Corruption and Retrospective Democratic Accountability

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Abstract

Many theories of democracy stress the concept of *accountability*. Voters reward or punish elected officials by extending or ending their political careers. This retrospective principal/agent relationship is supposed to induce *good* behavior on the part of elected officials. Seeking the long-term reward of reelection, officials avoid the short-term benefits of corruption that would put them at risk of early electoral defeat. However, if voters frequently change their allegiances, making political careers typically short, incentives to refrain from malfeasance are reduced and accountability undermined. This suggests that punishing politicians perceived to be corrupt may not diminish future malfeasance. To test this possibility, we employ a bivariate normal model to assess the reciprocal effects of electoral volatility on corruption and, conversely, corruption on electoral volatility. We test the hypothesized relationship on data drawn from 249 elections across 74 countries. Our results show that corruption does indeed provoke electoral volatility but that volatility has no discernible impact on malfeasance – or on virtuous behavior, for that matter.[1]

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1 Introduction

In *Federalist no. 57*, Madison wrote that "the aim of every political constitution is ... first to obtain for rulers men who possess most wisdom to discern, and most virtue to pursue, the common good of society, and in the next place, to take the most effectual precautions for keeping them virtuous whilst they continue to hold their public trust." Putting Madison's aim into action, voters seek both to choose "good" representatives and to provide incentives for them to remain virtuous after they have been elected (Przeworski, Stokes and Manin, 1999). Those incentives follow from voters' willingness to remove from office at the next election anyone who failed to represent them well, including those suspected of corrupt practices. Indeed, Riker argues that it is more accurate from what he calls the "Madisonian" or "liberal ideal" to conceive of the vote as a negative check on underperforming politicians rather than as the collective expression of the electorate's future policy preferences (Riker, 1982).

In most democracies, politicians are at least partly reelection seekers. Their desire to extend their careers – and voters' control over that extension – is supposed to keep politicians on their best behavior. Representatives who pursue self-enrichment over the public good give voters good reason to transfer their support to other candidates, thereby ending the incumbents' careers and reinforcing the incentive for their replacements to behave better. As a result, politicians avoid malfeasance and other acts likely to alienate voters (Cohen and Spitzer, 1996; Carey, 2003; Alt and Dreyer Lassen, 2003; Spiller, Stein and Tommasi, 2008). A theory of Retrospective Accountability therefore posits the existence of a *virtuous cycle*. Voters respond to malfeasance by "throwing the bums out." This display of electoral volatility replaces the bums with more virtuous representatives, who having seen retrospective accountability in action, remain virtuous so as not to evoke another spate of volatility. As a result, corruption declines, virtuous representatives get re-elected, and political corruption and electoral volatility dwindle in tandem – a virtuous cycle ends in a state of good government.

Retrospective accountability assumes that elected officials have long time horizons. However, if politicians do not have reasonable prospects for long careers, the electoral incentives for them to behave virtuously are diminished. A problem for retrospective accountability is that elected officials may be be voted out of office – and their time horizons shortened – for a variety of reasons, including malfeasance. Rival politicians may convince voters that incumbents are corrupt even when they are not. Exogenous shocks, such as an economic crisis, may lead voters to punish incumbents even if the shocks were unavoidable (Powell and Whitten, 1993; Anderson, 2000). A new policy dimension might be introduced – whether inadvertently by a crisis or intentionally by political rivals – thereby dividing groups in the electorate along new axes that result in a drop in support for incumbents (Chhibber and Torcal, 1997). Inexperienced or unsophisticated voters (perhaps recently after the (re)establishment of democratic rule) may be uncertain of their options or their preferences over them (Bielasiak, 2002; Tavits and Annus, 2006). For all these reasons – as well as the possibility that actually corrupt politicians will be perceived as such – where electoral volatility is high, incumbents may reasonably decide that they cannot expect a long career even if they behave virtuously. In such an environment, elected representatives may conclude that a rational response to the vagaries of re-election is to seek short-term gains, including self-enrichment.

Rather than serving as a check on corruption, retrospective democratic accountability could, then, contribute to a *vicious cycle* in which voters repeatedly vote officials out of office for any number of different reasons including but not limited to corruption. This electoral volatility shortens future politicians' perceived time horizons. In turn, shortened time horizons make self-enrichment more rational, leading to still more volatility in the name of holding politicians accountable. Thus, rather than a virtuous cycle leading to an equilibrium characterized by stable voting patterns and generally good government, efforts at accountability could create a steady state of high electoral volatility and continuing malfeasance.

We seek to better understand the relationship between retrospective accountability and

the quality of representation by testing for a reciprocal relationship between electoral volatility and political corruption. We begin by developing more fully our theoretical motivation regarding the relationship between legislators' expectations about their time horizons (which we measure with electoral volatility) and their decisions about whether or not to engage in corrupt practices (which we measure with citizens' perceptions of legislative corruption). We then estimate Vector Auto Regression (VAR) models using data on electoral volatility and perceived corruption for 249 elections in 74 countries. We find that as theories of retrospective democratic accountability would predict, where voters perceive politicians to be corrupt, they take their electoral support elsewhere, increasing electoral volatility. However, levels of electoral volatility have no effect on perceived corruption. In other words, neither a virtuous or a vicious cycle exists and corruption is impervious to electoral punishment. We conclude by situating our findings in the broader literature on retrospective voting and democratic accountability.

2 Time Horizons and Malfeasance

Przeworski, Stokes and Manin (1999) maintain that "[g]overnments are 'accountable' if citizens can discern representative from unrepresentative governments and can sanction them appropriately, retaining in office those incumbents who perform well and ousting from office those who do not. . . . . Elections are a contingent renewal accountability mechanism, where the sanctions are to extend or not to extend the government's tenure" (10). Thus, key to democratic accountability is the chance to retrospectively evaluate the performance of incumbents (Fiorina, 1981; Lewis-Beck and Stegmaier, 2000). Positive evaluations lead to reelection through preference stability on the part of voters. Negative evaluations lead to defeat through the electoral volatility resulting from changing voter preferences.

Accountability is necessary because there are many reasons why elected officials may behave in ways contrary to voters' preferences. Politicians may misunderstand those prefer-

ences or have contrary preferences of their own, leading them to enact policies that voters dislike. The loss of representative agency suffered by voters depends on how far government policy is placed from the voter's ideal point in a a policy space. Another way in which politicians' behavior can be costly to voters is if politicians place their own welfare over that of the voters'. A politician's welfare may include spending time competing with rivals, engaging in clientelistic practices to the benefit of family and friends, and/or increasing his or her own personal wealth. Given the many reasons why politicians' behavior may not comport with the preferences of voters, being able to exercise retrospective accountability is a key component of democratic practice.

Much of the literature on *economic voting* has at its heart an understanding of voting as the practice of retrospective accountability (Powell and Whitten, 1993; Kiewit, 2000). Voters assess the state of the economy and make a decision about whether the incumbent government should be rewarded with reelection. Debates continue about how much detail voters need (and have) about economic conditions (Lohmann, 1999; Anderson and O'Connor, 2000); the role of clarity of responsibility for vote choice (Tavits, 2007); and whether assessments are based on the voters' personal conditions or on general conditions (Lewis-Beck and Stegmaier, 2000). However, common to both sides of every debate is the characterization of voting as an opportunity to get rid of incumbents who have failed to represent the voters' interests – in other words, to "throw the bums out," presumably bringing to office politicians who will be on their best behavior or suffer the same fate. Where the new politicians behave better and are rewarded with reelection, a virtuous cycle has been put in place.

Equally central to democratic theory is politicians' desire for reelection and their belief that good, representative behavior on their part makes reelection likely. Where this is the case, voters control something politicians want – their vote – and politicians know what strategy to adopt – good behavior – to get it (Carey, 1998). The idea that politicians value reelection assumes, *inter alia*, that politicians perceive greater long-term benefits to themselves from remaining in office as compared to the short-term benefits of grabbing all

that they can for themselves before the voters turn them out after a single, corrupt term. If elected officials know they cannot be re-elected – as for example where they are term limited – or if they discount the long term benefits of office, the effects of electoral accountability are undermined. Indeed, in the study of term limits across U.S. state legislatures, there is empirical evidence to suggest that, for example, limits fundamentally reshape sitting legislators' policy priorities (Gurwitt, 1996; Hansen, 1997) and that they also undermine the extent to which individual legislators are responsive to their specific constituency (Carey et al., 2006; Carey, 1994; Zupan, 1990). Like imposed limits on career length, it is possible that throwing the bums out too frequently sends perverse signals to elected officials that they should hurry up and be bums while the opportunity presents itself (Besley and Case, 1995; Alt and Dreyer Lassen, 2003). Short time horizons have been shown to lead to perverse, instrumental behaviors in a variety of settings. Many game theoretic outcomes are based on the assumptions that play is iterative and that the players do not know when play will end (Fudenberg and Maskin, 1986). Often, when the end of play is known, chances for cooperative or virtuous behavior disappear as by backward logic both players decide to defect in the initial round.

As Spiller, Stein and Tommasi (2008) note: "it is not the same to have a legislature in which the same individuals interact repeatedly over extended periods of time as it is to have a legislature where individual legislators are frequently replaced" (18). While primarily concerned with cooperative relationships among politicians, their thinking on the effects of short time horizons applies to the relationship between politicians and voters too. Longer time horizons lead to lower discount rates, meaning politicians will place greater value on the accomplishments they can achieve by being virtuous representatives and staying in power as compared to more immediate payoffs, including those that might end their careers. Where politicians do not believe they will have the opportunity to earn voters' trust, and thereby extend their careers, their short time horizon makes bad behavior, including perhaps engaging in corruption, the option with the greatest payoff. Cross-national tests of this logic have

yet to be conducted, but a recent empirical investigation of Brazilian municipal elections is telling. Ferraz and Finan (2011) construct their own objective measure of corruption from audit reports attached to local government electoral contests and find that there exists a significant difference in corruption levels between municipalities where mayors can get reelected and those where they cannot.

To determine whether the relationship between political corruption and electoral volatility is virtuous or vicious requires testing these simple, interrelated hypotheses:

- *H1:* Higher levels of corruption by legislators induces higher levels of electoral volatility.
- *H2A:* If the relationship is virtuous, higher levels of electoral volatility, in turn, induce subsequently *lower* levels of corruption by legislators.
- *H2B:* If the relationship is vicious, higher levels of electoral volatility, in turn, induce subsequently *higher* levels of corruption by legislators.

In sum, the *retrospective voting dynamic* tells us that an important part of democratic rule is punishing politicians who have behaved badly by voting for someone else who will behave better. By contrast, the *time horizon dynamic* tells us that if politicians expect to be thrown out of office, they will seek short-term payoffs, including self-enrichment through corruption. Taken together, we have either a virtuous or vicious feedback cycle: voters punish politicians for bad behavior, including malfeasance, and politicians decide to engage in good practices because they want to increase the probability of long careers *or* voters punish politicians for bad behavior, including malfeasance, and politicians decide to engage in corrupt practices because they discount the probability of long careers given the volatile electorate.

3 Data

By definition, corruption is illegal. Those engaged in the practice go to great lengths to conceal their behavior. Not surprisingly, it has proven very challenging to develop objective

measures of corruption (Treisman, 2007). Because we are interested in citizens' judgments regarding the conduct of elected representatives, however, objective measures of corruption are less central to our theorizing than citizen perceptions of that corruption, however accurate or inaccurate those perceptions might be. While the World Bank and Transparency International publish well known measures of perceived corruption, there most used measures are based primarily on the perceptions of country experts, not citizens. Moreover, those measures reflect the level of corruption in a country as a whole and do not distinguish levels of corruption in different institutions.

Since 2004, Transparency International has collected annual survey data on citizens' perceptions of corruption in a broad, and growing, cross-section of countries. The Global Corruption Barometer (GCB) asks citizens their perceptions of corruption not only for the government sector as a whole but for a variety of more specific institutions, including the national legislature, the judiciary, and various branches of the bureaucracy. Given our focus on efforts to exercise retrospective accountability over elected officials, we use the the GCB question that asks citizens: "To what extent do you perceive the parliament/legislature in this country to be affected by corruption?"[2] Responses were recorded on a five-point scale ranging from "not at all corrupt" (1) to "extremely corrupt" (5). The GCB reports the country average (mean) responese on this scale. So, the aggregated variable, practically speaking, is a continuous variable with values between 1 and 5.

Treisman (2007) – among others – has raised concerns about the extent to which subjective survey measures of corruption can be safely assumed to approximate an objective (but directly unmeasurable) level of corruption. He points out, however, that the global perceptions indices managed by Transparency International and the World Bank actually correlated rather highly with more objective (but, from a cross-national perspective, comparatively limited in scope) measures of self-reported corruption experiences. Indeed, when individuals and

[2]The responses to this question were correlated at $r = 0.92$ with the responses to an identical question asking about corruption of political parties.

business managers are asked whether their families or companies have paid governing officials bribes, their responses correlated highly with what the surveys reveal about corruption perceptions (Treisman, 2007). Furthermore, Treisman notes that the GCB's battery of questions about perceptions related specifically to the political sphere correlate highly with the larger, country-level perceptions of corruption captured by TI and WB. Whether the survey responses of citizens capture a latent objective level of corruption variable or not (Lambsdorff, 2004; Treisman, 2007), they are ideal for our purposes given that it is perceptions that inform vote choice.

Due to the fact that our causal reasoning rests on the assumption that a country's democratic institutions are at least functional, we include in the analysis only those countries that are at least partially democratic. However, we were also concerned that if we selected only perfectly healthy and well-developed democracies we would run the risk of ending up with a dataset full of cases across which corruption does not vary. Conventional wisdom led us to suspect that better performing democracies would, virtually by definition, have lower levels of corruption (Treisman, 2000, 2007; Montinola and Jackman, 2002; Brunetti and Weder, 2003; Adserá, Boix and Payne, 2003). As a result, we chose to focus on democratic regimes identified with a fairly permissive inclusion criterion (however, our concern was misplaced, with results holding under a more restrictive case selection criteria).[3] For all of the countries covered by the GCB, we collected Freedom House data from the year 2000 to 2010. If a particular country scored a "Free" or "Partly Free" designation in more than 75% of its observations, we include it in our study.[4] The resulting set of countries – broken down by geographic region – is included in Appendix A at the end of this manuscript. In the end, we collected corruption data for 74 democratic regimes from around the world.

In the process of collecting data on electoral volatility, we sought vote distributions

[3]When we subset our data to include only democracies with a polity score greater than 7, we get the same susbstantive results we report below, though model fit is slightly worse because the residuals are not bivariate normally distributed.

[4]We dropped an additional eight countries from this initial group due to the unavailability of electoral vote data.

amongst parties at the national level in each country starting *two elections prior* to 2004 (the first year of the GCB corruption data). This allowed us, in most cases, to calculate one observation of electoral volatility prior to the first observation of corruption perceptions.[5] Our electoral data come from a variety of sources. For most elections in Europe and other OECD countries, we drew from the online *European Elections Database* which is provided by the National University of Ireland. For elections in Africa, we relied on the online *African Elections Database*, which is an aggregator of electoral data garnered from electoral authorities in each country on the African continent. For many elections in Latin America and Asia and a few elections in Europe, we drew data from the electoral handbook series edited by Dieter Nohlen (Nohlen, 2005; Nohlen, Grotz and Hartmann, 2001; Nohlen and Stover, 2010). The remaining balance of electoral data was taken directly from electoral commissions in each respective country.[6]

Taagepera and Grofman (2003) evaluate several indices of disproportionality and inter-election volatility and conclude that the Pedersen Index (Pedersen, 1983) and the Gallagher Index (Gallagher, 1991) "satisfy more criteria than any other" in terms of their ability to capture the dynamics of electoral volatility (p. 673). For the observations in our data set, the two indexes produce volatility figures that are highly correlated with one another ($r = 0.94$). We estimate our models with the Pedersen Index, which is mathematically defined as :

$$Pedersen = \frac{1}{2}\sum_{i=1}^{N} |p_{i,t} - p_{i,t-1}|$$

Where $p_{i,t}$ is party i's vote share at time t and $p_{i,t-1}$ is party i's vote share at time $t-1$.[7]

[5]We chose to focus on volatility in votes rather than seats. This has the advantage of picking up on subtle changes in the electorate's preferences that, while registered in vote fluctuations, might not be registered in seat fluctuations. Practically speaking, however, the choice between the two is generally immaterial as vote and seat volatility tend to be very highly correlated.

[6]Even the most thorough electoral data repositories typically group votes for very unpopular parties into an "other" category, thereby slightly compromising the ability to calculate precisely the level of volatility. Fortunately, for the country-years in our data set, the average proportion of the vote in the "other parties" category was less than 3.7%.

[7]Reasoning that perhaps politicians only reformed their behavior when they saw votes going to entirely

In order to evaluate the proposed relationship between our variables of interest – electoral *volatility* and perceived legislative *corruption*, we need to keep track of the temporal nuances involved in using each series both in explanatory and outcome roles. In general, only temporally antecedent values of each series should be used to predict current states of the other phenomenon and, whenever possible, both series should be composed of measurements generated at the same intervals. For our series, it is usually the case that corruption measures come in shorter intervals than our measures of volatility, because the surveys on which the former are based are not constrained to election years. For this reason, we take the inter-election period as our unit of analysis, and generate values of political corruption at the appropriate level of aggregation by averaging all corruption measurements that may have been obtained in the years between elections, *excluding measurements taken on election years themselves*. As a result, each observation is composed of two values – one of the electoral volatility observed in the year that maks the beggining of the inter election period, and one of political corruption observed throughout the years strictly between elections. Finally, and in order to keep track of different countries in our samples, the series' lagged values are constructed *within* countries, in order to avoid allowing previous values of a different country to help predict current values of another.[8]

We now turn to our statistical analysis of the two dynamics described above: the *retrospective voting dynamic* that is a hallmark assumption of the normative desirability of democratic representation and the *time horizon dynamic* which potentially poses a challenge

new parties, we measured volatility based solely on this dynamic (what Tucker and Powell (2010) refer to as "Volatility A"). Using just new party volatility, we get the same susbstantive results we report below, though, again, model fit is slightly worse because the residuals are not bivariate normally distributed.

[8]When trying to establish the simultaneous effects of phenomena over time, the literature often relies exclusively on the predictive power of the time trends of the phenomena of interest. As a result, models of these dynamics often lack the types of statistical controls common to other modeling techniques, focusing on the joint significance of self and cross lagged values of the endogenous variables of interest. We follow this practice in the model we discuss and present in the next section (for other examples of this, see Brandt and Jones, 2006; Enders and Sandler, 1993; Edwards and Wood, 1999). Nothing in the theory of vector autoregressions precludes the inclusion of exogenous variables, however, and their use may even be desirable in order to rule out spuriousness. Consequently, Appendix C presents the results of a model estimation which includes a battery of exogenous variables.

to this classic conceptualization of democratic representation. If retrospective accountability is working as theorized, we should find that corruption leads voters to switch votes and that corruption declines as future politicians heed the warning. To the contrary, if a perverse cycle exists, corruption may generate electoral volatility but that volatility will lead to more corruption as politicians with short time horizons behave selfishly.

4 Analysis

Testing our hypotheses is akin to establishing whether (1) electoral volatility can be better predicted when a temporally antecedent value of political corruption is used for generating the prediction; (2) the same is true about political corruption with respect to electoral volatility; (3) it is the case that larger values of temporally preceding corruption are expected to increase the values of subsequent volatility; and (4) it is the case that larger values of the temporally preceding volatility are expected to decrease values of subsequent corruption (if a virtuous relationship exists) or increase the values of subsequent corruption (if a vicious relationship exists). Either way, the mechanism we propose generates a feedback, or simultaneity relationship, between corruption and electoral volatility.

A common modeling strategy to account for this type of simultaneous relationship consists of using structural equations (Freeman, Williams and Lin, 1989). In general, instruments are incorporated in a two-stage estimation process in order to 'purge' presumably endogenous variables from the variation that is attributed to the very phenomenon they are expected to affect. In practice, finding appropriate instruments is problematic. In order for the instrumental variables approach to yield correct estimates of the hypothesized relationship, instruments must both (1) have a non-zero effect on the instrumented phenomenon and (2) be unrelated to the explained variable once the instrumented phenomenon is taken into account (Angrist, Imbens and Rubin, 1993). Because verifying the latter – the so-called *exclusion restriction* – is inherently difficult in an empirical setting, the validity of the results

obtained through this procedure hinge on an assumption that often leads to inconclusive and contradictory results (Freeman, Williams and Lin, 1989).

A modeling alternative which circumvents these potential problems is vector autoregression (VAR) – a technique that generalizes autoregressive models (i.e. models of time series that make current states a function of the series' historic trend) to enable simultaneous analysis of multiple, interdependent series. By relaxing the need to know the specific functional form relating the two endogenous phenomena, VAR models are able to produce estimates of the general, historic dependency between them. Hence, although VAR models restrict our ability to directly test the specific *mechanism* through which two phenomena are caught in an interdependency, they allow us to establish whether the proposed feedback relationship is actually present, when relevant conditions are met[9] (Freeman, Williams and Lin, 1989; Freeman et al., 1998). For instance, a VAR model of order 1 (i.e. a model in which a single lag of each of two series are used to predict their current values) would be defined by:

$$\mathbf{y}_t = \mathbf{c} + \begin{bmatrix} \phi_{12} & \gamma_{12} \\ \gamma_{21} & \phi_{21} \end{bmatrix} \begin{bmatrix} y_{1,t-1} \\ y_{2,t-1} \end{bmatrix} + \mathbf{u} \tag{1}$$

where $\mathbf{c}$ is a vector of constants, $\mathbf{u}$ is a vector of residuals drawn from a bivariate distribution (usually a bivariate Normal with a a zero mean vector and an identity covariance matrix), the ϕ's are self-lag coefficients and the γ's are cross-lag coefficients (i.e. coefficients corresponding to lags of on series we hypothesize is causing the other series).

VAR models are especially well suited for evaluating Granger causality, which is said to exist between phenomena Y and X if their future is better predicted when accounting for *both* the history of X *and* of Y, rather than simply the trend of either one by itself

[9]More specifically when the series being evaluated are either stationary or, in case they are not, cointegrated. Substantively, these conditions insure that we can infer something generalizable about the series under study by using their observed behavior. For a detailed explanation of what these two conditions entail, see Hamilton (1994)

(Freeman, 1983).[10] When including the appropriate number of self-lags as predictors, VAR models provide the most natural direct test of Granger causality between any number of time series.[11]

As a result, these models are ideal for testing theories that pose the existence of a feedback relationship that occurs over time – such as the one we have posed between electoral volatility and legislative corruption. Figure **??** depicts the way in which the modeling strategy works for the bivariate VAR model defined above. The dotted lines represent the effects we are interested in (e.g. in our case the effects of corruption on volatility and vice versa), whereas the solid lines represent the impact of a series' immediate history on its current value. In a sense, then, the VAR model allows us to gauge each series' effect on the other after filtering out the explained series' historic trend.

[Insert Figure 1 About Here]

We implement such a VAR model of order 1[12] to test whether there is a Granger feedback between electoral volatility and political corruption. In order to obtain estimates of our model's coefficients and of their distributions we use MCMC simulations. In general, Bayesian estimation techniques of VAR models are particularly useful for the purpose at hand because they provide a direct sample of the actual posterior sampling distributions of coefficients, even in the face of non-stationary time series. The model assumes that the

[10] To be precise, when it is the case that the future of Y can be better predicted by past values of X and Y than by values of Y alone, it is said that X *Granger-causes* Y. Similarly, when the same can be said about X with respect to Y, it is said that Y *Granger-causes* X, establishing a Granger feedback between X and Y.

[11] Examples of political science works that evaluate Granger causality abound (see, for instance, Edwards and Wood, 1999; Enders and Sandler, 1993; Hartley and Russett, 1992; MacKuen, Erikson and Stimson, 1992).

[12] Direct tests of Granger causality require an inclusion of as many self-lags as needed to eliminate serial autocorrelations of any order. Although we cannot test *all* possible orders of autocorrelation, we are confident that the two self-lags we include in our model are sufficient to control for the predictive power of each variable's historic trend for both theoretical (volatility that is far removed in the past should not affect current electoral volatility) and empirical (See Figure 1 in Appendix B, which plots the autocorrelation functions for the residuals for each of the estimated equations; the included lags eliminate any trace of serial correlation of any order) reasons.

phenomena of interest (viz. electoral volatility and legislative corruption at any given legislative term) are random draws from a bivariate normal distribution, the elements of the mean vector of which are functions of a constant term; one self-lag and one cross-lag (with variables constructed in the manner described in the previous section). As a result, the model is exactly as that defined in Equation 1 above. The model further estimates the (contemporaneous) correlation between the two phenomena of interest, thereby relaxing the assumption of independence of residuals *across* the two processes. Finally, to better accomodate normality and to allow for possible non-linearities, we estimate our model using the log of electoral volatility.[13] For more details on the estimation procedure, see Appendix B.

The results of the estimation are presented in Table 2, which reports the observed medians of the sampled posterior distributions of estimated parameters along with their 0.05 and 0.95 quantiles. We use these summary statistics as our point estimates and our 90% credible intervals, respectively.

[Insert Table 2 About Here]

The bivariate normal model is a good fit for the data. Although partial R^2 measures are relatively low (0.36 and 0.65 for the volatility and corruption equations, respectively), residuals are distributed bivariate-normally around the zero vector (we fail to reject the null hypothesis of a Shapiro-Wilk test of multivariate normality with a p-value of 0.18) and all serial autocorrelation appears to be accounted for by the specified model, justifying the number of lags chosen (see Appendix B for a plot of the autocorrelation function for the residuals of each equation). The modeling strategy is further justified by the fact that the probability that the ρ coefficient is positive and different from zero is greater than 0.70: the posterior median for ρ is estimated to be 0.256, with a 70% credible interval between 0.023 and 0.459.

The sizable (viz. -41.98) difference in deviances suggests that the model using a single cross-lag for predicting each series provides a much better fit of the data than a model that

[13] something about why this is substantively justifiable too

includes only self lags. Results presented in Table 2, however, indicate that Granger causality can only be reliably posited when considering the effect of corruption on electoral volatility (left column). In support of hypothesis 1, the probability that increasing immediately past perceptions of corruption leads to greater electoral volatility is high (i.e. greater than 0.9): voters are therefore likely to express their discontent in the face of high perceived corruption by expressing preferences for different alternatives.[14] More specifically, Figure 2 shows predicted values (as 90% highest posterior density intervals for each prediction) of electoral volatility at time t for different levels of perceived corruption at time $t-1$, holding the immediate past level of volatility constant at its observed average. The predicted values can be construed as the effects of an exogenously achieved level of perceived corruption on future levels of electoral volatility. Our model predicts that exogenously increasing perceptions of corruption from 1.7 to 4.8 (the variable's observed range) can result in a dramatic increase in volatility – from 8 to almost 36% volatility.

[Insert Figure 2 About Here]

Our cross-national test of H1 generates confirmatory findings; in other words, across the countries included in our study, we can see that citizens respond to increases in perceived corruption by swinging their electoral support to different parties. We can see this trend borne out in individual countries as well. Consider the case of Lithuania. In the lead up to the 2004 election and 2008 elections, incumbent politicians in Lithuanian were beset by corruption scandals (Velykis, 2010). The GCB report scored Lithuania at 4.2 on a 5-point scale leading up to the 2004 election and at 4.0 leading up to the 2008 election. In both

[14] Tucker and Powell (2010) note that electoral volatility can result from two potentially distinct processes: parties entering and exiting electoral races (Type A volatility) and voters casting votes for different, but preexisting, alternatives (Type B volatility). These types of electoral volatility may express different things (for instance, Type A volatility is more clearly the result of party-elite entry decisions than of shifting voter preferences), and they may generate different types of incentives for politicians (for instance, time horizons may be perceived to be shorter when volatility is of Type A than of Type B, because the latter could generate a sort of repeated game amongst old political players). As a result, we estimated our model using measures of Type A and Type B volatility instead of the overall volatility measure we have reported. All results remain substantively the same: although corruption Granger-causes volatility, volatility does not appear to Granger cause corruption.

cases, the Lithuanian people responded to these high profile corruption cases by voting for the opposition parties (*Lithuania: Constitution and Institutions*, 2007; *Country Report: Lithuania (2008)*, N.d.). Indeed, total volatility figures in these elections were 86.2 and 65.1, respectively. These figures are much larger than one standard deviation above the mean volatility score for our cross-national data set. Additionally, theses figures specifically reflect Lithuanian's acute sense of disappointment in persisting levels of corruption (Velykis, 2010). In national electoral surveys in 2008, for example, half of respondents indicated that both the parliament and the government were "very corrupt" entities and, furthermore, 83% responded that these national politicians should be held more responsible for the level of corruption.

By contrast to the test of H1, however, the evidence in Table 2 and Figure 2 does not support either version of Hypothesis 2. The absence of any causal effect of electoral volatility on perceived corruption is inconsistent with the *Retrospective Voting* dynamic (H2A), which predicts a negative influence of volatility on corruption producing a virtuous circle in which replacement legislators are chastened to behave virtuously thereby reducing future volatility. It also is inconsistent with the *Time Horizon* dynamic (H2B) which predicts a positive influence of volatility of corruption contributing to a vicious circle of ever increasing corruption and volatility. The absence of any impact of volatility on perceived corruption means either that legislators do not alter their behavior in the short run in response to the incentives (positive or negative) provided by vote volatility, or that politicians do respond, but their change in behavior is not immediately perceived by voters who continue to punish newly elected legislators for the sins of their predecessors. The very strong, lagged effect in Table 2 of perceived corruption on itself (.967) is consistent with both possibilities.

Distinguishing between these possibilities, empirically, requires data on actual legislative corruption, which is not available. Nevertheless, as between the two the second is more plausible. Voter perceptions of legislative corruption appear highly viscous; they do not vary much over time. Corruption is covert and hard for voters to recognize. When they do perceive

corruption, voters respond appropriately by throwing the bums out of office. But because corruption is covert, it is equally difficult for voters to know if newly elected legislators are really better behaved or whether the corruption of new members simply has not been exposed yet. In the absence of visible evidence to the contrary, voters have no reason to update their perceptions and treat the new legislators any differently than the old ones. Rather than creating either a virtuous or a vicious circle, this creates instead a low-level equilibrium trap. Voter perceptions of corruption give rise to higher levels of volatility, but because higher volatility has no impact on subsequent perceptions of corruption, continuing perceptions of corruption are likely to sustain those higher levels of volatility, thereby threatening the re-election prospects of newly elected legislators regardless of their behavior.

The results of the cross-national statistical analysis evaluating H2 affirm what we know of several individual countries around the world: if volatility does not incentivize more corruption, it at least fails to curb it. Consider the case of Israel, which between 2004 and 2010 averaged a 4.35 on the GCBs 5-point scale of citizen perceptions about the extent of corruption in political parties. There were three parliamentary elections during this time period with volatility figures of 49.1 in 2003, 74.2 in 2006, and 43.5 in 2009. While the spike in volatility in 2006 can be partially attributed to the emergence of the new Kadima Party, the persistent level of volatility reflects voters sustained dissatisfaction with the corrupt practices of elected politicians. Galia Sagy, the Head of Transparency International in Israel, argues that the string of public prosecutions of corrupt politicians in Israel conveys information to the voters about the overall level of corruption in the political system (Dattel, 2011). She notes a direct tie between voters perceptions about corruption and the accrual of legal cases against national-level politicians (Dattel, 2011). There is also reason to believe that these perceptions are, in turn, informing vote choice. Certainly this was the case in 1977, when corruption charges forced Prime Minister Yitzhak Rabin to close down his campaign and prompted voters to move their support away from the Labor Party and toward more right-leaning parties (Benn, 2009). It has also been the case in more recent years, where

Ehud Olmert, anticipating dire reelection prospects, specifically cited corruption accusations in his announcement that he would not run in his partys primary in 2008 (Olmert, 2008). Despite his admission that his corrupt practices were shaping his electoral prospects, however, electoral volatility has done little to actually curtail corruption in Israel. In 2010, citizen perception of corruption in political parties was at 4.5 among the highest levels in the world.

The same holds true in Bosnia-Herzegovina. A very high level of perceived corruption in 2005 (4.5) prompted a 123% increased in total volatility between 2002 (20.4) and 2006 (45.5). Despite the upswing in volatility, it does not appearing that politicians were getting the message, as subsequent measures of perceived corruption in 2005 and 2007 showed the figure holding steady at 4.5 and 4.4, respectively. Transparency Internationals National Integrity System Study for Bosnia-Herzegovina in 2007 notes that perceptions of corruption in the country were being driven mainly by "critically problematic pillars in society such as political parties and "the highest levels of elected office (Transparency-International, 2007). While the 2006 election was a highly salient election for a number of reasons, we have good cause to suspect that citizens were also concerned about the extent of corruption among national politicians. A survey conducted by the World Bank in 2000 concludes that there was "a high level of public concern regarding corruption with citizens believing that corruption was responsible for greater inequality, higher crime rates, and reduced foreign investment (World-Bank, 2000). Furthermore, more than 97% of survey respondents indicated that corruption "leads to very serious consequences for their country (World-Bank, 2000). Despite the fact that citizens in Bosnia-Herzegovina both (1) identified national politicians specifically as the source of corruption and (2) indicated that corruption was a driving issue in the countrys politics, their efforts at curbing corruption were ineffective. Of the 163 countries ranked by the Global Perceptions Index on a yearly basis, Bosnia-Herzegovina fell from 70th place in 2003, to tied for 88th place in 2005, to tied for 98th place in 2006 (Transparency-International, 2007).

In summary, both cross-national and anecdotal evidence seems to suggest that, although

more corruption is expected to lead to more electoral volatility, increasing volatility does not seem to have any effect on the level of corruption. As a result, then, the more general case for classical democratic accountability is still found wanting: ousting corrupt politicians from office, while not setting off a vicious spiral, does not seem to have the normative effect accountability theory would suggest it should have.

5 Discussion and Conclusion

We began this paper by raising concerns about the standard theory of Retrospective Accountability on which the logic of Representative Government heavily depends. According to the standard theory, voters hold elected officials accountable for their performance in office by voting out of office anyone suspected of corrupt behavior. This presumably purges government of the worst officials, reminds continuing representatives of the voters' power, and signals newly elected officials to behave more virtuously than their predecessors. We argued, however, that the standard theory hinges on the assumption that elected officials have long time horizons such that they can reasonably conclude that the long-term benefits of remaining virtuous in office exceed the short term benefits of corruption. Our concern with the standard theory is simply that where electoral volatility or turnover is high, for whatever reasons, the time horizons of elected officials should shrink, thereby decreasing the incentives for good behavior.

The evidence we have reported is reassuring of the standard model in several respects. It clearly shows, for example, that voters respond appropriately to perceived corruption by throwing legislators out of office. The data reported also provide reassurance regarding the time horizons of elected officials in that we do not find any evidence that increasing electoral volatility results in greater corruption or a vicious cycle. Nevertheless, the observation that increasing volatility does not reduce corruption undermines a central assumption of Retrospective Accountability theory: namely, that the replacement of corrupt officials creates

a virtuous cycle where corruption and volatility are mutually reinforcing and spiral ever lower together.

We do not wish to overstate our findings. Ours is but the latest contribution to a long history of research on Retrospective Accountability. The results, based as they are on a relatively small number of countries over a relatively short period of time, certainly require replication and refinement. One question that needs to be addressed is whether there is something unique about political corruption that makes it different from other forms of malfeasance. Whereas corruption is typically covert and hard to perceive, other legislative behaviors are transparent. A legislator who signs a no-new-taxes pledge and reneges by voting for tax increases does so in full public view as do legislators who fail to introduce or vote for other policies that voters want. Legislators who are inept at constituency service, providing pork, or engaging in symbolic representation (Pitkin, 1967) also are visible to their constituents to different degrees and in different ways. It may simply be that the largely invisible nature of corruption short circuits the virtuous cycle. Of course, by the same logic it may short circuit the vicious cycle as well. Besides, if corruption is different – or even unique – the failure of Retrospective Accountability to provide voters a remedy for corruption is a significant shortcoming. Corruption, after all, is a fundamental threat to political representation as evidenced by Madison's emphasis on virtue and public trust.

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Appendix A: Countries and Number of Elections

Europe
Albania (3), Austria (4), Bosnia & Herzegovina (3), Bulgaria (4), Croatia (3), Czech Republic (3), Denmark (4), Finland (3), France (3), FYR Macedonia (4), Georgia (3), Germany (4), Greece (5), Hungary (2), Iceland (4), Ireland (3), Italy (4), Latvia (3), Lithuania (4), Luxembourg (4), Moldova (4), Netherlands (4), Norway (4), Poland (4), Portugal (4), Romania (4), Slovenia (2), Spain (4), Sweden (3), Switzerland (3), Turkey (3), Ukraine (4), United Kingdom (3).

Africa
Ghana (4), Morocco (3), Nigeria (3), Senegal (3), Sierra Leone (2), South Africa (4), Zambia (2).

Latin America
Argentina (5), Bolivia (4), Brazil (3), Chile (4), Colombia (3), Costa Rica (3), Dominican Republic (3), Ecuador (4), El Salvador (3), Guatemala (3), Mexico (4), Nicaragua (3), Panama (3), Paraguay (2), Peru (3), Uruguay (4), Venezuela (3).

Asia and the Pacific
Armenia (2), Bangladesh (2), Fiji (3), India (3), Indonesia (4), Japan (4), Malaysia (4), Mongolia (2), Singapore (3), South Korea (4), Taiwan (3), Vanuatu (2).

Other
Australia (2), Canada (5), Israel (4), New Zealand (2), United States (5).

Appendix B: Empirical Model Specifics

Let V_t and C_t stand for Volatility and Corruption at time t. Our model is defined by

$$\begin{bmatrix} V_t \\ C_t \end{bmatrix} \sim \text{MVN}\left(\begin{bmatrix} \alpha_1 + \phi_{12} V_{t-1} + \gamma_{21} C_{t-1} \\ \alpha_2 + \phi_{21} C_{t-1} + \gamma_{12} V_{t-1} \end{bmatrix}, \begin{bmatrix} \sigma_v^2 & \rho\sigma_v\sigma_c \\ \rho\sigma_c\sigma_v & \sigma_c^2 \end{bmatrix} \right)$$

where the γ_i and $\phi_i$coefficients track the predictive effects of immediate histories of volatility and corruption and ρ is the (contemporaneous) correlation between volatility and corruption.

The γ_i and ϕ_i coefficients were given a single, flat multivariate normal-inverse Wishart prior (Brandt and Freeman, 2006), and the covariance matrix for the observation-level multivariate normal was also given an inverse-Wishart prior. Its structural complexity, in addition to the expected correlation among coefficients, make this a slow-mixing model. Although all Gelman-Rubin statistics were well under 1.5, and Geweke statistics were all smaller than 2, the five chains we used for estimation ran for 100,000 iterations, twenty thousand of which were discarded as burn-in (about 15 minutes of computation on a dedicated Linux computer).

Because of the ways in which corruption and volatility measures are obtained, there is an asymmetry in the number of observations in the model of volatility on corruption and in the model of corruption on volatility. In order to obtain a balanced set of observations in both series, we use multiple imputation by chained equations to generate five multiply-imputed datsets of the series and their country-specific lags. Each of these five datasets are then used to generate the five Markov chains of the Gibbs sampler. This effectively allows us to incorporate the uncertainty derived form the imputation into the sampling procedure while keeping computation time minimal.

Finally, direct tests of Granger causality depend on the specifying the correct number of self lags for each of the outcome variables. The following Figure shows the autocorrelation function for lags 0 through 5 (since this is the maximum amount of observations per country we have in our data) of residuals corresponding to the corruption and volatility series, after a single self lag has been included in each equation. The fact that no autorcorrelation is significant lends credibility to out choice of lag number.

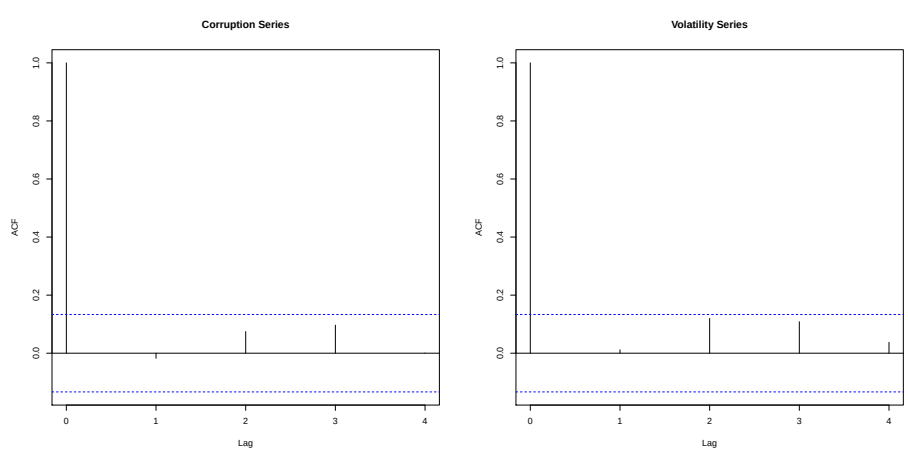

Figure 1. ACF of residuals for VAR(1) model

Appendix C: Model including (exogenous) control variables

Although it is common not to include exogenous variables in VAR models, their inclusion is in no way precluded by the modeling strategy. To rule out spuriousness of the relationship we have established, we therefore present the results of estimating the same bivariate normal model with a single self and cross lag reported in the main text, this time including a battery of common 'control' variables.

The comparative literature on corruption has identified a number of variables that potentially play an important role in determining perceptions. The first is the nature of the political system: specifically, whether the system is *parliamentary* or presidential in design. While Persson, Roland and Tabellini (1997) and Persson and Tabellini (2003) argue that separating the executive from the legislative branches incentivizes competition and helps reduce corruption, the bulk of empirical research argues against this point. Panizza (2001) finds, for example, that presidential systems have lower institutional quality whileLederman, Loayza and Soares (2005) reports that decision-making tends to be more cohesive and less costly in parliamentary systems. Gerring and Thacker (2004) also conclude that presidential systems are more prone to corruption, arguing that fewer veto points and more hierarchical organization facilitate lower corruption. Relatedly, Potter and Tavits (2011) argue that voters have an easier time identifying and assigning blame for corruption in parliamentary rather than presidential systems. To measure *parliamentarism* we use a dummy variable taken from the *Database of Political Institutions* compiled by Beck and his coauthors at the World Bank.

The positive correlation between *proportional representation* and perceived corruption is fairly well-established. The consensus both theoretically (Myerson, 1993) and empirically (Kunivová and Rose-Ackerman, 2005), is that that PR encourages corruption because it shifts rent seeking to the party leadership rather than the rank-and-file and results in coalition governments where blame is easy to diffuse. Our measure of PR is simply a dummy variable that was also taken from DPI. For political systems that are proportional in nature, it also is important to control for whether *closed-lists* are employed. Chang and Golden (2006) and Kunivová and Rose-Ackerman (2005) argue that CLPR rules obscure accountability by undermining clarity of responsibility: without access to the list, voters cannot punish specific parliamentarians for specific corrupt practices. Our measure of CLPR is a dummy variable taken from DPI as well.

Following Treisman (2007) we control for whether or not a country's legal system is of *English origin*, the degree of *ethnolinguistic fractionalization* (measured in 1985), and *GDP per capita*. Treisman (2007) includes the first of these two variables as part of his standard set of "historical" determinants of current corruption levels. GDP per capita is included due to the fact that a consistently strong empirical finding in the economic literature is that perceived levels of corruption are inversely correlated with economic development (La Porta et al., 1999; Ades and Di Tella, 1999; Treisman, 2007). The first two of these variables were taken from the replication data provided by Treisman (2007) and the third was pulled from the World Bank's online data repository.

When estimating corruption's impact on vote volatility, we control for a number of vari-

ables that are thought to play a role in shaping patterns of political support within a party system. Lipset and Rokkan (1967), for example, emphasize the influence of sociodemographic cleavages within society as determinants of voting patterns, although social variables have a mixed record in research on the determinants of electoral volatility. While some scholars such as Collier and Collier (1991) argue that class conflicts in Latin America are particularly important in shaping patterns of support for political parties, others like Bartolini and Mair (1990) have demonstrated that patterns of political support are largely unaffected by changes in cleavage structures. Other scholars emphasize the role that governments' economic performance has in shaping voting behavior and volatility. Roberts and Wibbels (1999), for example, summarize an extensive literature on economic voting in arguing for its importance. To control for these several influences our model of electoral volatility includes a standard measure of *ethnolinguistic fractionalization* from Treisman (2007) who reports values from around the world for 1985. We include two controls for economic performance *change in GDP* and *inflation rate*, both of which are taken from World Bank data.[15]

Finally, following Mainwaring and Zoco (2007) and Tavits (2008), we control for *democratic age* (logged) and the *effective number of parties* in the previous election (namely, the $t-1$ election in the calculation for volatility at time t). As voters grow more familiar with democratic institutions, volatility should decrease because party offerings and voter preferences fall into more predictable patterns of support (Tavits and Annus, 2006). We took our measure of democratic age from Matt Golder's *Democratic Electoral Systems Around the World, 1946-2000.*[16] Related to democratic experience, of course, is the palette of party offerings. Mainwaring and Zoco (2007) include the effective number of parties in the previous election period (which is simply a measure of the number of parties weighted by their share of the votes). We include the same variable for our analysis.

The following table summarizes our results.

[15]Our measure of change in GDP is calculated by taking the difference of GDP per capita measured in the current (election) year and GDP per capita measured in the immediately previous (non-election) year.

[16]Because his data is censored at 1946, the maximum value this variable (unlogged) can assume is 60 years. From a conceptual perspective, this should not be problematic as Mainwaring and Zoco (2007) have argued that the impact of democratic age on volatility should dissipate well in advance of the system's 60th anniversary. We have a small subset of countries in our data set that do not appear in Golder's data set due to the fact that, before 2000, these were not democratic countries. In these cases, we take as our measure of *democratic age* the number of years with no substantial reform to the democratic institutions.

	Response Variable			
	Electoral Volatility$_t$		**Political Corruption$_t$**	
Intercept	0.535	$(-0.014, 1.242)$	0.313	$(-0.172, 0.970)$
Volatility$_{t-1}$	0.404	$(0.250, 0.551)$	-0.073	$(-0.260, 0.101)$
Corruption$_{t-1}$	0.401	$(0.238, 0.555)$	0.906	$(0.703, 1.118)$
Common Law System?			0.157	$(-0.028, 0.332)$
ELF	-0.059	$(-0.358, 0.237)$	-0.062	$(-0.325, 0.172)$
Parliamentary			0.013	$(-0.146, 0.168)$
Log of GDP per Capita			-0.002	$(-0.053, 0.052)$
Proportional Representation			-0.030	$(-0.165, 0.114)$
Log Of Democratic Age	-0.126	$(-0.250, -0.003)$		
Effective Number of Parties	0.103	$(0.054, 0.149)$		
Closed List			0.052	$(-0.058, 0.161)$
Δ *Log of GDP per Capita*	-0.049	$(-0.107, 0.012)$		
Inflation	0.0001	$(-0.013, 0.014)$		
N	169		169	
Partial R^2	0.43		0.65	
Difference in DIC w.r.t. model without cross-lags: -4.32				

Table 1. Posterior Median and 90% Credible Intervals for coefficients in Bivariate Normal VAR model

6 Figures and Tables

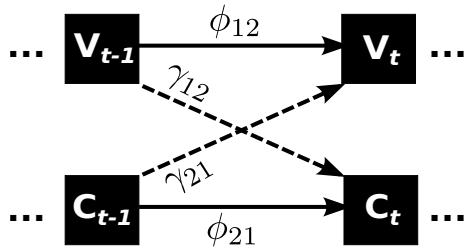

Figure 1. Depiction of Granger Feedback Characterized Using VAR model parameters

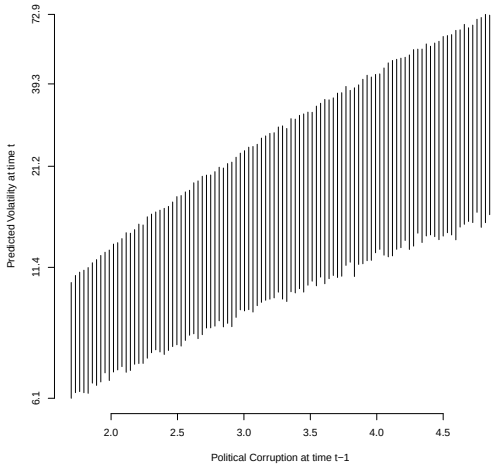

Figure 2. Predicted Values Of Volatility at time t As A Function of Lagged Corruption. Bars Represent 90% Credible Intervals for the Predictions.

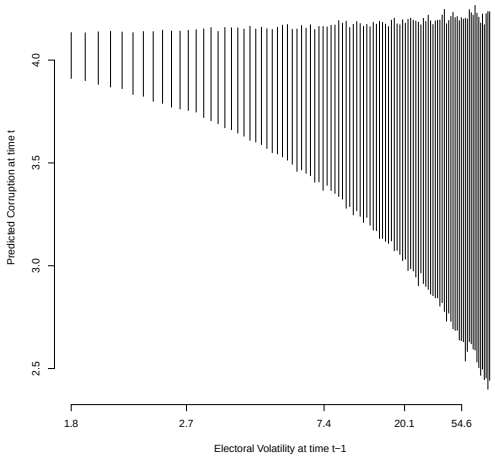

Figure 3. Predicted Values Of Corruption at time t As A Function of Lagged Volatility. Bars Represent 90% Credible Intervals for the Predictions.

	Response Variable			
	Electoral Volatility$_t$		**Political Corruption**$_t$	
Intercept	-0.003	$(-0.482, 0.513)$	0.501	$(0.204, 0.793)$
$Volatility_{t-1}$	0.424	$(0.312, 0.537)$	-0.141	$(-0.368, 0.022)$
$Corruption_{t-1}$	0.466	$(0.290, 0.613)$	0.950	$(0.811, 1.133)$
N	169		169	
Partial R^2	0.36		0.65	
Difference in DIC w.r.t. model without cross-lags: -41.98				

Table 1. Posterior Median and 90% Credible Intervals for coefficients in Bivariate Normal VAR model

Models not for publication

To explore the robustness of our results, we reestimate our model using a subset of the data which includes clearly democratic countries only (i.e. countries that scored a 7 or higher in the Polity IV measure), and using Type A volatility (i.e. volatility that occurs because of new party entry or because of old party exits) as our response variable. The results can be replicated using our data, and we report the two estimation results in the following tables:

	Response Variable			
	Electoral Volatility$_t$		**Political Corruption**$_t$	
Intercept	-0.273	$(-0.817, 0.214)$	0.462	$(0.073, 0.825)$
Volatility$_{t-1}$	0.479	$(0.270, 0.637)$	0.033	$(-0.167, 0.246)$
Corruption$_{t-1}$	0.481	$(0.296, 0.681)$	0.816	$(0.615, 1.034)$
N	135		135	
Partial R^2	0.52		0.72	
Difference in DIC w.r.t. model without cross-lags: -9.67				

Table 1. Posterior Median and 90% Credible Intervals for coefficients in Bivariate Normal VAR model, using democracies only

	Response Variable			
	Electoral Volatility$_t$		**Political Corruption**$_t$	
Intercept	-0.728	$(-3.542, 0.196)$	0.548	$(0.174, 0.947)$
Volatility$_{t-1}$	0.608	$(0.484, 0.754)$	0.005	$(-0.022, 0.032)$
Corruption$_{t-1}$	0.263	$(-0.017, 1.020)$	0.820	$(0.698, 0.926)$
N	169		169	
Partial R^2	0.38		0.96	
Difference in DIC w.r.t. model without cross-lags: -1.66				

Table 2. Posterior Median and 90% Credible Intervals for coefficients in Bivariate Normal VAR model, using Type A volatility