CHAPTER 7

Predicting Major Power Conflicts: High Stakes or Costly Signals?

The traditional view of the necessary conditions for successful deterrence is that a potential attacker must perceive the deterrer's threats as capable and credible for retaliation. Major powers can achieve, and often have, the capability necessary for effective threats. Their key problem is conveying their willingness to execute threats. This problem has been further exacerbated by the advent of the nuclear age, as retaliation against another nuclear power could trigger one's own self-destruction given that the adversary has second-strike capability. As outlined in the introduction, two different schools of thought have emerged from the concern with threat credibility: commitment theory and theory of inherent credibility.

As pointed out in the introduction, deterrence literature has mostly been influenced by the theory of costly signals and commitments. The idea of inherent resolve, which I argue is more suitable for understanding the majority of international conflicts, has been left largely undeveloped. In this chapter, I turn to the final test and compare the empirical validity of these two approaches to deterrence. Previous chapters examined several factors individually that may shed light on the dynamics of deterrence between major powers. In particular, the notion of inherent credibility, as a function of either external or internal interests at stake, was explored as an alternative to the idea that deterrence works best when the signals are costly and behavior is firm regardless of inherent stakes. In this chapter, I first examine to what degree external regional stakes are more potent elements of inherent resolve, and then combine them with domestic stakes into an expanded version of the inherent credibility model. I then compare the explanatory power of both inherent credibility models to that of costly commitments. The last chapter concludes with a discussion of the different policy implications that follow from the two approaches to threat credibility. In light of the empirical findings, it will evaluate

which approach is more suitable for understanding historical and contemporary developments in world conflicts.

Inherent Credibility Model

The key components of the inherent credibility model are (1) relative capabilities, indicating whether the deterrer's threat can be carried out, and (2) inherent resolve, indicating the observable and nonmanipulable elements of the Defender's threat credibility. Regarding the second component, this book argues that regional interests should be considered as its primary ingredient in extended deterrence.

Deterrence and National Interest

Extended deterrence is the most common form of conflictual interaction between major powers (see chap. 3). What then constitutes a major power's national interest in extended deterrence? My argument throughout the book is simple and quite intuitive, although often forgotten in the nuclear dilemmas of the Cold War climate. Namely, in extended deterrence, a state's (Defender's) willingness to become involved in conflict depends on the strength of its interest in the third party (Protégé), threatened by another power (Challenger).

Regional aspects of major power rivalry have rarely been subject to rigorous theoretical and empirical analysis (for an overview, see chap. 5). Although there is almost no theoretical framework available for their examination, these issues are partly related to the earlier idea of "spheres of interest" found in historical and geopolitical writings and its modern counterparts such as "shatterbelts" (Cohen 1973) and a territory's "relational importance" (Goertz and Diehl 1992). The notion of inherent credibility in deterrence studies (alternatively, the issues at stake) can thus be tied to the traditional scholarship on the regional aspects of major power rivalry. Specifically, as suggested and illustrated in chapter 5, a major power's stakes in the entire region of conflict can be considered as a main source of the inherent credibility of its extended threats. The regional stakes, in turn, can be interpreted to reflect the tightness of relations between a major power and most states in a particular region.

Another observable element of resolve could be internal, related to the domestic costs of foreign policy failure. When threat credibility was examined as a function of domestic factors, the significance of domes-

tic costs was high, although lower than the significance of external regional stakes as an indicator of inherent resolve (chap. 6). These findings suggest that foreign stakes, primarily manifested through selective regionalism in foreign policy orientations, predominate over other factors, though they do not necessarily supplant them.

Empirical Evidence

In this section, I examine the impact of relative capabilities and geopolitical interests on both the onset and outcome of deterrence. Later I add domestic political costs to the model in order to examine whether and how the addition of domestic aspects affects the findings. First, I argue that the inherent credibility model, the keystone of this book, has the potential to explain both the onset and outcome of immediate deterrence. The results are, therefore, expected to be statistically and substantively significant for explaining why general deterrence fails and what outcome is likely to ensue.

Second, the model can also provide valuable insights into the ongoing discussion regarding selection bias and deterrence. As discussed in chapter 6, one of the main theoretical issues in deterrence studies concerns the problem of selection effects. States "select or do not select themselves" into foreign disputes depending on their prior beliefs about the likely behavior of their opponents if the dispute occurs. One consequence of this self-selection is that "hypotheses that are true for general deterrence may be exactly reversed for immediate deterrence" (Fearon 1994a, 245). For this reason, recent theoretical research on selection effects (Bueno de Mesquita 1990; Bueno de Mesquita and Siverson 1995; Fearon 1994a, 1994b; Morrow 1989; Smith 1996, 1998) has developed new assumptions about deterrence behavior that challenge some of the premises of previous conventional approaches to deterrence.

The approach to selection effects concurs with the empirical literature on deterrence (e.g., Huth and Russett 1984) that general deterrence is likely to succeed if the balance of interests and forces favors the Defender. However, the argument concerning selection effects reverses conventional expectations about the effects of these factors on immediate deterrence. If general deterrence fails, it indicates a strongly resolved Challenger, willing to select itself into the conflict despite possible differences in capabilities and observable interests in the Protégé. Consequently, these variables are expected to be related to general deterrence success, but immediate deterrence failure: "ex ante mea-

sures of the defender's commitment to the protege should be related to general deterrence success, but immediate deterrence failure" (Fearon 1994a, 258).

The logic of the inherent credibility model, however, clearly anticipates the opposite results. A nation with stronger regional stakes, taken as an observable measure of interests, is also expected to prevail in immediate deterrence crises. Since the empirical test in the present analysis does not incorporate the Challenger's ex ante resolve, then, according to the argument on selection effects results, the estimated coefficients are likely to reflect selection bias. This bias should, in turn, attenuate and may even reverse the expected relationship between regional interests and immediate deterrence outcomes. In other words, if the selection bias literature is correct, then the present empirical analysis should make it harder to validate the inherent credibility model as it predicts the same intensity and direction of effects of regional salience for both the onset *and* outcomes of immediate deterrence crises.

A Basic Model: Capabilities and Regional Stakes

The Onset of Immediate Deterrence. Previous chapters examined each explanatory factor individually. Let us now turn to examining their combined effect on deterrence. The two key components of deterrence—relative power and inherent credibility, the latter manifested through regional interests—are both included in the model of general deterrence failure as presented in table 7.1. There are two variations of the model: Model 1 includes a composite military-economic measure of power (Correlates of War index of National Capabilities), while Model 2 includes only the military components. The second variable—inherent resolve—is indicated by relative regional interests. The estimation of the relative ratios of the Defender's and Challenger's regional interests follows the same calculating routine as that used for their relative capabilities. The unit of analysis is the major power dyad. This unit of analysis (also used in chap. 5) compares the regional stakes of the actual Challenger to those of all other major powers in all cases of general deterrence failure. The same method is used for examining the variable of relative power. Each case of general deterrence failure, that is, a conflict between a major power and a smaller nation, is disaggregated into the same number of dyadic cases as there are major powers in the international system, minus the Challenger. The dependent variable is coded zero if the conflict did not escalate into immediate deterrence between two major powers in the dyad, and one if it did.

Table 7.1 shows that the results are statistically significant. A major power with stronger regional stakes (inherent resolve) than the Challenger is likely to act as the Defender of the smaller nation against that Challenger. Given the high statistical significance of parameters, this finding firmly points to self-selection effects regarding the *observable* variable of Defender's inherent resolve, *if* this variable is interpreted in terms of the Defender's and Challenger's regional stakes in the disputed area. It should also be noted that the results show similar self-selection effects for the power variable. The stronger a potential Defender is relative to the Challenger, the more likely it is to become the actual Defender of the target nation.

Deterrence Outcomes. Two variations of the inherent credibility model of deterrence outcomes are presented in table 7.2. Both use the relative ratios of the Defender's and Challenger's regional interests and capabilities. Model 1 analyzes the same variables as those tested for predicting the onset of extended-immediate deterrence (see table 7.1), that is, the Challenger's and Defender's regional interests are used as explanatory variables. Specifically, Model 1 uses the ratio of the Defender's capabilities (or, regional interests) to the sum of the Defender's and Challenger's capabilities (or, regional interests). Model 2 examines the effects of power parity as well as the effects of parity or disparity between the Defender's and Challenger's regional stakes on deterrence outcomes.

TABLE 7.1. The Impact of Regional Interests and Relative Power on the Onset of Extended-Immediate Deterrence

Variable	Coefficient	Standard Error
Model 1		
Constant	–4.570***	.436
Defender's Relative Regional Interests	.029***	.004
Defender's Relative Power (COW)	.021***	.006
Model Chi-Square (df) = 48.334*** (2)		
Log Likelihood Function = –217.224		
N (dyads) = 874		
Model 2		
Constant	–4.248**	.407
Defender's Relative Regional Interests	.028***	.004
Defender's Relative Power (Military COW)	.015***	.005
Model Chi-Square (df) = 44.073*** (2)		
Log Likelihood Function = –223. 453		
N (dyads) = 894		

*$p < .10$; **$p < .05$; ***$p < .01$ (one-tailed *t*-tests).

One direct way to estimate the effect of power parity or disparity on deterrence outcomes is as follows:

$$\text{Power Disparity} = \text{abs}|(\text{DefCAP} - \text{ChCAP})/(\text{DefCAP} + \text{ChCAP})|$$

where

DefCAP = Defender's capability
ChCAP = Challenger's capability
Power Disparity = the degree of power inequality between Defender and Challenger

The resulting value ranges from 0 (exact parity) to 1, with a higher value indicating a larger distance from parity, that is, an increase in power disparity. The same method is used to calculate relative interests.[1] As table 7.2 shows, the findings for both relative capabilities and regional interests are significant for most of the pairs of outcomes, and the coefficients for the regional interest disparity are particularly statistically significant. Note that only EID dyads are now the appropriate unit of analysis for this test. Since there are a number of tables presenting MNL models of deterrence outcomes in this chapter, for the sake of simplicity they all represent the effects of the variables on three outcomes (Defender's acquiescence, Challenger's acquiescence, compromise) relative to the same baseline category, that is, war. Due to the number of alternative models tested in this chapter, the tables representing the MNL coefficient estimates do not include the odds ratios for the three remaining pairs of outcomes (i.e., the probability of the Defender's acquiescence relative to the probability of the Challenger's acquiescence and that of each side's acquiescence to the likelihood of compromise). The estimates for these three pairs of peaceful outcomes will, however, be presented and discussed in the text, and the tables that show the substantive significance of explanatory variables will include probabilities for all four deterrence outcomes, which are easier to interpret (see appendix D for technical details).

The findings obtained for Model 1 are significant for most pairs of outcomes. The coefficients' positive signs indicate that a Defender with stronger regional interests or power is more likely to prevail over the Challenger, prompting the Challenger to acquiesce rather than fight. War is also less likely than the Defender's acquiescence when there is an asymmetry of regional stakes to the Defender's advantage. These results strongly support the model, but with one puzzling finding.

There is a statistically significant likelihood for compromise if the alternative choice is war even though the Defender has stronger stakes than the Challenger. By contrast, under the same conditions of stronger Defender's stakes, compromise is not likely to occur when the alternative choice is the Challenger's acquiescence. This finding is, in turn, quite supportive of the general argument concerning regional saliencies. Although not shown in table 7.2, the results indicate that a Defender with stronger relative interests or power is less likely to acquiesce than the Challenger. The probability of the Defender's acquiescence in this situation is also much lower than the likelihood of compromise.

As for Model 2, positive and statistically significant coefficients indicate that war is less likely than the other three deterrence outcomes if the Defender and the Challenger do not have equal stakes in the Pro-

TABLE 7.2. The Inherent Credibility Model of Deterrence Outcomes, Multinomial Logit Coefficients

	Defender Acquiesces	Challenger Acquiesces	Compromise
Model 1			
Defender's Relative Regional Interests	.014	.024**	.029**
	(.017)	(.016)	(.017)
Defender's Relative Power (COW)	.043**	.094***	.058**
	(.031)	(.029)	(.032)
Constant	–2.279	–4.283***	–3.836**
	(1.853)	(1.813)	(1.998)
War is the baseline outcome.			
Model Chi-Square (df) = 15.753** (6)			
Log Likelihood Function = –77.176			
N = 69 (missing capabilities data for 1 case)			
Model 2			
Disparity in Regional Interests	.011	.028**	.057***
	(.016)	(.014)	(.019)
Power Disparity (COW)	–.013	–.007	–.046**
	(.021)	(.018)	(.027)
Constant	.146	.231	–1.873*
	(.956)	(.852)	(1.297)
War is the baseline outcome.			
Model Chi-Square (df) = 17.371*** (6)			
Log Likelihood Function = –76.367			
N = 69 (missing capabilities data for 1 case)			

Note: Numbers in parentheses are standard errors.
*p < .10; **p < .05; ***p < .01 (one-tailed t-tests).

tégé's region. Therefore, the results clearly show that parity in regional interests makes war more likely. This finding supports the old, but almost never rigorously tested, idea of gray areas found in the traditional historical and geopolitical literature. That is, war is more likely to erupt if the Challenger and Defender have equally strong stakes in the region of conflict. This finding is statistically significant if there is a choice between the Challenger's acquiescence or compromise (not shown in table 7.2). It is not statistically significant at the conventionally acceptable levels, however, for the Defender's choice between acquiescence and war.

Power parity is sufficiently significant only to determine the choice between war and compromise. In this respect, the direction of its effect is opposite from that of regional interests: adversaries of equal capabilities seem to be more likely to compromise than fight, or, in other words, power disparity makes compromise less likely than war. It is also worth mentioning that, although not shown in table 7.2, the probability of compromise, relative to any other outcome, is consistently significant for both relative power and interests, again indicating the reversed effects of these two variables. Adversaries with asymmetric inherent (regional) stakes are more likely to compromise than acquiesce or fight. The trend is exactly opposite for adversaries of unequal power, who are more likely to acquiesce or even fight rather than compromise with each other. These findings point to a number of previously neglected questions about the requirements for effective deterrence. Most important, the prevailing focus on relative capabilities to carry out a threat undeservedly marginalized the issue of equal regional stakes as a more disturbing factor leading to deterrence failure, with war as a likely consequence. These and other issues, carrying significant theoretical and policy implications, will be discussed more thoroughly in the conclusion.

An Expanded Model: Relative Capabilities, Regional and Domestic Stakes

To what extent does the addition of domestic costs to the model modify the findings? Regarding the probability of general deterrence failure escalating into EID crisis (compare tables 7.1 and 7.3), the statistical significance and direction of correlation for balance of power and regional interests remain the same. Escalation into an extended-immediate deterrence crisis is likely to occur if the Defender has stronger stakes or capabilities than the Challenger. The onset of EID crisis is also more likely if the Defender is democratic, but the pattern is

reversed when considering the Challenger's regime type. Before its challenge to the general status quo escalates into a serious dispute against another major power, a nondemocratic Challenger is more likely to back off than a democratic Challenger.

Once a general deterrence failure escalates into a major power crisis (that is, EID crisis), table 7.4 indicates that the empirical results for the impact of power and regional salience on deterrence outcomes are virtually the same as those in the simple inherent credibility model (i.e., the one not including domestic stakes). The impact of domestic factors

TABLE 7.3. The Impact of Regional Interests, Relative Power, and Domestic Regime on the Onset of Extended-Immediate Deterrence

Variable	Coefficient	Standard Error
Constant	–5.105***	.507
Defender's Relative Regional Interests	.032***	.005
Defender's Relative Power (COW)	.025***	.007
Defender's Democracy Score	.054***	.019
Challenger's Democracy Score	–.067***	.018
Model Chi-Square (df) = 73.058*** (4)		
Log Likelihood Function = –200.425		
N (dyads) = 850		

*$p < .10$; **$p < .05$; ***$p < .01$ (one-tailed *t*-tests).

TABLE 7.4. The Expanded Inherent Credibility Model of Deterrence (EID) Outcomes, Multinomial Logit Coefficients

	Defender Acquiesces	Challenger Acquiesces	Compromise
Defender's Relative Regional Interests	.029*	.047**	.046**
	(.023)	(.021)	(.022)
Defender's Relative Power (COW)	.068*	.148***	.095**
	(.045)	(.044)	(.046)
Defender's Democracy Score	–.120	.184**	.105
	(.115)	(.098)	(.105)
Challenger's Democracy Score	–.217**	–.041	–.019
	(.123)	(.098)	(.107)
Constant	–4.270 *	–8.843***	–6.647**
	(2.870)	(2.866)	(2.963)
War is the baseline outcome.			
Model Chi-Square (df) = 37.095*** (12)			
Log Likelihood Function = –66.505			
N = 69 (missing capabilities data for 1 case)			

Note: Numbers in parentheses are standard errors.
*$p < .10$; **$p < .05$; ***$p < .01$ (one-tailed *t*-tests).

becomes less statistically significant in this combined model than in the model including only the Defender's and Challenger's democracy scores (see table 6.2, chap. 6). On the other hand, the results in tables 7.4 and 7.5 show that the domestic regime variable better explains the outcomes other than compromise and war (i.e., it is more suited to explain either side's peaceful acquiescence). These findings are easier to interpret from table 7.5, which reports the substantive significance of the parameters.

The predicted probabilities calculated from the model in table 7.4 show that domestic regime type is a particularly useful variable for predicting the side that is likely to acquiesce.[2] It is interesting to note that one side in the dispute is likely to acquiesce if it is of a similar regime type to the adversary. The Defender is likely to acquiesce if both powers are nondemocratic and thus their governments are assumed to endure low domestic costs for foreign policy failures. On the other hand, the Challenger is likely to acquiesce if both powers have democratic governments and thus presumably high domestic costs for failures. Unlike the probability of Defender's acquiescence, the Challenger's capitulation is also more likely than any other outcome in the mixed dyad when the Defender is a democratic nation. In other words, the Challenger is most likely to yield to the demands of a democratic Defender except when the Challenger has a clear power advantage. These findings about the impact of regime type on either side's willingness to acquiesce peacefully are consistent with those presented in tables 6.2 and 6.3. Hence, the addition of other variables to the simple domestic model (chap. 6) does not alter the findings in this respect. The statistical and substantive significance of the domestic variable for explaining the probability of compromise or war also remains low as found in the simpler domestic model (compare tables 6.2, 6.3, 7.4, and 7.5).

As for the outcomes of compromise and war, the addition of the domestic regime type does not significantly alter the findings from the simpler model of inherent credibility. Note in table 7.5 that the probability of war increases if the Defender's regional interests are symmetric to those of the Challenger for all combinations of power distribution and joint regime types. The probability of war also increases if the power shifts to the Challenger's favor, and it is especially more likely than any other outcome if a democratic Challenger is confronted by a less democratic Defender. In such situation of mixed regime types, war is also more likely to occur, even under power parity. Finally, there is an interesting relationship between relative power and the probability of compromise: the probability of compromise linearly increases as the

TABLE 7.5. Predicted Probabilities from the Expanded Inherent Credibility Model (in percentages)

Political Regime Types	Power Distribution	Defender's Interests	AcqDef	AcqCh	Compromise	War
Joint Democracy	Defender's Superiority	symmetric	0.1	87.3	11.9	7.1
Defender Democratic,		stronger	0.1	88.0	11.6	0.3
Challenger Democratic	Power Parity	symmetric	0.4	69.9	22.9	6.7
		stronger	0.3	73.2	23.2	3.2
	Challenger's Superiority	symmetric	0.8	33.9	26.8	38.6
		stronger	0.7	43.4	33.2	22.7
Mixed	Defender's Superiority	symmetric	4.6	87.4	7.7	0.3
Defender Democratic,		stronger	3.5	88.8	7.5	0.1
Challenger Nondemocratic	Power Parity	symmetric	13.8	68.7	14.5	2.9
		stronger	10.9	72.8	14.9	1.4
	Challenger's Superiority	symmetric	27.7	35.9	18.3	18.1
		stronger	25.0	43.5	21.4	10.1
Mixed	Defender's Superiority	symmetric	25.3	37.7	24.8	12.3
Defender Nondemocratic,		stronger	21.9	43.8	27.8	6.5
Challenger Democratic	Power Parity	symmetric	28.6	11.1	17.6	42.7
		stronger	30.9	16.1	24.6	28.4
	Challenger's Superiority	symmetric	16.4	1.7	0.6	75.6
		stronger	22.3	3.0	11.2	63.4
Joint Nondemocracy	Defender's Superiority	symmetric	93.6	4.1	1.7	0.6
Defender Nondemocratic,		stronger	92.1	5.4	2.2	3.6
Challenger Nondemocratic	Power Parity	symmetric	95.9	1.1	1.1	1.9
		stronger	95.9	1.5	1.4	1.1
	Challenger's Superiority	symmetric	93.4	0.3	0.7	5.6
		stronger	95.2	0.4	0.9	3.5

Note: (a) democracy = +10, nondemocracy = –10; (b) power superiority = 66.67, power parity = 50.0; (c) Defender's symmetric interests = 50.0, Defender's stronger interests = 66.67.

power shifts from the Defender's to Challenger's advantage *if* the Defender is democratic; it linearly decreases, thus showing the reverse pattern, if the Defender becomes a less democratic state.

In short, the inherent credibility model (table 7.2) is very robust for predicting deterrence outcomes, particularly those that yield compromise or end in major confrontations. Roughly equal inherent (regional) *stakes* of major powers are the raison d'être for wars, while equal *power* forces them to unilaterally acquiesce or even compromise rather than fight. Domestic regime type does not significantly alter these findings in an expanded version of the model, which further strengthens their robustness.

Commitment Model

As discussed extensively in the introduction, deterrence studies have been shaped by traditional concerns over costly signals and other methods of enhancing threat credibility. The preceding findings show that the prior question of inherent resolve, that is, establishing whether threats are inherently credible in the first place, needs to be addressed before any manipulative strategies are implemented. If the observable indicators of inherent credibility show strong resolve on part of the deterrer, costly signaling techniques might become costly only for the deterrer, while being quite redundant for deterring the potential attacker. Since superpower nuclear threats are premised on the possibility of mutual assured destruction, their credibility is assumed to be weak. For this reason, research on costly signals, which typically presumes weak credibility, has continued to grow. Schelling, one of the foremost scholars of modern deterrence studies, outlined a new paradigm for deterrence studies when he proposed to solve the problem of nuclear threat credibility through the refinement of signaling techniques that manipulate the levels of risk. A number of deterrence studies followed, examining and refining Schelling's idea of "the art of manipulation" (e.g., Jervis 1970; Powell 1990; Fearon 1997).

A major concern for maintaining the reputation for strong resolve comes from the understanding that events are interdependent (Schelling 1966, 55–59). In this view, the interdependence of events takes two forms. First, events are considered to be horizontally (spatially) coupled, implying that the failure to stand firm in one region diminishes the perception of one's resolve to honor commitments in other regions as well. Another form of interdependence concerns past

behavior and the reputation for strong resolve over time, representing the vertical (temporal) interdependence of events (for details, see chap. 1). As for the nature of threats, this approach develops an entire range of techniques for signaling strong resolve. The main idea remains, however, that threats need to be costly for the deterrer in order to be an effective deterrent. To what extent do the assumptions and prescriptions of the "commitment" model hold empirically? Before testing their empirical validity, the measures for the model's essential variables must first be developed.

Measures

Past Behavior. Following Huth (1988, 69), the Defender's past behavior is analyzed for its most recent past case of attempted extended deterrence. I do not include an alternative measure of the most recent past conflict between the Defender and the same Challenger since almost half of the cases would entail Russo-American conflicts during the Cold War.[3] If the most recent deterrence outcome involving the same Defender resulted in compromise or the Defender's acquiescence, this variable was coded zero, indicating a Defender less resolute in its most recent deterrence encounter. If the past outcome resulted in war or the Challenger's acquiescence, the variable was coded one, suggesting a Defender more resolved in its recent behavior. If there was a long period between the Defender's most recent and current conflicts, i.e., extending beyond 15 years, such historically distant cases of a Defender's past behavior were not included in the analysis. For example, the U.S. involvement as a Defender against Britain and Germany in the Venezuelan crisis of 1902 was the only case of its involvement in extended-immediate deterrence against another major power before its confrontation against Japan in the Shanghai incident of 1932. It is reasonable to assume that Japan was not drawing lessons from U.S. past behavior in the Venezuelan crisis of thirty years ago.

Costly Signals. A straightforward indicator was selected for measuring the Defender's threats as costly signals. If the highest hostility level for the Defender's behavior in the crisis stage (before the potential outbreak of war) was costly in terms of delivering the threat, such as troop mobilization or a display of force, the variable was coded one ("a costly signal"). If the Defender's extended threat was a verbal statement without any costly movement of troops or display of force, the variable was coded zero ("cheap talk").[4] Fearon's (1997) concept of "sink-cost" signals, for instance, fits this measure (see the discussion in

chap. 1). As already discussed in the introductory chapter, the notion of costly signals, as analyzed here, does not include behavior that is intended to create domestic or other audience costs that would be paid ex post. The present analysis is focused on the assumption that the interdependence of events makes costly behavior necessary for deterrence to work (e.g., Schelling 1960, 1966). The alternative "tie-hand" strategy of ex post domestic audience costs is not premised on this idea and, consequently, it is not tested here.

Empirical Evidence

Tables 7.6 and 7.7 present descriptive statistics and simple cross-tabulations for the key explanatory variables in the commitment version of deterrence theory. A Defender's past behavior accounts for a large number of cases that result in compromise or the Challenger's acquiescence (table 7.6). About three-fourths of conflicts that end in compromise or the Challenger's acquiescence involve a Defender who previously displayed a high degree of resolve. This finding is also consistent with the results of the multinomial analysis reported in table 7.8, which shows that either compromise or the Challenger's acquiescence is more likely than war if the Defender displayed a strong resolve in its most recent deterrence crisis.

Interestingly though, the cross-tabulated findings reported in table 7.6 also indicate that the impact of this variable is indeterminate for war or Defender's acquiescence. Table 7.7 reveals some further interesting patterns. If the deterrence outcome is compared to the outcome

TABLE 7.6. Descriptive Statistics for Past Behavior and Costly Signals

	Defender's Past Behavior Resolute?			Defender's Signal: Threat Only?	
Current Outcome	No	Yes		Yes	No
AcqDef	6	6		9	3
	(50.0)	(50.0)	(100)	(75.0)	(25.0)
Compromise	2	7		7	5
	(22.2)	(77.8)	(100)	(58.3)	(41.7)
AcqCh	6	17		9	26
	(26.1)	(73.9)	(100)	(25.7)	(74.3)
War	4	4		4	7
	(50.0)	(50.0)	(100)	(36.4)	(63.6)
Total	18	34		29	41
	(34.6)	(65.4)	(100)	(41.4)	(58.6)

of a previous deterrence encounter with the same Defender, then the behavioral consistency in the Defender's commitment to act resolutely is almost insignificant for the prenuclear age. Among individual major powers, this consistency is apparent only in the case of the United States. Such a trend offers some support for the claim of third-wave deterrence theorists that the preoccupation with interdependent commitments in the temporal sense was almost unique to U.S. policy in the Cold War era (Weinstein 1969; George and Smoke 1974; Betts 1987).

TABLE 7.7. A Comparison of the Defender's Past and Current Behavior

Defender's Past and Current Behavior	Nuclear Power?		Defender (Major Power)					
	No	Yes	France	China	Russia	UK	U.S.	Total
Both resolute	9	11	4	0	2	4	11	21
(AcqCh or War)	(28.1)	(47.8)	(57.1)	(0.0)	(14.3)	(26.7)	(73.3)	(38.2)
Other	23	12	3	4	12	11	4	34
	(71.9)	(52.2)	(42.9)	(100.0)	(85.7)	(73.3)	(26.7)	(61.8)
Total	32	23	7	4	14	15	15	55
	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)

TABLE 7.8. The Impact of Past Behavior and Costly Signals on Deterrence Outcomes, Multinomial Logit Coefficients

	Defender Acquiesces	Challenger Acquiesces	Compromise
Defender's Past Behavior	.877	2.625**	2.738**
	(1.167)	(1.264)	(1.397)
Defender's Costly Signal	–1.103	1.442*	–.840
	(1.091)	(1.109)	(1.233)
Def's Relative Power (COW)	.063*	.114***	.119***
	(.042)	(.042)	(.049)
Constant	–1.974	–6.322***	–6.292**
	(2.136)	(2.424)	(2.723)

War is the baseline outcome.
Model Chi-Square (df) = 30.792*** (9)
Log Likelihood Function = –49.795
$N = 51$

Note: Numbers in parentheses are standard errors. Since this analysis encompasses the period 1895 to 1985, cases of the Defender's past behavior occurring prior to 1895 were not included in the data set. Also, as already explained in the body of the text, if there was a period greater than 15 years between the Defender's previous and current conflicts, the case of its past behavior was not included for lack of reasonable historical proximity. Consequently, the number of observed EID dyads in this model, which uses the past behavior as an independent variable, dropped from 70 to 51.

*$p < .10$; **$p < .05$; ***$p < .01$ (one-tailed t-tests).

A Defender's behavior as a costly signal is relevant only for predicting the probability of the Defender's or the Challenger's acquiescence. As indicated in table 7.6, about 75 percent of the EID cases that resulted in the Defender's acquiescence included only the Defender's verbal threat (cheap talk), whereas almost 75 percent of the EID cases that ended in the Challenger's acquiescence were cases where the Defender used costly moves (e.g., mobilization, display of force). The results, therefore, provide some support for the argument of commitment theory that less costly threats (cheap talk) are more likely to result in deterrence failure than threats issued as costly signals. On the other hand, about two-thirds of the wars occurred despite a Defender's costly signal. Since such finding is inconsistent with the preceding argument of commitment theory, it is reasonable to conclude that costly signals are not best deterrents against resolved Challengers. The question of why Challengers are resolved to fight, despite a Defender's signaling efforts, seems to be more validly explained by the inherent credibility model. Note also that table 7.8 shows that the impact of this variable is statistically insignificant for the choice between most alternatives.

An Intraregional Version of Commitment Theory

Although the commitment theory of deterrence does not specify the implications of a Defender's past behavior in the same region, they are worth exploring, particularly as this issue has been recently suggested in the literature on reputation. Huth (1997, 92) suggests that if "reputations do form, they tend to develop on the basis of the past record of interactions between the same defender and potential attacker within the same geographic region." His argument is interesting in the context of the present analysis, which highlights the importance of regional salience, but juxtaposes it with the reputational argument. The cited suggestion, however, opens the possibility for a combined effect of these two variables. To explore this possibility, a test was done for cases where the Defender's most recent deterrence encounters occurred within the same regional area as its current conflicts (see table 7.9).

If the cases used to examine the Defender's most recent deterrence encounters are selected from the same regional area as its current conflicts, then the coefficients for the Defender's past behavior become highly statistically significant for most pairs of outcomes. In particular, a Challenger is more likely to acquiesce to a Defender with a strong past record of honoring its commitments in the *same* region of conflict. Furthermore, table 7.10 indicates that the magnitude of the effect of

the Defender's past behavior within the same region is substantially stronger than the impact of the Defender's past resolve in general. A change in the Defender's intraregional past behavior from weak to resolute increases the probability of the Challenger's acquiescence in the current crisis by 64.8 percent, while the likelihood of compromise and war is decreased by 31.4 and 27.9 percent, respectively. These figures substantially increase the magnitude of the effect of past behavior on deterrence outcomes, producing effects of less than 10 percent if not restricted to behavior within the same region. This finding is certainly

TABLE 7.9. The Model of Intraregional Past Behavior, Multinomial Logit Coefficients

	Defender Acquiesces	Challenger Acquiesces	Compromise
Defender's Intraregional Past Behavior	3.104**	5.702***	2.389**
	(1.801)	(2.084)	(1.634)
Defender's Costly Signal	.245	1.916	1.193
	(1.532)	(1.672)	(1.452)
Def's Relative Power (COW)	.100*	.194***	.085**
	(.063)	(.070)	(.058)
Constant	–5.621	–12.502***	–4.770**
	(3.474)	(4.206)	(3.135)
War is the baseline outcome.			
Model Chi-Square (df) = 27.238*** (9)			
Log Likelihood Function = –26.697			
$N = 33$			

Note: Numbers in parentheses are standard errors. Note that this model uses the Defender's most recent conflict behavior only within the same region as an independent variable. Unavoidably, this resulted in the number of EID dyads appropriate to this model being further reduced to 33.
*$p < .10$; **$p < .05$; ***$p < .01$ (one-tailed t-tests).

TABLE 7.10. Marginal Impact of Past Behavior on the Probability of Deterrence Outcomes

	Defender Acquiesces Δ	Challenger Acquiesces Δ	Compromise Δ	War Δ
A General Signaling Model (table 7.8)				
Defender's Move as a Threat only	–1.7	–9.1	+11.4	–0.6
Defender's Resolute Past Behavior	0.0	–3.5	+7.7	–4.2
An Intraregional Signaling Model (table 7.9)[a]				
Defender's Intraregional Resolute Past Behavior	–5.5	+64.8	–31.4	–27.9

[a]Marginal impact of the Defender's move is not calculated for the intraregional version of signaling model (table 7.9) since this variable is not statistically significant. The marginal effect of each explanatory variable is calculated by changing its value from zero to one while holding all other variables in the model at their mean (e.g., relative power) or modal value.

worth further exploration as it again validates the significance of regional factors for understanding extended deterrence, but it does not necessarily contradict the reputational argument regarding the temporal interdependence of events. Still, the finding does call in question the validity of reputational arguments about the cross-sectional (i.e., cross-regional) interdependence of events, suggesting instead that closer attention should be paid to intraregional issues. As for the issue of the Defender's use of sink-cost signals, the combined model does not appear to help in any way—the variable is statistically insignificant for all outcomes as alternatives to war.

A Combined Model

Let us now estimate the impact of all variables, those that are key factors in both inherent credibility and commitment models, within a single model. In this way, we can check if the impact of any variable on deterrence outcomes changes once they are all combined in a single model. In addition, by including all variables from the competing theories in a single model, we can once again examine the comparative significance and magnitude of their effects. In this way, we can verify the robustness of the previously obtained results in this analysis when these competing models were tested separately. It is clear from table 7.11 that two variables—the Defender's past behavior and the Challenger's domestic regime—completely lost even the limited statistical significance they had in separate models (compare the parameter estimates for these two variables in table 7.11 to those in tables 7.4 and 7.8). The remaining variables retained, and some even increased, their statistical significance. Only relative power and regional salience are statistically significant for the choices between war and any other outcome. The direction of their correlation is also the same as in the simple inherent credibility model (see Model 1 in table 7.2). The statistical significance of the Defender's domestic regime type is largely consistent with the results obtained in the separate models, but the parameter estimates for its behavior in terms of less or more costly behavior show the most interesting changes. Now, this variable becomes statistically significant, but indicating a direction of correlation opposite to that expected by the sink-cost argument of the commitment model. Negative signs indicate that ex ante costly signals, such as the movement of troops or mobilization, do not deter wars. In fact, if the Defender chooses the strategy of costly deterrent threats, the Defender

is less likely to acquiesce, compromise is more difficult to reach, and war is more likely to occur.

Therefore, at best costly signals do not have a significant effect on deterrence outcomes, which is the finding obtained from the analysis of the commitment model alone (tables 7.8 and 7.9). At worst, firmness of behavior, manifested through costly moves, is unlikely to convince the Challenger to choose compromise over war as found in the model combining all variables from the competing models (table 7.11). As shown in table 7.12, for example, the probability of compromise decreases by 30.1 percent if the Defender uses more costly signals. On the other hand, with almost equal probability, this kind of behavior may precipitate the desired outcome of the Challenger's acquiescence, as the probability of such an outcome increases with a shift in the Defender's behavior from verbal threats to more costly moves. Table 7.6, presenting descriptive statistics for the commitment model variables, is consistent with this finding: 74.3 percent of the Challengers acquiesce if the Defender's behavior does not include only verbal threats. The probability of Defender's acquiescence also decreases in this situation (it is

TABLE 7.11. The Full Model of Deterrence (EID) Outcomes, Multinomial Logit Coefficients

	Defender Acquiesces	Challenger Acquiesces	Compromise
Defender's Relative Regional Interests	.155**	.173**	.147**
	(.088)	(.089)	(.089)
Defender's Relative Power (COW)	.261**	.355***	.352**
	(.148)	(.153)	(.155)
Defender's Democracy Score	.413	.847**	.784**
	(.359)	(.367)	(.364)
Challenger's Democracy Score	–.162	.180	.208
	(.187)	(.174)	(.171)
Defender's Past Behavior	–1.530	–1.073	–.925
	(2.176)	(2.278)	(2.295)
Defender's Costly Signal	–5.272**	–2.836	–5.462**
	(3.082)	(3.231)	(3.281)
Constant	–15.464**	–22.948***	–20.486**
	(8.565)	(9.036)	(8.931)

War is the baseline outcome.
Model Chi-Square (df) = 55.671*** (18)
Log Likelihood Function = –37.356
N = 51 (missing data for 19 cases)

Note: Numbers in parentheses are standard errors.
*p < .10; **p < .05; ***p < .01 (one-tailed t-tests).

TABLE 7.12. Marginal Change in the Probability of Deterrence Outcomes (in percentages): Relative Potential of All Variables in Predicting Major Power Conflicts

	Defender Acquiesces Δ	Challenger Acquiesces Δ	Compromise Δ	War Δ
Change in the Ratio of Defender's to Challenger's Capabilities:				
From min to max	+0.3	+87.9	+11.8	–99.9
Change in the Ratio of Defender's to Challenger's Regional Interests:				
From min to max	+3.2	+91.8	+3.4	–98.5
Change in the Defender's Democracy Score				
From min (–9) to max (+10)	+0.0	+89.4	+9.7	–99.1
Change in the Challenger's Democracy Score				
From min (–9) to max (+10)	–44.3	+37.9	+11.6	–5.2
Change in the Defender's Move				
From min (threat) to max (costly signal)	–17.6	+54.1	–39.1	+2.7
Change in the Resolute Past Behavior				
From min (weak) to max (resolute)	–3.9	+0.4	+1.7	+1.8

Note: The marginal effect of each explanatory variable is calculated by changing its value while holding the other variables at their mean or modal value.

statistically significant as shown in table 7.11), which is consistent with the cross-tabulated figures in table 7.6.

These findings are additionally apparent in table 7.12, which shows predicted probabilities of each outcome. It thus enables us once again to compare the substantive significance of all variables, but this time by including them in a single model. Regional stakes, relative power, and Defender's domestic costs are shown to have the strongest impact on the probability of war. As the balance of regional interests or power shifts from the Challenger's to the Defender's advantage, the probability of war decreases by approximately 99 percent. The same intensity of effect is created by the Defender's regime type: the probability of war decreases by 99 percent if there is a change from a Defender without democratic institutions to a democratic Defender. As already discussed, ex ante costly behavior (the sink-cost strategy) makes compromise substantially less possible, although it may force the Challenger into acquiescence. In the combined model, the statistical and substantive significance of the Defender's past behavior does not seem to have any impact on its opponent in the current conflict. The magnitude of change in the probability of each deterrence outcome, as past behavior moves from less to more firm, is very low in both the simple commitment model (table 7.10) and the combined one (table 7.12).[5]