

This hypothesis indicates how historical information is processed by states as they choose alliance partners.⁶ Below, we justify our use of *state* reputations over other types. We then operationalize our reputation concept, allowing us to conduct empirical analyses of our arguments on alliance formation.

Conceptualizing Reputation as a State Characteristic

Before we can empirically evaluate the above hypothesis, we first need a justification for conceptualizing reputation at the state level rather than focusing on individual leaders. Are alliance agreements the product of state decisions or policymaker decisions? In other words, do states join alliances or do leaders? Do states form reputations for alliance reliability, or are these reputations assigned to heads of state? The answer to these questions is inevitably "both." Our suspicion is that the extent to which a leader or state focus is more appropriate is a function of domestic institutional structure and leader tenure. While others have successfully focused on the reputations formed by state executives (Gibler 2008), we model alliance reputations as a state characteristic for three reasons.

First, alliance agreements are sticky, often surviving the tenure of individual leaders. Decisions by executives to fulfill or violate treaties are often made on agreements that were formalized under previous regimes. Yet honoring agreements made by previous leaders are still observed by other states in the system when calculating reputation. While foreign policies may be influenced by the opinions of individuals, the realm of possibilities is constrained by state-related factors, including the nation's capability, geopolitical stature, existing relationships with other states, and the similarity of its national interests with others in the system.

Second, leadership turnover occurs regularly in many states, especially in democracies. Therefore, many leaders have little time and opportunity to form reputations that are distinct from a state reputation. If we focus only on leaders, their reputations need to be reset with each new administration, providing little information about the state's historical

⁵ In fact, the literature on this topic has come to somewhat different conclusions (Siverson and Emmons 1991; Simon and Gartzke 1996).

⁶ We do not argue that this is the only factor governing alliance formation. Rather, we consider reputation as one factor in the decision calculus. Moreover, we are agnostic about the order in which states apply different criteria to their pool of potential allies. Our goal is to show that inferences from states' past behavior improve our predictions of who will enter into alliances over existing models.

behavior. Theoretically, this practice requires a peculiar assumption about the way in which information is processed for a resetting of leadership reputations to reflect reality. Such a practice requires states and their leaders to know nothing about their historical relationships as soon as leadership changes occur. Do states erase their knowledge of prior interactions with changes of administrations? This seems unlikely. For example, consider the recent leadership change in the United States. To many, this change appeared to indicate a dramatic shift in foreign policy direction. Yet the pre-existing commitments of the United States remain largely unchanged. Our conceptualization of reputation attempts to account for the decaying effect on information as time passes while allowing this information to persist across changes in leadership within states.⁷

Third, the process by which states choose to honor or violate their agreements is the product of domestic processes that vary widely. In some autocracies, this may indeed be the consequence of a single policymaker's decision that is then implemented by the state apparatus without other internal influences. In democracies, the process of signing and fulfilling agreements is far less individualized. Alliance reliability may not be easily assigned to individuals, as alliance formation and compliance decisions are accurately described as the product of a political bargaining process between individuals or institutions. For these reasons, the model delineated below focuses on state reputations, leaving aside the effect of leadership reputation for additional research that may build off of this basic platform model.⁸

Modeling Alliance Reputations as a Function of Observable Behavior

One may be tempted to argue that evidence of any past agreement violation should condemn an ally as wholly unreliable. However, assessments of reliability are more complex. A measure of ally reputation should account for the observed behavior of the potential ally. Some states may have a perfect record for (un)reliability. Yet others may have fulfilled some past commitments but not others, causing them to acquire a mixed record in the eyes of future allies. Also, not all observations of past alliance behavior may be equally relevant to current

alliance seekers. We assume that as time passes, the relevance of older observations fades. In addition to this temporal dynamic, we introduce the notion of third-party context, or proxy, as an important dimension of reputation perception. Here, our conceptualization of reputation departs from previous studies in that the way a state has acted toward a past ally is thus not necessarily indicative of how that state will act toward a future partner that is sufficiently dissimilar from its prior ally. There are thus two main components to the model of each state's reliability reputation: information about a state's alliance reliability and the relevance of that information to potential allies. The goal is to approximate the information used by states when crafting new alliances. Our approach undoubtedly simplifies this process. Clearly, a state's reputation is highly contextual, perception based, and undoubtedly biased by emotions, identity, domestic politics, and idiosyncratic factors unique to each state. We do not claim to be able to fully model a state's reputation. Instead, the models we present capture a basic representation of reputation that is applicable to any state in the international system at any time in modern state history. Moreover, they are transparent and customizable, and they aim to encapsulate the basic dynamics of how this information evolves over time.

Step One: Modeling Dyadic Alliance History

The first step in modeling alliance reputation is to specify the way states develop a dyadic history of alliance behavior. Our approach is to view the dyadic behavior as a process over time. New alliance events stimulate the relationship, and inaction causes that relationship to diminish. We begin with a direct alliance history concept that is directed dyadic (that is, j 's historical behavior toward i can be different than i 's historical behavior toward j). For any two states i and j , γ_{jit} represents j 's history at time t of upholding or reneging on its alliance obligations with i . These histories, illustrated in Figure 1, occur throughout the population of dyads in the system.

States develop these specific alliance histories with other states based on their actions in the past. Upholding one's alliance obligations creates a positive change to the alliance history; violating obligations imparts a negative change. These events have an immediate impact, which diminishes over time. If the dyad does not experience any alliance activity, we assume that the alliance relationship gradually becomes less informed by its history. We also assume that an alliance history with very few alliance events diminishes quickly. At the same time, dyads with a lot of alliance behavior opportunities (both positive and negative) generate histories that are more permanent. We reflect this quality in the speed of information decay: as a dyad experiences more and more alliance events, the rate of decay of old information slows down. This set of assumptions can be formalized as follows:

⁷ Gibler (2008) offers an interesting tool to account for the persistence of leadership reputation beyond regime transitions. In a robustness check, he includes a reputation variable that allows leader reputations to persist for ten years beyond the end of each leader's tenure, and his results remain consistent. Our approach is similar. However, we prefer to conceptualize the fading of information with time by using an exponential decay function. We specify this function in the next section.

⁸ This is not to say that research focusing on leadership reputation is unwise. This is hardly the case. Indeed, valuable research is being conducted on leadership reputation and alliance phenomena (Gibler 2008). Our work offers an alternative perspective that we believe to be valuable. If our results are similar to those reported on leadership reputation, then we can be more confident that this research vein has produced consistent knowledge that points to the importance of reputation in affecting the formation of alliances.

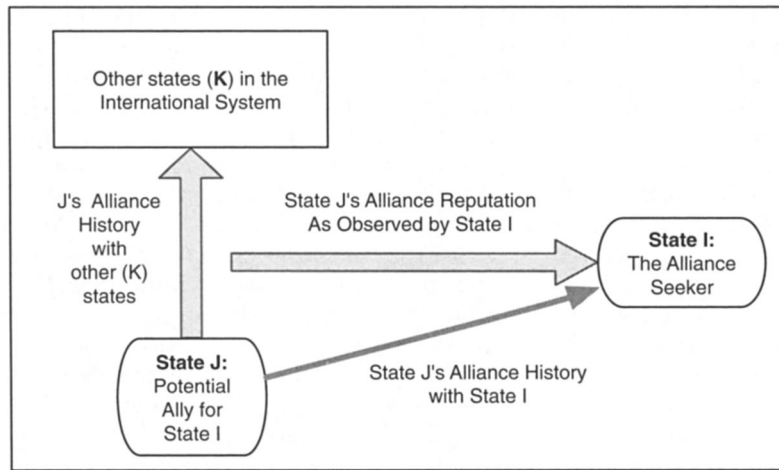


FIG. 1. Alliance Reputation and Direct Alliance History

$$\gamma_{jit} = (e^{-\frac{t}{\tau}})\gamma_{ji(t-1)} + \left(\frac{v}{\tau}\right) - \left(\frac{\omega}{\tau}\right),$$

where τ is the amount of time that has passed since the last alliance behavior was observed, σ captures the amount of activity that accumulates over time, v identifies the occurrence of j upholding its obligations to i at time t , and ω identifies the occurrence of j violating its obligations to i at time t . The exponential decay model is accelerated by τ , which means the alliance history becomes less informative as time passes without upholding/violating events. At the same time, information decay slows down as σ increases. This reflects our assumption that a state's historical policy choices have a cumulative impact. Finally, τ diminishes the impact of the shocks of upholding or reneging on alliance commitments. This reflects our assumption that events that occur regularly are more informative than events that are infrequent (and thus potentially interpreted as random or mistakes).⁹ For simplicity, we bound this function between 1 (j perfectly upholds its obligations to i) and -1 (j perfectly fails to uphold its obligations to i), with 0 representing no information about the ji dyadic alliance relationship.¹⁰

Step Two: Modeling Alliance Reputation

Having represented the concept of a direct alliance history, to test our hypothesis we turn now to a conceptualization of a state's alliance reputation.

⁹ We recognize that time passing without the opportunity to uphold an agreement may not indicate a real deterioration in resolve. The question of whether or not this information is fully public, however, is important as well. Ultimately, we are approximating perceptions of reliability based on historical behavior. The alternative approach is to assume a constant rate of decay for all states across time or to eliminate the decay of historical information altogether. These options make less sense to us, but the model affords this flexibility for future research.

¹⁰ See Crescenzi, Enterline and Long (2008) for a detailed discussion of the structure of this model as well as the bounding function.

Ultimately, we want to focus on how one state perceives the reputations of its potential allies. To do this, we model how state i perceives the alliance reputation of potential ally j . The foundation of i 's perception of j lies in j 's alliance history with the other states in the international system (we refer to these as k states, defined as states that are neither i nor j).¹¹ States perceive the reputation of a potential ally by observing its historic behavior toward other states. Moreover, some k states are more useful proxies than others, and we assume that similarities between i and k are a useful way to approximate the relevance of any alliance activity between j and k .

To illustrate this process, think of state i as the alliance seeker and j as its potential alliance partner in the pool of all potential partners (N).¹² Let the other states in the system be labeled k states. In addition to observing j 's historical behavior toward i , state i is able to observe j 's alliance behavior with the other states in the system, which contributes to j 's reputation for living up to its alliance responsibilities. We label this alliance reputation information α_{ijt} , which suggests that j 's reputation is relative (in the eyes of the beholder, which in this case is i). Indeed, j 's reputation is contextual to the way i processes j 's alliance histories with the other states in the system. State i learns of j 's reputation for reliability by observing j 's interactions with all other k states in the system with whom j has shared an alliance. Figure 1 illustrates this aggregation information. Let γ_{jkt} represent state j 's historical alliance performance in each jk dyad. At its most basic, α_{ijt} is simply an aggregation of the set of alliance histories at time t that state j has with all the states in the system that are *not* i . It is important to note that the

¹¹ Our model draws on previous research that considers the effect of extra-dyadic reputations on the likelihood of interstate conflict (Crescenzi 2007; Crescenzi, Kathman and Long 2007).

¹² In this research, the pool of potential alliance partners is every state in the international system.

direct history between i and j does not contribute to i 's perception of j 's external reputation for being a reliable (or unreliable) ally. That is not to say that the history of alliance behavior between i and j is unimportant, only that we have separated these concepts for analytical focus.

One innovation of this approach is the ability to introduce a relevance criterion into state i 's calculation of j 's reputation.¹³ This component is represented by ϕ_{ik} which reflects the similarity between the alliance seeker (i) and all states (k) with whom the alliance seeker's potential partner (j) has shared an alliance. Thus, i 's observation of j 's historical reliability to k is only relevant to i in as far as i and k are similar to one another. For instance, suppose that i observes that j has been exceptionally reliable in its commitment to k . If i is different from k in a fundamental way, the information that i can glean from the j - k relationship is fundamentally limited with regard to i 's expectation of j 's reliability in a potential i - j alliance. However, if states i and k are very similar to one another, the fact that j has been a reliable partner to k will lead i to assign j with a positive reputation, as i will expect j to be a dependable partner in a potential i - j alliance. Both the j - k alliance history component and the i - k similarity component are represented in the full model below, where j 's dependability in the j - k alliance is observed as ranging between completely unreliable (-1) to fully reliable (1) and where the similarity between states i and k can range from entirely dissimilar (0) to identical (1). The combination of components is then normalized by the size of the system. Putting the pieces together, Equation 1 formalizes this discussion:

$$\alpha_{ijt} = \frac{\sum_{k \neq i,j}^N \gamma_{jkt} \phi_{ikt}}{N - 2} \tag{1}$$

where N is the size of the system, γ_{jkt} is the alliance relationship between j and k at t , $\gamma_{jkt} \in (-1,1)$, ϕ_{ikt} is the similarity between i and k at t , $\phi_{ikt} \in (0,1)$.

Data and Methods

To test our hypothesis, we assembled a data set that identifies the onset of an alliance between each pair of states. This dependent variable, Alliance Onset, takes on a value of 1 for the first year of an alliance and 0 otherwise. For consistency, since we use ATOP data in generating our independent variables of interest, we also employ ATOP for the dependent variable, as the most comprehensive data available on the honoring or violating of alliances are provided by ATOP. Our reputation model necessitates that we have data on instances in which

states were obligated by their alliance agreements to come to the aid of their partner and subsequently make a decision to either honor its commitment or shirk. The ATOP project codes these data with a specific emphasis on the actual terms under which each alliance member is obligated to fulfill its commitments (see Leeds 2003; Leeds and Savun 2007). Attention to agreement terms increases the accuracy in the coding of instances in which states honor or violate these provisions. Importantly, arguments about learning from the experiences of others require that alliance compliance be observable events. The ATOP data do not code secret agreements. We are therefore reasonably confident that states are indeed able to observe the alliance behavior of others, thus allowing for the creation and observation of state reputations for reliability.¹⁴

Note that α_{ijt} contains information that is directional, meaning i 's reputation for reliability as viewed by country j is conceptually distinct from j 's reputation as perceived by i . As a result, we conduct our analysis at the directed-dyad-year level.¹⁵ Our method of analysis is a standard probit model with robust standard errors clustered on each directed dyad.

Operationalizing Alliance Reputation

To keep the labels of our concept of alliance reputation distinct from its empirical measurement, let Alliance History represent a measure of γ_{jib} and let Alliance Reputation represent a measure of α_{ijt} . To operationalize this model, we must represent γ_{jkt} and ϕ_{ikt} with measures of j 's historical commitment to the jk alliance and the similarity between i and k , respectively. We operationalize α_{ijt} to reflect j 's commitment to all of its alliance partners except i .

Measuring Dyadic Alliance History

The premise of the Alliance History variable is that historical relationships between states change in two ways. First, the relationship is affected by change, or the occurrence of new information relevant to the dimension of history being measured. Relative to

¹⁴ While we use the ATOP data for our analyses, as a robustness check we replicated the work by Lai and Reiter (2000) using a dependent variable generated from COW Alliance Data (Small and Singer 1991; Gible and Sarkees 2004). We adjusted their dependent variable slightly to reflect alliance formation and included each of the predictors from their primary model. The results produced by our reputation variable were consistent with the direction and significance of the findings reported below.

¹⁵ Employing the directed-dyad-year format is useful since each state has a distinct reputation. Our emphasis on alliance seekers asks that we focus on the decisions of each potential partner. Ideally, we would prefer to use data delimiting those states that were the initiators of agreements. Lacking data at this level, the directed-dyad-year data format provides the necessary design to account for individual state decisions. However, a potential issue arises when state i is deemed reliable while j is considered unreliable. If in this case i and j were to ally, the j - i dyad would support our hypothesis, while i - j would not. Such a scenario should bias against supportive findings. Thus, support found for our hypothesis should be considered more rather than less dependable.

¹³ This additional nuance to the model is optional, although it is supported by our conceptual discussion above. One could easily model α_{ijt} without weights on the individual extra-dyadic streams of information.

our interest in accounting for a direct alliance reliability history between states, we identify change when an ally is obligated by the terms of its treaty to act in fulfillment of those terms. Two types of events are parsed into separate streams: one stream of information reflects whether an alliance was upheld in a given year (a positive change), and one stream reflects whether the alliance was violated (a negative change).¹⁶

In the absence of change, the alliance relationship decays toward no information, which we characterize with a value of zero. The speed of decay depends on how long it has been since the last alliance event and the number of events within the dyad. Long time spans during which no activity occurs increase the decay rate, but as more events occur, the rate slows. The Alliance History measure can range between -1 and 1 ; actual values range from -0.33 to 0.68 . Negative values reflect a net history of violation, and positive values reflect a history of upholding obligations. The measure thus provides an assessment of direct alliance reliability, processing both obligations that were honored or violated.

Measuring Alliance Reputation

With our measure of direct alliance history in place, the next step is to generate a variable that represents the aggregation of the jk dyadic alliance histories into a reputation variable for j : Alliance Reputation. To do this, we first apply a similarity weight to each dyadic Alliance History observation to represent how valuable this information is to i , and then we simply sum the weighted histories, normalized by the number of states in the international system. To capture the dimension of state k 's proxy relevance to state i , we use Signorino and Ritter's (1999) S-similarity Score.¹⁷ This measure captures the foreign policy similarity of i and k . Similarity of foreign policies is important to i 's calculation. If the foreign policies of i and k were to be divergent, i would be unlikely to gain useful information from its observation of j 's (un)reliability to k . Therefore, although the S-similarity Score ranges from -1 to 1 , we constrain the measure to values that fall between 0 and 1 by changing all negative values to zero. In this way, we are able to represent that as the foreign policies of i and k become increasingly similar, i can intuit that j is likely to treat i similar to the way it has historically

treated k in the $j-k$ alliance. As the foreign policies of i and k become increasingly divergent, the value of k as a proxy for i decreases toward zero. In the model, S_{ikt} is used to represent the ϕ_{ikt} component.¹⁸

State i 's calculation of j 's reputation for reliability is thus represented by Alliance Reputation. State i updates this assessment at each time point, which in our measure occurs every year. Our reputation variable is generated for three samples to determine the robustness of our argument across different alliance types. As such, Alliance Reputation is generated for (i) all alliance types, including multilateral and bilateral alliances, (ii) all bilateral alliance types, and (iii) multilateral and bilateral defensive alliances. Our expectations do not change across samples. Consistent results for each should indicate that our findings are not driven by a particular alliance type. Each operationalization theoretically ranges from -1 to 1 , that is, a completely unreliable reputation to one that is fully reliable, with actual values of the most inclusive reputation variable varying from -0.318 to 0.611 .

Control Variables

To account for other explanations of alliance formation, we include a number of control variables in an effort to be sure that our models do not suffer from omitted variable bias. Several of the variables are taken from Lai and Reiter (2000), where a fuller description of the variables can be found.¹⁹ Two control variables addressing the regime type of the dyadic pairs are employed to determine the effect of joint democracy and regime similarity. Both measures are constructed using Polity IV data (Jagers and Gurr 1995). Joint Democracy is a dummy variable that codes whether or not both states in the dyad are democratic. Each state must have a score of

¹⁶ In constructing our measure, decisions to honor or violate their treaties are coded in the ATOP data set by Leeds, Ritter, Mitchell and Long (2002). If more than one alliance obligation is met or violated in a directed-dyad-year, these components aggregate the number of events per year. If in a directed-dyad-year there are no violations or fulfilled obligations, there are simply no shocks to the historical measure.

¹⁷ We have also generated alternate measures of Alliance Reputation using both the S-Score and a CINC similarity score, in order to capture both policy and power similarity. We have also measured Alliance Reputation weighting only by a CINC similarity score. We then ran robustness checks on our regression analyses using these alternative measures. The results are consistent with what we present below, and we use only the simpler measure here for parsimony.

¹⁸ We are aware of two important concerns with this approach. First, it may be argued that modeling reputation in this way may not account for situational aspects of compliance events. Yet, we argue that features of compliance situations are captured by our foreign policy similarity relevance criterion. If states i and k have very similar foreign policy orientations, they are likely to have similar interests in the outcomes of crises in which alliance partners are obligated to act. We thus believe that increasing the complexity of the model to reflect the specific characteristics of each compliance situation unnecessarily complicates the model without adding a great deal of additional traction. Second, it may be argued that various other similarity characteristics may be used to represent the ϕ_{ik} component. Given the centrality of security concerns in forming alliances, power similarity may be an important component of a properly constructed reputation model. In the subsequent discussion of our results, we include a robustness check that accounts for power similarity between states i and k . However, the results do not change substantially. Still, we argue that the similarity of foreign policies between i and k is the primary relevance criterion used by states in judging one another's reputations, as the foreign policy interests of states are central to their alliance formation and compliance calculi. We therefore report results that rely upon the S_{ikt} similarity criterion.

¹⁹ See Lai and Reiter (2000); Gibler and Wolford (2006), and Gibler (2008) for analyses using several variables mentioned below. Our dependent variable differs from Lai and Reiter's in that we address alliance formation whereas Lai and Reiter analyze the yearly presence of an alliance. Still, the results we present on our control variables match rather well with these previous studies.

5 or above on the Polity scale for this variable to take a value of 1.²⁰ Polity Difference measures the similarity of regime types between states in each dyad. This variable is coded by taking the absolute value of the difference between the regime scores of each state in the dyad. As this value increases, the dyadic regime types become increasingly dissimilar. Also, we control for whether both states in the dyad face a shared threat. Joint Enemy is a dichotomous variable reflecting whether or not both states have engaged in a dispute with the same country over the last ten years. The variable is coded using the Militarized Interstate Dispute (MID) data set (Jones, Bremer and Singer 1996). Distance measures the number of miles between capital cities of each state in the dyad. In line with Lai and Reiter, we take the square root of the total distance between capitals. If the states are contiguous, the distance is measured as zero. Major Power Status is a dichotomous variable coding whether at least one of the states in the dyad is a global power. Both Distance and Major Power Status are drawn from COW data. We then update each of the Lai and Reiter variables from 1992 to 2000.

Three other controls not addressed in Lai and Reiter's work are included here. First, Alliance History is constructed using a component of the reputation model described above. However, whereas reputation refers to extra-dyadic information that state *i* gains about *j* through *j*'s historical treatment of all other states *k*, Alliance History considers *only* the historical alliance information within the *i-j* dyad. In other words, *i* learns from the way that *j* has treated *i* over time. We expect that the more positively *i* is treated by *j*, the more likely it will be that further alliance ties will be formalized in the dyad. Second, Portfolio Similarity judges the level of similarity between the alliance portfolios of each pair of countries (Signorino and Ritter 1999). Where states share a number of mutual alliance partners, their likelihood of allying with one another should increase given the overlap of their foreign policy preferences. Lastly, the Interstate Interaction Score (*IIS*) measures past conflict and cooperation more broadly (Crescenzi et al. 2008). Rather than assessing alliance behavior, the *IIS* assesses the overall tenor of the conflictual or cooperative relationship between *i* and *j*. The *IIS* model records militarized disputes to represent conflictual interactions and new joint IGO memberships to represent cooperative interactions. The *IIS* is a useful control because it simultaneously identifies rivalrous dyads along with friendly dyads.²¹

²⁰ We use this specification at the request of an anonymous reviewer that we maintain consistency with the Lai and Reiter's (2000) research. We have performed sensitivity analyses using seven as a cutoff instead of five, with similar results.

²¹ We also ran our models with a *Bilateral Trade* variable (*Trade/GDP*), with no change in the sign/significance of our Alliance Reputation variable. We omit the trade variable from the published results because trade is so highly correlated with some of the other controls, but the additional results are available from the authors.

These controls account for several broader categories of alliance formation explanations including shared interests, interstate similarities, capability aggregation, and threat approximation. Therefore, a significant finding for our reputation variables should provide evidence in support of our theoretical propositions. The inclusion of our independent variables yields a data set for all directed dyads from 1816 to 2000.

Results

The results of our analyses are reported in Table 1. Each of the six models presented below addresses a separate sample of alliance formation. Model 1 is the most comprehensive, including all alliance types for the entire time period. Models 2, 3, and 4 replicate the analysis from model 1 while restricting the temporal domain to important periods that include the pre-World War I period, world war and interwar period, and the post-World War II period, respectively. Model 5 attempts to determine whether multilateral and bilateral alliance types have distinct explanations by employing a reputation predictor based only on bilateral performance. Model 6 only considers defensive alliances. Whether states assign reputations to one another based strictly on the type of alliance considered is an open question. Model 6 therefore seeks to test the robustness of our argument. Each of our reputation variables are adjusted to reflect the formation of reputations for the alliance type being addressed. Therefore, although only one variant of Alliance Reputation is listed, the reputation scores reported by this variable coincide with the alliance types addressed by each model.

Across the models, we note considerable consistency for the results produced by the control variables. In general, we find that the expected relationships are borne out by the statistical analyses. Judging from Table 1, a number of conclusions can be drawn. First, in several models, regime type appears to be related to alliance formation. States that are increasingly divergent in their regime types are significantly less likely to form a partnership, as models 2, 3, and 6 report significant and negative coefficients for Polity Difference. However, these results do not appear to be highly robust to alternative specifications, noted by the insignificant findings in the other models. Also, jointly democratic dyads display some inconsistency, showing both positive and negative relationships on alliance formation depending upon the time period analyzed and the type of alliance considered.²² Furthermore, conflict histories play an important role in the forming of alliance ties. When states share a common enemy, represented by Joint Enemy, an alliance is more likely to form no matter the time period or alliance

²² These results thus provides some support for contradicting arguments contending either that states of similar regime types are likely to align with one another (Siverson and Emmons 1991) or that the alignment of like states is a post-World War II phenomenon (Simon and Gartzke 1996).

TABLE 1. Probit Analysis of Alliance Onset

Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
	All Alliances 1816–2000	All Alliances 1816–1913	All Alliances 1914–1945	All Alliances 1946–2000	Bilateral Alliances 1816–2000	Defense Pacts 1816–2000
Alliance Reputation	1.44 (0.20)***	13.38 (4.19)***	-1.08 (0.30)***	2.82 (0.48)***	1.52 (0.23)***	0.56 (0.19)**
Alliance History	0.62 (0.61)	-1.33 (6.56)	0.26 (0.67)	1.20 (2.43)	0.63 (0.61)	1.00 (0.61)
Portfolio Similarity	0.62 (0.04)***	2.28 (0.46)***	-1.31 (0.07)***	1.30 (0.06)***	0.62 (0.04)***	0.79 (0.06)***
Interaction Score (IIS)	0.20 (0.06)**	-0.27 (0.15)	0.15 (0.12)	0.22 (0.09)*	0.20 (0.06)**	0.45 (0.10)***
Joint Enemy	0.55 (0.01)***	0.74 (0.05)***	1.10 (0.03)***	0.17 (0.02)***	0.55 (0.01)***	0.80 (0.01)***
Distance	-0.01 (0.00)***	-0.02 (0.00)***	-0.007 (0.00)***	-0.02 (0.00)***	-0.01 (0.00)***	-0.01 (0.00)***
Major Power Status	0.12 (0.01)***	0.67 (0.06)***	-0.15 (0.03)***	0.38 (0.02)***	0.12 (0.01)***	0.04 (0.02)*
Polity Difference	-0.001 (0.00)	-0.02 (0.01)***	-0.005 (0.00)*	0.001 (0.00)	-0.001 (0.00)	-0.01 (0.00)***
Joint Democracy	0.21 (0.01)***	-0.22 (0.11)*	-0.49 (0.06)***	0.30 (0.02)***	0.21 (0.01)***	-0.05 (0.02)**
Constant	-2.54 (0.04)***	-4.64 (0.42)***	-1.08 (0.09)***	-2.91 (0.05)***	-2.54 (0.04)***	-3.00 (0.06)***
Observations	1,045,707	104,360	99,098	842,249	1,045,707	1,045,707
Wald χ^2 (9)	10,226.43***	955.99***	2,895.49***	7,033.80***	10,242.20***	9,012.84***
Pseudo R^2	.14	.31	.20	.18	.14	.16
Log-likelihood	-36,816.32	-1,304.38	-7,566.24	-24,950.54	-36,817.63	-24,247.92

(Notes. Robust standard errors clustered by directed dyad in parentheses.

***Significant at the .001 level, **0.01 and *.05.)

type addressed. Furthermore, with the exception of insignificant findings in the pre-World War I and the world war eras, the *Interaction Interaction (IIS)* variable produces a positive coefficient. In other words, the more cooperative and less conflictual states are with one another in other areas of their foreign relations, the more likely they are to ally.

An increasing distance between two states also has a negative effect on the likelihood of alliance formation, as the efficacy of an alliance is inversely related to distance. Similarly, as the foreign policy distance between states decreases, their likelihood of forming an alliance increases, indicated by the Portfolio Similarity variable. However, we find somewhat surprising results when the model is constrained to the 1914–1945 period. Lastly, the presence of at least one global power in the dyad increases the potential for an alliance formation. Given the global interests of major powers, these states tend to form more alliance ties in an effort to fulfill their global ambitions. Again, the 1914–1945 period produces a contradictory result. Model 3 thus produces a number of confounding results, which, as we argue below, is likely due to the special circumstances of the time period that appear to play havoc with alliance formation dynamics.

Lastly, Alliance History is insignificant across each model, and little of substance can be said about its effect. Still, this result may not be terribly surprising. This variable captures the historical reliability of states by measuring how reliable state *i* has been toward its partner *j*. For this variable to be positive and significant, state *i* would need to attract additional alliance ties from *j* on top of its existing agreement as a consequence of *i*'s reliability in past performance opportunities within the dyad. Formalizing additional alliance ties on top of those that already exist occurs less frequently, and the continued addition of alliance ties would likely be unnecessary. Rather, one should more reasonably expect

that the information produced by *i*'s performance toward its partner *j* would be more important to other states *k* in the system that are seeking alliance partners. It is to these reputational expectations that we now turn.

Model 1 is the most comprehensive, accounting for all alliance types included in the ATOP data. Here, we find a positive and significant effect of a state's reputation for upholding its agreements. This result indicates that the more reliable states are in upholding their commitments, the more likely they are to be chosen by other states seeking partnerships. We therefore determine that this is a general phenomenon, as model 1 does not distinguish between multilateral or bilateral alliances nor by the nature of the alliance. Reliability is valued by alliance seekers irrespective of the types of alliances that were honored or violated in past agreements.

Models 2 through 4 attempt to determine whether the result in model 1 is a product of different time periods. Thus, we run separate models to address the years leading up to World War I, the world wars and interwar period, and the years following World War II. The results from model 1 remain unchanged in models 2 and 4, providing further support for our reputation argument. However, model 3 reports a negative relationship. This is a peculiar finding. The context of this particular time period may assist in more fully comprehending this result. Note that this time period produces somewhat inconsistent results for several variables relative to the other models. The years of both global conflicts and the brief interim between them were a period of extreme systemic instability. The rapidly changing power relationships among the major power states likely had a special effect on explanations of alliance formation. With regard to the role of reputation, it appears that during times of great systemic upheaval, alliance seekers may sacrifice their interests in reliability for tactical concerns like countering a powerful and

threatening common enemy or allying with proximate states that offer practical geographic opportunities to collaborate militarily. While it may seem that such an unstable time period would constitute a relevant circumstance under which states would seek partners with strong compliance reputations, this does not appear to be the case.

Excepting the 1914 to 1945 period, the remaining models are supportive of our reputation hypothesis. Models 5 and 6 seek to determine whether the effect of reputation holds for more narrowly defined alliance terms. Concerned that multilateral and bilateral alliance adherents may face various incentives to honor or violate their obligations, we consider reputations only for bilateral agreements in model 5. It may be that states consider it easier to uphold multilateral agreements since fulfillment of such terms may require a less costly commitment than would be the case for bilateral ties. Since multiple states share the responsibility for aiding their threatened alliance partner in its time of need, the cost of fulfilling multilateral terms would be lower relative to a state in a bilateral accord that is required to bear the full burden of aiding its ally. Similarly, violating multilateral agreements may be notably less visible, whereas violations of bilateral agreements should be more manifestly evident given that the violated partner is left without a safety net when its lone partner shirks on its responsibilities. We thus separately consider reputations formed in bilateral alliances. The result for Alliance Reputation is positive and significant, indicating that states that perform honorably in their prior commitments are more likely to be sought for future bilateral alliances. Reputations for reliability are thus an important component of this decision process.

Model 6 further specifies the alliance type subsample, and our reputation variable is adjusted to determine whether reputations are relevant to the nature of the terms. We find that a reputation for honoring defensive alliances increases a state's likelihood of being sought for defensive agreements. Defensive alliances are a common type. Signing agreements in an effort to defend against outside threats is critical to a state's security and survival calculus. Allying with reputable states is clearly preferred to the alternative of relying upon an alliance partner that has demonstrated an inability or an unwillingness to support its previous partners. Indeed, defensive alliances with disreputable partners create a dangerous situation, as a violated alliance may make the jilted partner less capable of defending itself in a crisis, given the specialization of forces and the reductions in manpower and military spending that often follow alliance formation.²³

²³ In addition to model 6, we also ran a subsequent model that judged state reputations for honoring/violating offensive alliance agreements on a dependent variable that only coded offensive agreements. Again, states with positive reputations for offensive alliance reliability had an increased likelihood of being sought for future offensive alliances. The consistency of results across different alliance types indicates that no single alliance type is driving the results of the more inclusive samples.

In addition to the models reported, we conducted several robustness checks of our results. First, we believe that foreign policy similarity is the primary relevance criterion considered by states when judging one's reputation. Not only should foreign policy similarity act as a reflection of similar preferences, but it should also account for situational aspects of compliance events. In other words, when states i and k have similar foreign policy orientations, alliance seeker i can intuit that j will treat i similar to how it has treated k in those past compliance situations. However, we understand that states may also take into consideration other criteria. Given the primacy of security concerns, the power similarity between i and k may be pertinent. Scholars have noted that alliances are formed as a means to achieve various ends. In particular, alliances formed within a dyad of symmetric or asymmetric power combinations may have different dynamics. As a robustness check, we generated reputation variables that included a power similarity criterion between states i and k to account for the possibility that power (dis)similarity is critical to state assessments of compliance reputations. We thus constructed a measure for which j 's historical treatment of k would be more relevant to alliance seeker i as the power symmetry embodied in the j - k alliance is increasingly reflected in a potential i - j alliance.²⁴ We re-estimated each of the models, and the results were identical in the direction and significance of the coefficients reported in Table 1, lending further support to our reputation arguments.

In an additional robustness check, we ran our analyses on two samples: potential allies (j states) that are minor powers vs major powers.²⁵ This more focused analysis enables us to roughly view how important reputation is versus the most dominant motivation for alliance formation: power. Our results are intuitive: alliance reputations matter more for smaller states than they do for major powers. The coefficient for the Alliance Reputation variable remains positive and significant for the minor power sample but loses statistical significance when we only sample major powers. The analysis confirms our suspicion that the more powerful a potential ally, the smaller is the market for allies, and the more that dimension of the calculations dominates foreign policy decisions. On the flip side, when states primarily bring legitimacy, location, or other non-power qualities to an alliance, and when there are multiple states as potential allies, reputation matters more.

We also examine whether our approach of weighting historical information with relevance criteria obscures simpler means by which states judge reputation. In this line of argument, states simply observe how potential partners performed in upholding past agreements without concern for relevance criteria. If

²⁴ The power similarity weights between i and k were generated using Composite Index of National Capabilities scores from Singer, Bremer and Stuckey (1972). Power similarity ranged from 0 to 1, with 0 representing complete dissimilarity of power between i and k and 1 indicating perfect similarity.

²⁵ We would like to thank an anonymous reviewer for this suggestion.

this is the case, an “irrelevant” foreign policy similarity criterion may be driving our results. We thus removed all relevance criteria from our measures and re-estimated each model. Again, the results were consistent with those reported in Table 1.²⁶

Next, given that we are attempting to explain alliance formation, there is little reason to include a lagged dependent variable in the analysis as might be more appropriate for analyses of alliance prevalence. Yet, we have noted this practice in previous work (Gibler and Wolford 2006), and for consistency, we replicated each model by including the lagged presence of an alliance within each dyad. However, this did not change the direction or significance of our reputation variable. Also, noting the prevalence of zeros and the small number of ones on the dependent variable, we reconsidered each of our reported models using a rare events logit. Again, the results for our reputation variable remained consistent with the results reported.

Lastly, given the dispersion of our variables of interest and the large number of standard deviations necessary to encompass the full range of observations, we generated new reputation variables that dropped all extreme outliers which included any observation that fell outside of five standard deviations from the mean. Once again, the results were very similar to those presented in Table 1. The one exception was that upon dropping the outliers, our reputation variable produced a positive and significant effect on alliance formation during the 1914–1945 period. This change, however, is actually in line with our theorized expectation and is thus more supportive of our theory than the result reported in model 3 of Table 1. With this exception, the analyses indicated that our results were not being driven by outliers.

Discussion and Conclusion

Overall, these findings provide support for the idea that when nations seek alliance partners, they pay close attention to the past alliance behavior of their potential partners. While this may seem like an intuitive conclusion to an intuitive discussion about the role of history in foreign policy, it is worth pointing out that scholars have often questioned the relevance of reputation and history in determining the foreign policy choices of governments (Mercer 1996; Press 2005). Our results point to the value of the reputations that states form by their actions toward others over time, providing further support for work in the literature that highlights the importance of historical information.²⁷ Our analysis suggests that

the dismissal of past actions is premature, at least with respect to states’ pursuit of alliance partners.

In fact, our analysis notes that state reputations weigh rather heavily in the decision-making process. Looking more closely at the results produced in model 1, we generated the predicted probabilities of forming an alliance when Alliance Reputation is varied from low to high values while simultaneously holding all of the continuous control variables at their means and all dichotomous controls at their modal values.²⁸ Figure 2 displays this relationship graphically, noting the positive slope of the curve produced by a state’s improving reputation on its ability to attract alliance partners. Substantively, varying Alliance Reputation from its lower to upper extremes produces a massive increase in the likelihood of alliance formation, increasing the probability of an alliance from nearly zero to over 2.64%. Given the low ex-ante likelihood of any two states joining in an alliance with one another (0.2%) that results from the high prevalence of zeros and the small number ones, this increase is substantial. However, we note that the range of our reputation variable is rather dispersed. Therefore, we also generated predicted probabilities that moved the values of Alliance Reputation from three standard deviations below to three standard deviations above the mean value. This increase in alliance reliability reputation increased the likelihood of an alliance formation by approximately 38%, a substantial rise in the likelihood that states will be sought for alliance relationships. Thus, even when controlling for a number of other relevant explanations, state reputation plays an important role in the process of alliance formation.²⁹

On further investigation, we also note that the effect of a state’s reputation appears to have an increasingly notable effect on the likelihood of alliance formation in more recent time periods. In two additional analyses, the predicted probabilities of alliance formation were conducted for the Cold War and the post-Cold War eras, again using a range of three standard deviations above and below the mean for Alliance Reputation. The calculation for the Cold

²⁸ Predicted probabilities were computed using Clarify Software (Tomz, Wittenberg and King 2001).

²⁹ Scholars often report changes in predicted probabilities by varying the values of individual variables from their minimum to their maximum values while holding all other variables in the model constant. The following list reports a percentage change in the predicted probability of alliance formation for each variable using the results reported in model 1. In generating these values, each variable is moved from its minimum to its maximum while holding all other continuous variables at their means and all other categorical variables at their modal values: Alliance Reputation = +4,988%; Alliance History = +795%; Portfolio Similarity = +1,149%; Interaction Score (IIS) = +131%; Joint Enemy = +383%; Distance = -98%; Major Power Status = +45%; Polity Difference = -6%; Joint Democracy = +90%. These calculations offer one way to consider the relative strength of each variable. However, given that some of the continuous variables in the model (including Alliance Reputation, Alliance History, Portfolio Similarity, Interaction Score (IIS), and Distance) are rather dispersed, we prefer to report a variety of predicted probability calculations as we have in the text using standard deviations from the mean for Alliance Reputation and graphing a range of values as we have in Figure 2.

²⁶ Given our theoretical expectations with regard to the value of relevance criteria and the importance of interstate (dis)similarities, we report the results produced by our original models.

²⁷ For example, work on interstate rivalry (Diehl and Goertz 2000), state learning (Leng 2000), and recent research on historic information and state reputations (Crescenzi 2007; Crescenzi et al. 2007) all point to the importance of past events in shaping future phenomena.

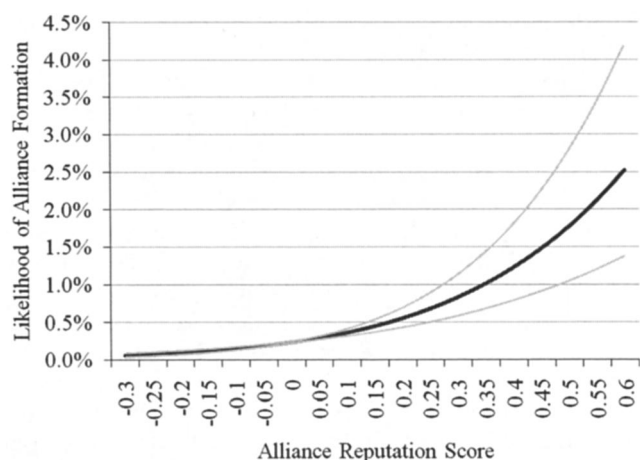


FIG. 2. Predicted Likelihood of Alliance Formation, 1816–2000

War era revealed an increase of 60%, while the post-Cold War period produced a massive 389% increase in the likelihood of alliance formation.³⁰ This thus provides initial evidence that state reputations have become increasingly important in informing alliance formation decisions.

The results presented above indicate that a state's reputation for honoring or violating its prior alliance commitments is an important (but not the only) predictor of that state's ability to attract alliance partners in the future. Our findings are indicative of the calculations states make when selecting their allies. The formalization of an alliance agreement may fulfill a number of essential state requirements. Alliances may improve the strength and security of a state, offer more autonomy of action, resolve collective action problems, or reduce the resource burden of maintaining self-sufficient forces. However, these benefits that accrue to states only obtain when the agreements are upheld. As such, states are particularly interested in formalizing agreements that they expect to be honored when the terms obligate.

Yet, the information available to states regarding future compliance is necessarily limited, as no state can perfectly predict the future circumstances under which alliance partners will be obligated to act. Reputations for (non)compliance are an important factor that shapes state expectations of a potential alliance partner's willingness and ability to uphold its promises. When a potential partner has shown little willingness to honor its prior commitments, alliance seekers should likewise have little faith in the potential partner's likelihood of respecting a prospective future agreement. As such, states with negative reputations have difficulty obtaining allies. Those with positive reputations, on the other hand, are far more capable of securing the agreements that they require because their reputations as

historically compliant partners are observed by and appeal to other alliance seekers in the international system.

These results point to future research avenues yet to be explored. Indeed, our conceptualization of alliance reliability reputation need not be limited to an explanation of alliance formation. Rather, successfully accounting for reputations for compliance with alliance terms may be relevant to explanations of various alliance phenomena. For example, formal alliance commitments vary in the specificity of their terms. Existing scholarship suggests that states will seek to design these commitments in a way that best serves their purpose (Koremenos, Lipson and Snidal 2001). As such, due to various factors, states may be faced with a limited pool of potential alliance partners. Indeed, there may be instances in which states choose to form alliances with partners whose compliance reputations are rather suspect. In these situations, alliance seekers may choose to design obligation terms that are more fully institutionalized and create tangible incentives for historically unreliable partners to honor their future commitments when called. Alternatively, more reliable allies likely achieve more flexibility as a product of their dependability. In this sense, successfully conceptualizing and accounting for treaty compliance reputations may not simply be relevant to alliance formation. Rather, a range of alliance phenomena may be reliant upon reputations for reliability, and we expect future research on these issues will yield interesting theoretical and empirical insights into alliance dynamics.

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³⁰ The Cold War was coded as occurring between 1950 and 1989. The post-Cold War era was coded as all years beyond 1989. Although these models are not reported, the coefficient signs and significance levels produced by the models are very similar for each of the variables to those reported in Table 1.

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