Quarterly Journal of Political Science, 2006, 1: 25–47

Polls and Pounds: Public Opinion and Exchange Rate Behavior in Britain

William Bernhard[1] and David Leblang[2]

[1]*Department of Political Science, University of Illinois at Urbana-Champaign, Urbana, IL 61801, E-mail: Bernhard@uiuc.edu*
[2]*Department of Political Science, University of Colorado, Boulder, CO 80309-0333, E-mail: Leblang@colorado.edu*

ABSTRACT

This article examines the relationship between government popularity and exchange rate movements in Britain since 1987. It argues that: (1) unexpected drops in the government's public support lead to currency depreciations and increased exchange rate volatility, and (2) unanticipated depreciations hurt the government's public support. It estimates separate models of the exchange rate and government voting intention iteratively and recursively. At each iteration, measures of exchange rate and public opinion shocks are generated. These generated variables are employed in the next iteration of estimates, including measures of political shocks in the model of exchange rate behavior and measures of exchange rate movements in the model of voting intention. This enables, therefore, the measurement of both the political costs of currency depreciation and the exchange rate consequences of political competition.

With growing levels of international trade and capital mobility, policy-makers and political scientists frequently assert a relationship between the international economy and domestic political outcomes. Some political economists emphasize how currency markets affect politics, arguing that the size and volatility of currency markets alters underlying social and political cleavages (Frieden 1991), constrains policy options (Garrett 1995; Goodman and Pauly 1993; Strange 1996), affects electoral outcomes (Bernhard 2001), and contributes to the erosion of the nation-state (Andrews 1994).

A second set of political economists views the causal arrow in the other direction, contending that politics shapes currency market behavior. These studies reveal considerable

MS submitted 17 February 2005; final version received 14 September 2005
ISSN 1554-0626; DOI 10.1561/100.00000004

variation in how exchange rates respond to elections (Bachman 1992; Bernhard and Leblang 2002; Blomberg and Hess 1996; Christodoulakis and Kalyvitis 1997; Eichengreen, Rose, and Wyplosz 1995; Frieden 1999; Freeman, Hays, and Stix 2000; Leblang and Bernhard 2000; Lobo and Tufte 1998). In some instances, markets react calmly to political changes. In others, political events touch off frenetic activity. Attempts to explain this variation have not had compelling support.

Each set of studies assumes that either markets or politics is exogenous. The first group takes currency markets as exogenous to political factors, discounting the possibility that politics affects exchange rate behavior. The second set assumes that political events are exogenous, ignoring the possibility that currency market activity can precipitate a cabinet dissolution or affect an electoral outcome. An accurate assessment of how currency markets and domestic politics affect each other, however, requires an analysis of how the two evolve together.

To deal with this endogeneity problem, this article examines the relationship between government popularity and exchange rate movements in Britain between 1987 and 2001. It argues that: (1) unexpected drops in the government's public support lead to currency depreciations and increased exchange rate volatility, and (2) unanticipated depreciations hurt the government's public support.

We estimate separate models of exchange rate behavior and government voting intention iteratively and recursively. At each iteration, estimates from each model are used to generate measures of exchange rate and public opinion shocks. These generated variables are then employed in the next iteration of the estimates, including measures of political shocks in the model of exchange rate volatility and measures of exchange rate behavior in the model of voting intention. This enables, therefore, the measurement of both the political costs of currency depreciation and the exchange rate consequences of political competition.

FOREIGN EXCHANGE, GOVERNMENT POPULARITY AND EXPECTATIONS

We begin with the assumption that economic and political agents employ available information to make decisions. This information can come from a variety of economic (e.g., data regarding unemployment or inflation) or political (e.g., the timing of elections or the policy preferences of governing parties) sources. Currency behavior and government popularity ratings, therefore, reflect the information currently available to economic and political agents.

Agents use this information to forecast currency prices and popularity ratings, making predictions about the evolution of these variables. The realization of information that does not fit with those expectations, however, will compel them to change their behavior. If government popularity shifts unexpectedly, currency traders quickly adjust to the new situation. Similarly, if exchange rate movements substantially deviate from currency forecasts, that deviation should affect the government's popularity rating.

Opinion Polls and Exchange Rate Behavior

Foreign exchange markets are among the deepest and widest financial markets in the world. The size and technological efficiency of currency markets mean that they quickly incorporate available and relevant information into the price of the currency. On average, therefore, the best predictor of a currency's value tomorrow is its value today. In other words, exchange rate changes follow a random walk. Only news or unanticipated events affect the exchange rate.

We argue that news about politics, particularly the government's popularity, affects exchange rate behavior. As currency traders buy and sell foreign exchange, they gauge the government's commitment to the exchange rate. Traders must determine the probability of a change in economic policy that would affect the exchange rate. A key piece of information for currency traders in calculating this probability is the government's public standing.[1] Opinion polls about voting intention and government approval provide convenient summary statistics not just of the government's overall policy performance, but also of the potential for future policy change.

First, opinion polls indicate the ability of the incumbent government to press its policy agenda. Strong approval ratings for the government increase the incentives for backbench legislators (and coalition partners) to support the government's agenda. A popular government, therefore, is likely to win support for its legislation or respond decisively to a shock than a government that does not enjoy public support. On the other hand, backbench legislators often attempt to distance themselves from an unpopular government by voting against or delaying the government's program. Weak popularity also emboldens the opposition (or coalition partners) to challenge government policies (Martin 2000; Huber 1996).

Second, the government's popularity ratings provide information about the timing of a cabinet dissolution or election – events where the composition of the government may change, leading to different economic priorities for the government. Martin (2000) shows that public opinion shocks can alter the calculations of parties in a coalition government, leading them to precipitate a cabinet dissolution by withdrawing their support. In parliamentary systems with endogenous electoral timing, governments may also use opinion polls to strategically call an election (Smith 2000; Huber 1996). In Britain, for example, John Major put off elections until the last moment in both 1992 and 1997 because opinion polls earlier in the term did not favor the Tories.

Finally, opinion polls provide clues to the future partisan composition of government. Opinion polls indicate which parties stand to benefit and which will lose at the next election. Currency traders, therefore, can anticipate a partisan change in government long before an election.

The government's standing in the polls is a simple measure, easily monitored by currency traders. At the same time, it allows currency traders to extrapolate a great deal of information about the possibility of partisan and policy change, shaping their

[1] The literature on voting behavior distinguishes between public popularity, vote intention, and government approval. For data reasons, we rely on the vote intention as the key indicator of the government's popular support.

expectations about the government's commitment to the exchange rate. Consequently, the information contained in opinion polls will condition the policy expectations of currency traders. Unanticipated shocks to the government's approval cause traders to update their expectations and, therefore, may affect exchange rate behavior. In particular, we expect an unanticipated drop in incumbent support to lead to currency depreciation.

The government's popular standing also conditions the precision of currency forecasts. Although the forecasts of currency traders will, on average, remain unbiased, the variance of those forecasts varies over time. In some periods, traders have precise forecasts of the exchange rate. At other times, forecasts are less accurate – i.e., exchange rate volatility is high. Estimating the volatility accurately conditions the frequency and size of unanticipated appreciations and depreciations that, in turn, influence approval.

Both the level of the government's popularity and changes in the government's popular standing affect exchange rate volatility. If the government enjoys strong public support, economic actors can be confident that the incumbent is likely to win the next election and existing economic policies will remain in place. On the other hand, if polls indicate that the government would decisively lose an election, currency traders can infer that the opposition will form the next government and that policy would change. In both situations, the political future and exchange rate policy are predictable.

In contrast, if opinion polls do not indicate which party would decisively win an election, currency traders cannot predict the composition of future governments and, in turn, the government's commitment to the exchange rate. This political uncertainty increases the variance of currency forecasts. When polls indicate that the government and opposition have similar support, therefore, we expect higher levels of exchange rate volatility.

A change in the government's support – especially an unanticipated change – provides new information about the government's prospects and the implications for policy. The level of government support conditions how the market responds to an opinion shock.

Consider the situation where a government enjoys solid public support. A positive shock to the government's poll numbers is unlikely to affect markets. Since the government is popular, currency traders already assume that the government will remain in office. An increase in the government's popularity will not change their expectations about the government's exchange rate policy. A negative shock, however, increases uncertainty about the future composition of the government. Since the governing and opposition parties are running closer, currency traders are less able to forecast future policy. As a result, a negative shock increases exchange rate volatility.

Similarly, if the government's popularity is low, an unanticipated negative shock to public opinion will not change the forecasts of currency traders. They already expect the government to lose the next election and have made adjustments based on the projected policies of an opposition government. As a result, a negative shock to public opinion should not affect exchange rate volatility. An unanticipated positive shock to the incumbent's popularity, however, will change expectations. A positive shock indicates that the government's fortunes are rising, making any upcoming election less predictable. We expect that political uncertainty to increase exchange rate volatility.

Finally, in situations where the opinion polls do not indicate that the government or opposition has a distinct advantage, we expect that a positive shock to the government's

popularity will decrease market volatility, while a negative shock will increase volatility.

Currency Markets and Government Popularity

Currency market turmoil can also affect the government's standing. With increasing trade and ever-larger international capital markets, exchange rate politics have become highly salient at the domestic level. First, movements in the exchange rate have distributional consequences, often pitting actors in the tradeables and non-tradeables sectors against one another (Frieden 1991). A depreciated currency, for instance, makes exports more attractive on international markets, but raises the price of imports. As a result, certain sectors may blame the government for exchange rate movements that hurt their economic fortunes.

The British experience in the Europeon Monetary System [EMS] highlights these distributional dilemmas. Exchange rate stability within the EMS helped sectors involved in international trade and finance. But to maintain the pound's parity with the German mark, the government had to keep interest rates high. Since home ownership is widespread in Britain, and mortgages are tied to current interest rates, this policy hurt many home-owners, especially working-class home-owners who had just purchased their homes under Thatcher's privatization program (Clarke and Stewart 1995; Garrett 1992). Once grateful to the Conservative Party for allowing them to purchase their own homes, these working-class constituents soon turned against the Major government as high mortgage payments placed them in financial straits.[2]

Further, with the increased volume and pace of international capital flows, the collective impact of decisions by currency traders can place tremendous pressure on a country's exchange rate and, in turn, government policy. Large and/or persistent exchange rate movements can compel a government to tighten both monetary and fiscal polices to ease market pressure. Exchange rate movements may signal that the government will be unable to follow through on its agenda.

Finally, a sharp unexpected depreciation might serve as a focal point for the public, causing people to re-evaluate their assessments of the government's economic performance (Bernhard 2001). A depreciation also damages the government's credibility with markets and constituents, especially if the government had publicly pledged to maintain the exchange rate.

Unanticipated changes in the level of the exchange rate, therefore, are likely to hurt the government's popularity. Unanticipated movements may magnify the distributional consequences. They are also likely to generate news stories in the media that call attention to the government's economic record. Moreover, we expect that unanticipated depreciations will have a larger negative effect on government popularity than unanticipated appreciations. The public is more likely to interpret a depreciation as a signal that market actors lack confidence in the government's economic management and that a weakening economy is on the horizon.

---

[2] In the late 1990s, the Labour government experienced difficulty balancing the conflicting demands of the (exposed) manufacturing sector with the (largely insulated) service sector.

BRITAIN

We focus on the British experience to examine the relationship between currency markets and government popularity. Britain's Westminster system provides clear lines of political accountability for economic policy (Powell 2000; Lijphart 1999). The majoritarian system usually manufactures a clear legislative majority for one party, allowing the formation of a single-party majority government. As a result, opinion polls represent a (relatively) direct indicator of the government's policy performance and electoral prospects.

Further, Britain is an open economy. Since 1979, there have been few, if any, restrictions on capital movements in or out of Britain (Quinn and Inclan 1997). Trade accounts for a significant portion of economy activity. In the 1990s, imports and exports totaled about 50% of GDP. That trade is diversified between Europe, the United States, and the Commonwealth countries. With those levels of economic openness, therefore, the exchange rate should be a salient factor in British politics.

Indeed, the exchange rate has been a point of controversy throughout the post-World War II period. In the 1950s and 1960s, British policy-makers sought to maintain the pound's postion as a major reserve currency. Balancing this external goal with domestic objectives, however, contributed to a stop – go pattern of macroeconomic policy: the government would pursue expansionary policies to maintain employment levels, but then quickly slam on the brakes due to balance-of-payments pressures (Alt 1979).

During the stagflation of the late 1970s, the pound came under heavy attack in international financial markets, forcing the Labour government to turn to the IMF for access to a special long-term loan. This humilation exacerbated the Labour government's unpopular public standing. By the end of the 1970s, the pound played a diminished role as an international reserve currency.

In the 1980s and 1990s, debates about the exchange rate became intertwined with arguments about Britain's relationship with the European Community. In 1979, the new Conservative government declined to join the exchange rate mechansim (ERM) of the EMS, preferring to let the pound float and allowing monetary policy to focus on domestic objectives. Thatcher's economic program did reduce inflation rates, but contributed to the appreciation of the pound, which wiped out Britain's export industries.

By the late 1980s, however, inflation again approached 10%. With the success of the EMS member states in maintaining price stability, discussion soon centered on the question of British participation in the ERM. Thatcher steadfastly refused to join, arguing that it was dangerous to sacrifice policy autonomy. Under pressure from her party, however, she finally agreed to join the ERM in October 1990. Her belated acceptance of the EMS, however, was not enough to maintain the Conservative Party's support after the disastrous attempt to institute the Poll Tax. In November 1990, party MPs replaced her with John Major.

British participation in the EMS, however, came at an inopportune time. In an effort to enhance its anti-inflation credibility, the government entered the system at a parity higher than what many economists contended was justified by economic fundamentals. With the tightening of German monetary policy after German re-unification, the British government had to maintain high interest rates to sustain the pound's value, prolonging

a recession long after inflation had been controlled. Then, in September 1992, amid concerns about the disparity of economic fundamentals across Europe and the ratification of the Maastricht Treaty, currency traders attacked the EMS, forcing the pound and the Italian lira to leave the system. The Conservative government, who had issued public assurances about the pound's value prior to the crisis, was forced to backtrack, losing credibility with the public and the markets. After the crisis, the economy recovered quickly. Nevertheless, the Conservative Party struggled through its term, divided over the question of Europe. Unsurprisingly, the Conservatives lost badly to the Labour Party in the May 1997 election.

The question of Britain's relationship to the European Union, especially whether to participate in the single currency, however, remained a controversial topic. Tony Blair, the Labour leader, sought to head off divisions within his own party about Europe by promising a referendum on the issue in a second Labour term – a referendum that has been repeatedly postponed. The Conservatives became increasingly vocal in their opposition to the Euro – a position that did not appear to help them in the 2001 election, even though opinion polls at that time showed the public strongly against participation. These debates about the international role of the pound and participation in European monetary institutions have focused public attention on exchange rate movements.

DATA AND METHODOLOGY

We estimate the relationship between exchange rate movements and opinion polls in Britain from the June 11, 1987 election until June 21, 2001, just after the 2001 election.

Exchange Rate Data. Exchange rate data consist of weekly spot prices of the pound denominated in US dollars (Figure 1).[3] The prices are from the Wednesday close, to avoid problems associated with bank/national holidays and increased volatility on Mondays and Fridays (Baillie and McMahon 1989). The data are from the Federal Reserve Bank of Chicago.[4]

Exchange rate levels tend to be nonstationary data series. Both Phillips–Perron and Augmented Dickey–Fuller tests fail to reject the null hypothesis that the pound/dollar series contains a unit root. Consequently, we convert the exchange rate data into weekly percentage changes using the formula $R_t = \log(s_t) - \log(s_{t-1})$ where s_t denotes the pound/dollar exchange rate. This series is free from unit root issues (Table 1).

Polling Data on Vote Intention. To measure the government's popular standing, we employ data on vote intention. Opinion polls ask the question, "How would you vote if a General Election were held tomorrow?" Respondents then identify which party they would choose to support. Typically, polling houses in Britain ask this question

[3] We also performed the analyses using the weekly spot prices of the British pound denominated in German marks and a trade-weighted exchange rate. The results, not reported, were similar.

[4] See <http://www.chicagofed.org/economicresearchanddata/data/index.cfm>.

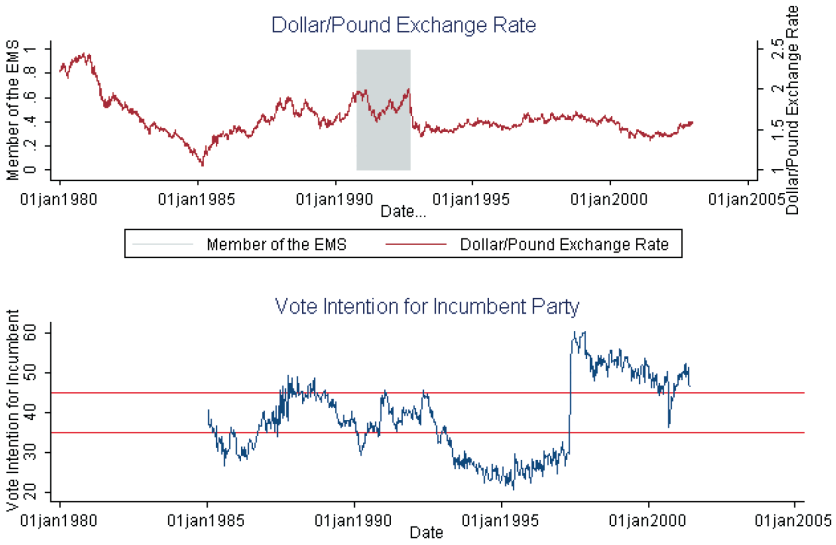

Figure 1. The data series.

Table 1. Summary statistics

	△Pound/dollar exchange rate	△Vote intention for government
Mean	0·00024	0·00791
Standard deviation	0·0137	1·6868
Minimum	−0·0452	−6·4200
Maximum	0·0864	19·44
Phillips–Perron†	−859·69*	−777·15*
Augmented Dickey Fuller†	−28·88*	−30·01*

† Test statistic from hypothesis test that the series contains a unit root.
* $p < 0.01$

each month. Monthly series on government popularity, therefore, are available. But given the size and technological sophistication of currency markets, traders respond to political information more quickly. Consequently, we need a measure that tracks voting intention more frequently.

Fortunately, three major polling houses in Britain – Market and Opinion Research International (MORI), ICM Research, and Gallup – ask essentially the same question on voting intention at different times during each month (and more frequently as elections

approach).[5] We merged the monthly results from the three polling houses into a weekly series on voting intention from 1985 until mid-June 2001.[6]

We created two data series on vote intention: one for the Conservatives and one for the Labour Party. To combine the results across the different polling houses, we used the Kalman filtering and smoothing algorithm (Green, Gerber, and DeBoef 1999; Gerber and Green 1998). The procedure weights each observation (according to sample size, sampling error, and poll date) in order to smooth the series and interpolate missing observations (with standard errors).[7] The procedure, therefore, distinguishes between random sampling error and true opinion change.[8] Calculations were implemented using Samplemiser 4.0 (Green and Gerber 2000).[9]

With the (filtered and smoothed) measures of vote intention for the Conservatives and for Labour, we created a weekly series of voting intention for the incumbent government party (Figure 1). From January 1985 through the 1997 election, this series is based on voting intention for the Conservative Party. From May 1, 1997 to the end of the sample, the series represents voting intention for Labour.

We performed tests for stationarity on the voting intention series and could not reject the null hypothesis of a unit root.[10] As with the exchange rate series, therefore, we work

---

[5] In the 1990s, MORI polls were usually published in *The Times*, ICM polls in *The Guardian*, and Gallup polls in *The Daily Telegraph*. The MORI poll results are available from early 1979 to the present at <http://www.mori.com>. MORI supplied us with the fieldwork dates and sample sizes from 1983 on. From ICM, we have monthly results from 1984 on. Much of the data is available at <http://www.icmresearch.co.uk>. ICM provided us with fieldwork dates and sample sizes from 1989 on. Where unavailable, we assumed that ICM polls were conducted in the second week of the month with a sample size of 1000. (This sample size represents substantially fewer respondents than reported by ICM after 1989. We used this figure in order to be as conservative as possible in estimating the standard errors surrounding the interpolated poll numbers.) Gallup has published monthly data on voting intention throughout much of the post-war period (King with Wybrow 2001; Butler and Butler 2000). Fieldwork dates and sample sizes are from King with Wybrow 2001. In addition, MORI's website contains the results, fieldwork dates, and sample sizes for irregular polls on voting intention since 1992.

[6] The sample period covers a major change in the methodology of many British opinion polls. Prior to 1992, most polling organizations used quota sampling (Jowell, Hedges, Lynn, Farrant, and Heath 1993). Most polls, however, substantially mis-predicted the 1992 election results, projecting a Labour victory. As a result, polling houses switched to methods more consistent with a random sampling approach (King with Wybrow 2001).

[7] The correlation between the observed and smoothed opinion series is 0.998.

[8] It is possible that the results systematically differ across polling houses. As a check, we regressed the generated data series on dummy variables for the three major polling houses. (The omitted category is polls from miscellaneous houses.) With the differenced data series for voting intention for the incumbent party, none of the dummy variables was significantly different from zero, nor were they significantly different from one another.

[9] See <http://statlab.stat.yale.edu/~gogreen/samplemiser.html>.

[10] In addition to standard Phillips–Perron and augmented Dickey–Fuller tests, we also implemented the Perron (1989) test for a unit root in the presence of a structural break. Perron (1989) argues that many findings of a unit root are caused by the occurrence of a single structural break in the data and, as a result, are spurious. Using this test, we still cannot reject the null hypothesis of a unit root.

This test is not without controversy. Zivot and Andrews (1992), for example, argue that it is inappropriate to specify the date of the breakpoint because that choice of date is not known independently

with differenced data on voting intention. The differenced series pass all tests for the presence of a unit root (Table 1).

Table 1 provides summary statistics for the exchange rate and vote intention series.

Methodology

Our argument about the relationship between currency markets and government popularity presents a number of methodological challenges. First, exchange rates changes and voting intention affect one another, creating potential endogeneity problems. Estimating individual models for each dependent variable, therefore, will produce biased estimates and lead to incorrect inferences.

A second challenge arises from our assumption that economic and political actors make decisions at time t based on information available through time $t - 1$. Measuring expectations based on estimates from the full sample, therefore, would not be accurate since those estimates incorporate information that occurred after time t.

Finally, we contend that unexpected changes in the exchange rate and/or government popularity influence the behavior of economic and political actors. To generate measures of surprises, we need to generate measures of expectations – baseline predictions and standard errors for time t based on information available through time $t - 1$.

To meet these challenges, we estimate separate models of exchange rate volatility and government voting intention iteratively and recursively. By estimating each model iteratively, we circumvent problems associated with the endogeneity of the dependent variables. With recursive estimation, the parameter estimates are based on information available only in prior periods. In order to measure political and economic shocks, we use our estimates to generate a one-period-ahead forecast and then compare the forecast to the realized variable. We then include those generated variables in the next iteration of the estimates. Consequently, we are able to follow the evolution of the relationship between the exchange rate and government popularity over time.

This section describes the specific process in detail. We first discuss the model to estimate exchange rate behavior and how we measure surprises in currency markets. We next describe the voting intention model and the measurement of public opinion shocks. Finally, we discuss the procedure for linking the two models.

Estimating Exchange Rate Volatility. Most studies of exchange rate movements employ random-walk models to explain short-term changes in spot prices. Although there is some evidence that exchange rates exhibit mean-reverting behavior, random-walk models tend to outperform all other models in predicting out-of-sample exchange rate changes (Meese and Rogoff 1983).[11]

---

of the data (see Hansen 2001). In our case, however, we know, even prior to examining the approval series, that there will be a structural break when a new party comes into power.

We also implemented these tests for the exchange rate series as a structural break may have occurred when Britain left the ERM. None of these tests reveal a unit root.

[11] These conclusions are not necessarily applicable across exchange rates measured at different levels of aggregation (Dacorogna et al. 2001).

Taking these findings as a point of departure, we first model the evolution of the exchange rate, R_t as a random walk with a drift (results not reported).[12] Diagnostic tests on the residuals from this model found no evidence of serial correlation (Ljung–Box Q statistic with 40 lags). However, tests for temporal dependency in the conditional second moments (variance) of the residuals were not able to reject the null hypothesis of no conditional heteroskedasticity (Ljung–Box Q^2 statistics with 40 lags and ARCH-LM tests with one and two lags). Additionally, Jarque–Bera and associated tests reveal that the residuals suffer from both skewness and highly significant kurtosis.

This finding of conditional heteroskedasticity and fat tails (kurtosis) in the residuals is consistent with a large literature from financial economics. Consequently, we employ a GARCH model to account not only for the time-varying volatility but also for the kurtotic (non-normal) nature of the residuals (Franses and van Dijk 2000; Nelson 1991; Bera and Higgins 1993; Baillie and McMahon 1989).

In the GARCH (1,1) specification, the conditional mean can be written as:

$$\begin{aligned} R_t &= \zeta + m_t\eta + \varepsilon_t \\ \varepsilon_t &\sim N(0, \sigma_t^2) \end{aligned} \tag{1}$$

where R_t is the change in the log pound/dollar exchange rate at time t, ζ is a constant, η is a vector of parameters related to the set of m variables thought to impact R_t, and ε_t is an error term that is distributed normally with mean zero and variance σ_t^2. In m we include a number of control variables, including lagged values of R_t, lagged changes in vote intention for the incumbent, lagged changes in unemployment and inflation, a dummy variable for British participation in the EMS (coded one from October 1990 through September 1992), and a dummy variable, *Crisis*, to control for the weeks following the pound's exit from the EMS (coded one from mid-September 1992 through December 31, 1992).

With GARCH models, the researcher can specify how the conditional variance (σ_t^2) evolves over time in response to past values, shocks, and exogenous variables. The conditional variance for the standard GARCH (1,1) model is:

$$\sigma_t^2 = \omega + \alpha\varepsilon_{t-1}^2 + \beta\sigma_{t-1}^2 + \pi x_t \tag{2}$$

The conditional variance, σ_t^2, is the one-period-ahead forecast variance based on all information available at time $t-1$. The conditional variance is a function of four terms: a constant (ω), the ARCH term (ε_{t-1}^2), the GARCH term (σ_{t-1}^2), and a set of exogenous variables (x_t). The ARCH term can be interpreted as news about volatility (or volatility shocks) from prior periods. The GARCH term represents the variance from $t-1$. GARCH models, therefore, reflect the assumption that economic agents form expectations about this period's variance based on the long-term mean of the variance (ω), the forecasted variance from the prior period (σ_{t-1}^2), and new information about volatility gleaned in the prior period (ε_{t-1}^2).

---

[12] Somewhat surprisingly, specification of a model with dummy variables for EMS membership and the 1992 Currency Crisis in the mean equation was rejected by the simpler random walk with a drift model.

The GARCH setup also allows the conditional variance to be influenced by exogenous control variables (x_t). We include several variables in x_t to capture the influence of British participation in the EMS.

Generating Exchange Rate Expectations and Surprises. We use the predicted change in exchange rate changes, $\hat{R}_t$, to measure appreciation and depreciation surprises. From Equation 1, we calculate both $\hat{R}_t$ and its standard error and generate a 95% confidence interval around the prediction. We then determine whether the realized value of the actual exchange rate was within that interval, above it, or below it. The variable, *Depreciation*, is equal to the actual residual if there is an unanticipated depreciation – i.e., if the actual value was greater than the upper bound of the confidence interval – for 3 weeks in a row.[13] This variable equals zero otherwise. The actual values for the *Depreciation* variable, therefore, are always non-negative (i.e., bounded below by zero). Similarly, the variable *Appreciation* is equal to the actual residual if the realized value was less than the lower bound of the confidence interval for 3 weeks in a row. It is coded zero otherwise.

We include these variables in the model of voting intention. We expect *Depreciation* and *Appreciation* to have negative effects on voting intention for the government. (Note that since the actual values for *Appreciation* are non-positive, a positive parameter estimate indicates a negative effect on government vote intention.)

Estimating Voting Intention for the Government. Estimating a voting intention model is fairly straightforward; the differenced series is well behaved and we use ordinary least squares with robust standard errors as the modeling strategy. The model is:

$$y_t = \tau + \theta z_t + u_t \tag{3}$$

where y_t is the differenced voting intention series, τ is a constant, z_t is a set of control variables, θ are parameters to be estimated, and u_t is an error term.

Following the literature on voting behavior in Britain (e.g., Lewis-Beck 1988; Clarke and Stewart 1995; Nadeau, Niemi, and Amato 2000; Sanders 2000; Clarke, Stewart, and Whitely 1998), we include a variety of variables as controls in z_t to account for movements in the opinion polls: lagged vote intention;[14] election dates; a dummy variable

[13] Although the three-week requirement is arbitrary, there are both theoretical and practical reasons for choosing it. From a theoretical perspective, it is unlikely that a single unexpected observation would generate enough media attention to affect public opinion. A series of unexplained exchange rate movements in the same direction, however, would be more likely to warrant news stories. These news stories are an important transmission mechanism connecting currency market behavior and public opinion (Sanders, Marsh, and Ward 1993).

The practical reason is that the mean model of exchange rate behavior does a relatively poor job of predicting exchange rate movements. If we counted single observations outside the 95% confidence interval as unexpected movements, only a small fraction of exchange rate changes could be classified as anticipated. By requiring three observations in a row to have large residuals, we are more likely to measure accurately the idea of an unanticipated change in exchange rates. We also experimented with two-week and four-week requirements. The results were similar, although at lower levels of statistical significance.

[14] In alternative specifications, we included up to five lags of the differenced vote intention series as exogenous variables.

to capture honeymoon effects, coded one for 6 weeks after an election; Major's selection as Conservative Party leader (the last 3 weeks in November 1990); weekly changes in unempolyment and inflation;[15] and a series of political events[16] – the stock market crash of 1987 (October 16, 1987), the petrol crisis of September 2000, the foot-and-mouth disease crisis (March 2001), the initial EU ban on British beef (March 18, 1996), the Gulf war (August 1990–March 1991), the end of the Poll Tax (March 1991), votes on the Maastricht Treaty (various dates in 1992 and 1993), critical legislative votes, and budget annoucements (Butler and Butler 2000).

Generating Public Opinion Shocks. We generate public opinion shocks in a manner similar to the measurement of economic expectations. After estimating Equation 3, we obtain a predicted value for the differenced voting intention series, $\hat{y}_t$ and its associated standard error. We then construct a 95% confidence interval for $\hat{y}_t$ and determine whether the realized value falls above the interval, within it, or below it. We create two variables, *Positive Surprise* and *Negative Surprise,* to measure unanticipated movements in public support for the government. We code *Positive Surprise* as the value of the residual if the actual value of public support series lies above the upper bound of a 95% confidence interval surrounding the predicted value for 3 weeks in a row. The variable is coded zero otherwise. We code *Negative Surprise* as the value of the residual if the actual value of public support series lies below the lower bound of a 95% confidence interval surrounding the predicted value for 3 weeks in a row. The variable is coded zero otherwise. (Note, again, that actual values of *Negative Surprise* are always non-positive.) We include these shocks to the government's standing in the polls in the mean model of exchange rate behavior. Since these shocks are unanticipated, they represent new information about the government's commitment to the exchange rate. As such, we expect them to affect the exchange rate directly.

We also argue that the level of political uncertainty will condition the effect of an opinion shock on exchange rate volatility. We code a dummy variable, *Consequential*, as equal to one if voting intention for the governing party lies between 35% and 45%. In this range, it is not clear exactly which party would win an election.[17] Since traders are uncertain about future economic policies, we expect higher conditional volatility. We include a second dummy variable, *Weak*, coded one when the voting intention for the

---

[15] We interpolated the weekly values of inflation and unemployment from monthly values. According to the British Office of National Statistics, the Consumer Price Indices (RPI) are usually released on the second Tuesday of the month. Unemployment data are released the second or third Wednesday of the month.

[16] We performed the analyses without dummy variables to capture these specific events. In this specification, the effect of these specific events is picked up solely as shocks to public opinion. The results, not reported, are substantially similar to the models that include the dummy variables for the specific events.

[17] The selection of these cut-off points is based on the translation of votes into seats in the British electoral system (Monroe 2001). In the presence of more than two parties, the winning party need not capture 50% of the vote in order to secure a legislative majority. Indeed, parties have secured sizeable majorities by winning just 42–44% of the vote. We experimented with different cut-off points. The results were similar.

governing party is less than 35%. (The omitted category is when voting intention for the governing party is greater than 45%.)

We interact the surprise terms with the level of government support: *Positive Surprise*Consequential, Negative Surprise*Consequential, Positive Surprise*Weak*, and *Negative Surprise*Weak*. When the government's popularity is high, we expect negative shocks to increase exchange rate volatility. When the government's popularity is low, positive shocks will increase exchange rate volatility. (Values of *Negative Surprise* are always non-positive, so a positive parameter estimate indicates lower volatility.)

Connecting the Models. We estimate both the exchange rate and vote intention models recursively and iteratively. Recursive estimation requires the use of an initial sample of data with which to calculate initial estimates. First, we use 125 weekly observations for the period January 2, 1985 through June 10, 1987 (the week prior to the 1987 election) to estimate Equations 1, 2, and 3. With these estimates, we obtain initial measures of exchange rate shocks (*Appreciation* and *Depreciation*) and public opinion shocks (*Negative Shock* and *Positive Shock*).

Next, we include these variables in the exchange rate and government approval models. With the political variables, therefore, Equation 1 becomes:

$$R_t = \zeta + m_t\eta + \varsigma P_{t-1} + tN_{t-1} + \varepsilon_t \tag{1'}$$

where P is a positive shock to vote intention and N is a negative shock to vote intention, both lagged one period.

Equation 2 (the model of the conditional variance) becomes:

$$\begin{aligned}\sigma_t^2 = {} & \omega + \alpha\varepsilon_{t-1}^2 + \beta\sigma_{t-1}^2 + \pi_t crisis_t \\ & + \pi_2 P_{t-1} + \pi_3 N_{t-1} + \pi_4 C_{t-1} + \pi_5 W_{t-1} \\ & + \pi_6 P_{t-1}C_{t-1} + \pi_7 P_{t-1}W_{t-1} + \pi_8 N_{t-1}C_{t-1} + \pi_9 N_{t-1}W_{t-1}\end{aligned} \tag{2'}$$

where P is *Positive Shock*, N is *Negative Shock*, C is *Consequential*, W is *Weak*, PC is *Positive Surprise*Consequential*, PW is *Positive Surprise*Weak*, NC is *Negative Surprise*Consequential* and NW is *Negative Surprise*Weak*, all lagged one period.

Similarily, we take the estimates of *Depreciation* and *Appreciation* from estimating Equation 2 and modify Equation 3:

$$y_t = \tau + \theta z_t + \lambda_t A_{t-1} + \lambda_2 D_{t-1} + u_t \tag{3'}$$

where A is an unanticipated appreciation and D is an unanticipated depreciation, all lagged one period.

We then estimate Equations 1′, 2′ and 3′ adding one observation to the original sample (i.e., for the time period January 2, 1985 through June 17, 1987. The sample includes 126 observations). From these estimates, we calculate an additional observation for positive shock, negative shock, appreciation, depreciation, and volatility. (Note that as we add observations, we do not re-estimate the entire series of generated variables. We only add a single new observation for each variable. The existing values of these variables remain

unchanged.) We then add another observation and re-estimate Equations 2′ and 3′ (i.e., the next sample includes January 2, 1985 through June 24, 1987, for a total of 127 observations). From those estimates, we obtain an additional observation for the generated variables. We continue this process – recursively and iteratively estimating Equations 2′ and 3′ and adding observations for the generated variables – until we have estimated each model on a total of 876 observations (January 2, 1985–June 21, 2001).

In order to obtain a sample that is based on the most accurate operationalizations of the generated variables, we exclude the initial 125 observations from the final analysis. The final models of both exchange rate volatity and government approval, therefore, are based on 751 observations.[18]

RESULTS

Table 2 reports the results. Figure 2 shows the frequency and magnitude of the generated variables. Unanticipated appreciations occur 23 times in the sample; unanticipated depreciations 19 times. Positive public opinion shocks occur 57 times; negative shocks 56 times.

The results of the voting intention model are located at the top of Table 2. The residuals pass diagnostic tests for serial correlation (Q), ARCH (Q^2) and misspecification (RESET). The Jarque–Bera test, however, indicates that the residuals are not normally distributed. This is not surprising given the presence of a structural break in the raw data series when Labour is elected. In fact, if we estimate the Conservative government and Labour government samples independently, the residuals are normally distributed.

For ease of presentation, we do not show the parameter estimates for the control variables. The dummy variables for the 1987, 1992, 1997, and 2001 elections (and

[18] We discuss three important econometric issues associated with our approach. First, the models do not suffer from problems of endogeneity. The measures of political shocks in Equations 1′ and 2′ and the indicators of economic performance in Equation 3′ are at least weakly exogenous to their respective dependent variables. A variable, x, is weakly exogenous if current values of y do not explain current values of x. Since the variables of interest on the right-hand sides of Equations 1′, 2′ and 3′ are lagged, the models satisfy weak exogeneity. We employed a formal test for weak exogeneity (Charemza and Deadman 1992). The test proceeds as follows: (i) estimate GARCH model 1′ and 2′, (ii) compute the residuals, (iii) include the residuals in model 3′, (iv) use t and likelihood ratio tests to test the significance of the generated residuals (the null being that the variable is weakly exogenous). Repeat this procedure, generating residuals from model 3′ and including them in GARCH model 1′ and 2′. In neither case were the residuals statistically significant.

Second, we checked to see if Equations 1′, 2′, and 3′ could be estimated more efficiently in a simultaneous system. The correlation between the error terms of the two equations is statistically insignificant ($r = 0.031$, $p = 0.396$).

Finally, the measures of political expectations and economic information could be considered to be valid instruments in the sense that they are uncorrelated with the error terms in both equations (since they are measured at time $t - 1$ and the errors are at time t). As a check, we adjust the standard errors for the generated variables using the degrees-of-freedom adjusted mean squared error from the equation of interest (Oxley and McAleer 1993). The results of this procedure did not differ from what is presented.

Table 2. Models of voting and exchange rate volatility

Dependent Variable: △ Voting Intention[a] estimated via robust regression

Variable	Coefficient	SE	*p*-value
△ Vote Intention ($t-1$)	0·011	0·027	0·676
△ Vote Intention ($t-2$)	−0·175	0·027	0·000
△ Exchange Rate ($t-1$)	−4·08	3·44	0·236
△ Exchange Rate ($t-2$)	−2·33	3·40	0·492
Unanticipated Depreciation ($t-1$)	−36·02	19·18	0·061
Unanticipated Appreciation ($t-1$)	−19·31	28·39	0·510
Constant	−0·069	0·055	0·208

Dependent Variable: △ Exchange Rate[a] estimated via GARCH

Variable	Coefficient	Robust SE	*p*-value
Conditional mean			
△ Vote Intention ($t-1$)	0·000	0·0002	0·368
△ Vote Intention ($t-2$)	−0·000	0·0002	0·503
△ Exchange Rate ($t-1$)	−0·020	0·037	0·588
△ Exchange Rate ($t-2$)	0·029	0·037	0·419
Positive Intention Shock ($t-1$)	−0·001	0·001	0·293
Negative Intention Shock ($t-1$)	−0·004	0·002	0·016
Constant	−0·002	0·001	0·043
Conditional variance			
Positive Intention Shock ($t-1$)	0·607	0·359	0·091
Negative Intention Shock ($t-1$)	−0·665	0·223	0·003
Consequential ($t-1$)	2·042	0·201	0·000
Consequential*Positive Intention Shock ($t-1$)	−11·674	2·259	0·000
Consequential*Negative Intention Shock ($t-1$)	0·492	0·235	0·037
Weak	0·337	0·174	0·050
Weak*Positive Intention Shock ($t-1$)	−0·535	0·474	0·259
Weak*Negative Intention Shock ($t-1$)	0·878	0·931	0·349
Constant	−11·935	0·063	0·000
GARCH terms			
ARCH(1)	−0·001	0·021	0·952
GARCH(1)	0·828	0·046	0·000

Joint Tests	Chi^2	*p*-value
Consequential terms[b]	120·40	0·0000
Weak terms[c]	3·91	0·2708
Strong terms[d]	10·44	0·0054

[a] Parameter estimates for control variables not shown for ease of presentation.
[b] Test joint significance of Consequential$_{t-1}$, Consequential$_{t-1}$*Positive Shock$_{t-1}$, Consequential$_{t-1}$*Negative Shock $_{t-1}$.
[c] Test joint significance of Weak$_{t-1}$, Weak$_{t-1}$*Positive Shock$_{t-1}$, Weak$_{t-1}$*Negative Shock$_{t-1}$.
[d] Test for joint significance of Positive Intention Shock$_{t-1}$ and Negative Intention Shock$_{t-1}$.

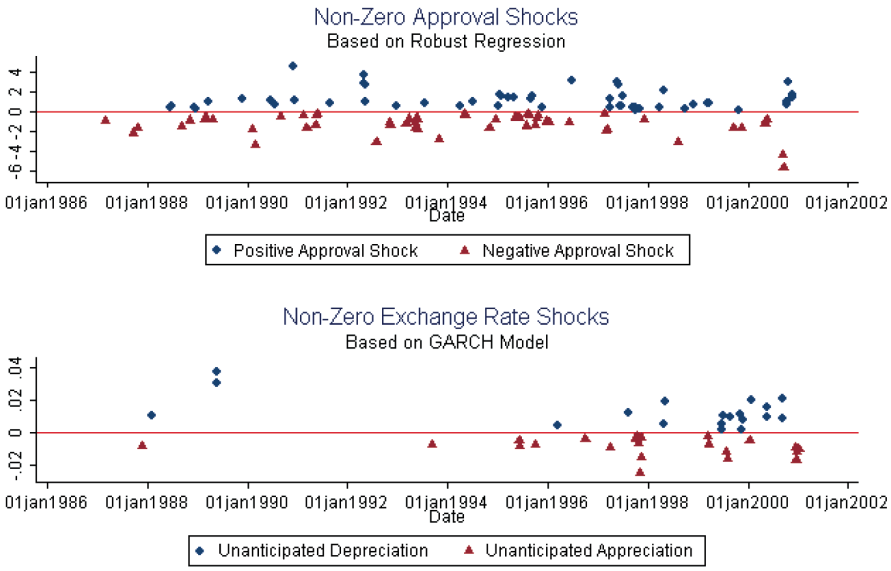

Figure 2. Public opinion and exchange rate shocks (See text for information on variable creation. Shocks are shown only when they are non-zero.)

their lags) are statistically significant, as were the dummy variables for Major's selection to be Conservative Party leader. Additionally, the stock market crash of 1987 and the petrol crisis of 2000 both have negative and statistically significant effects on voting intention for the incumbent party. Finally, the lagged change in unemployment has a significant negative effect on voting intention. Inflation and other control variables do not attain conventional levels of statistically significance. Note, too, that lagged values of the change in exchange rate are not statistically significant. Anticipated exchange rate changes simply do not have any effect on vote intention for the government.

The parameter estimates for unanticipated depreciation squares with expectations: it is negative and statistically significant. In order to interpret this coefficient, recall that the depreciation measure is bounded below by zero. A negative parameter estimate, therefore, implies a negative effect on voting intention for the incumbent.[19] The estimate for unanticipated appreciations is negative, although statistically insignificant.

What is the substantive impact of depreciations on predicted voting intention? The baseline is the situation where no unanticipated depreciation occurs. Holding all other

[19] As a check on the robustness of the results, we estimated the models for only the post-EMS crisis period. We used observations from 1993 and 1994 to establish starting values and then estimated the full model on observations from the first week of January 1995 through June 2001. The parameter estimates and significance of the key variables are largely unchanged. The coefficient for unanticipated depreciations in the opinion model remains statistically significant and positive but its parameter estimate decreases.

variables at their means, an average unanticipated depreciation (0.013) reduces voting intention for the incumbent by 0.53 points. The largest depreciation (0.037; May 19, 1989) reduced government popularity by 1.30 points. These are substantively important numbers, especially if the parties enjoy similar levels of popularity.

Turn next to the GARCH model of exchange rate volatility, located in the bottom half of Table 2. The model passes tests for residual serial correlation (Q) and remaining ARCH (Q^2). The Jarque–Bera test indicates that the residuals are not normally distributed; as a result, we utilize Bollerslev–Wooldridge robust standard errors. The ARCH(1) term is not statistically significant, suggesting that volatility shocks (i.e., last period's squared residuals, ε_{t-1}^2), do not influence current volatility, σ_t^2. The GARCH(1) term is statistically significant, indicating that last period's variance (σ_{t-1}^2) has a large impact on current volatility. The combinations of the ARCH and GARCH terms are statistically less than one. The conditional variance, therefore, is mean-reverting and not long-memoried.

Again, we do not report the parameter estimates for the control variables in the conditional mean equation. The EMS crisis variable is, unsurprisingly, positive and significant. The pound depreciated by 7.6% during the crisis. Additionally, the post-EMS dummy variable is also significant and positive, indicating that the pound depreciated slightly during this period. Other controls, including variables for membership in the EMS, change in unemployment, change in inflation, are not statistically significant. Lagged vales of changes in the exchange rate were not individually or jointly significant.

Interestingly, lagged values of changes in vote intention had no statistically significant impact on the exchange rate. As expected, anticipated changes in the government's public standing have no effect on exchange rate changes. Unanticipated negative shocks to public opinion, however, are associated with currency depreciation. The parameter estimate is negative and statistically significant. The average negative shock to vote intention (-1.27) caused the pound's value to drop by 0.5%. The largest negative shock to vote intention (-5.58, during the September 2000 petrol crisis) led to a depreciation of about 2%. The arrival of unexpected negative information about the government's public standing, therefore, clearly contributed to a weaker pound on international currency markets.

The conditional variance component of the table reports the effect of the political variables on the conditional volatility. The control variables are, again, omitted for ease of presentation. Unsurprisingly, the crisis variable is positive and statistically significant, indicating a much higher level of exchange rate volatility during the period.

The variables *Consequential* and *Weak* represent the level of the government's popular support. The positive and statistically significant parameter estimate for *Consequential* indicates that, as expected, exchange rate volatility is substantially higher when electoral outcomes are uncertain than when either the government or the opposition enjoys a decisive lead in public support.

We also include variables designed to measure the effect of positive and negative public opinion shocks on exchange rate volatility. We argued that the effect of those shocks would be contingent on the government's level of support. Table 3 reports the overall effects of positive and negative public opinion shocks on exchange rate volatility. Because the dependent variable in the conditional variance does not have a natural metric, cell entries are the expected changes in the conditional volatility compared to the baseline category

Table 3. Impact of vote intention shock on conditional variance of the exchange rate

	Intention Shock		
Level of Government Support	No Shock	Positive Shock	Negative Shock
Strong	0.39	1.17	1.32
	(0.14, 0.64)	(0.29, 2.04)	(0.66, 1.98)
Consequential	2.43	−11.73	2.73
	(1.85, 3.01)	(−17.26, −6.20)	(2.05, 3.41)
Weak	0.34	0.82	0.44
	(0.14, 0.64)	(−0.007, 1.64)	(−1.91, 2.79)

Estimates and 95% confidence intervals based on estimates from the bottom panel of Table 2.

where the government enjoys a large lead in the polls and there is no public opinion shock. We calculated the effects using the mean values of the type of shock.

Consider first the impact of a shock when the government's public support is weak. A positive or negative shock does not change the conditional volatility – the expected volatility does not statistically differ between the situations of "No Shock" (0.34) and "Negative Shock" (0.82) or "Positive Shock" (0.44).

If popularity levels for government and opposition are close (the *Consequential* category), a positive opinion shock sharply decreases the conditional volatility. Presumably, a positive shock may make future elections more predictable. A negative shock, however, has no statistically discernible effect on the conditional volatility.

Finally, in the situation where the government's popularity level is strong, a negative shock to public opinion increases the conditional volatility. As the electoral outcome becomes less predictable, exchange rate volatility increases. The effect of positive opinion shocks, however, is not what we predicted. If the government's standing in the polls improves unexpectedly, exchange rate volatility also increases.

DISCUSSION

The results indicate that currency markets and opinion polls affect one another in a manner that largely matches our predictions. Unexpected depreciations decrease the government's support, while unanticipated negative public opinion shocks lead to currency depreciation. Further, exchange rate volatility is highest when opinion polls indicate that electoral outcomes are unpredictable.

But how does the argument compare to the actual performance of exchange rates and public opinion polls? To illustrate the importance of exchange rate and opinion shocks, we discuss the 2000 petrol crisis.

The Labour Party entered office in 1997 with a moderate agenda under Tony Blair, who sought to complete the transformation of the party from a union-based machine

to a mainstream social democratic party with a middle-class constituency. Coming after the tired Major government, Blair's early policy successes helped maintain high levels of political popularity throughout the first three years of his term. During this time, Labour's standing in the polls never dropped below 45%. With the Conservatives in disarray, a second term for Labour seemed a sure bet at elections widely anticipated to occur at some point in 2001.

In summer 2000, however, a sudden series of oil price hikes sent the cost of petrol (gasoline) and diesel soaring. Fed up with fuel prices, a grassroots movement quickly developed in early September to protest the government's response to the price shocks. Protesters, mainly farmers and truck drivers, blockaded refineries for eight days to demand a reduction in taxes on fuel. (About 75% of the fuel price paid by British motorists goes to fund government spending.) The Blair government initially mishandled the protests. Images of Mr Blair sporting about in a luxury sedan while motorists could not find fuel turned public opinion sharply against the Labour government. Within a month, Labour's support dropped 14 percentage points into a dead heat with the Conservatives. Almost just as quickly, however, the protest fizzled. With many citizens viewing the protesters as an inconvenience, the government recovered its standing in the polls.

According to our argument, the dramatic shock to public opinion should result in a depreciating currency and an increase in exchange rate volatility. The bottom panel of Figure 3 charts the value of the pound in the period surrounding the crisis. In the months prior to the crisis, the pound gains in value. Two unanticipated negative shocks to the government's public standing early in September, however, lead to a depreciation, helping to push down the value of the pound by 3.4%. But the government's quick recovery in the polls helped quell the depreciation and volatility. As the government's popularity rebounded, again indicating that a Labour victory in the next election was a certainty, the pound's slide abruptly stopped and, over time, it began to appreciate.

The changing trajectory of the exchange rate, in turn, contributed to the sliding poll numbers of the Labour government. The upper half of Figure 3 shows the government's popularity. Two unexpected depreciations occur at the beginning of the period, signaling to the public the possibility of a weakening economy due to increasing energy prices. Our estimates suggest that 12% of the government's six-point decline in voting intention during the week of September 12 was due to the unexpected depreciations.

CONCLUSION

Expectations of economic agents condition the impact of political processes on market behavior. Only unanticipated information – or news – causes agents to update their beliefs and alter their choices. To measure the arrival of political news, we compute one-step-ahead forecasts of the government's public support and compared them with realized values. While predictable change in public support for the incumbent does not affect markets, the arrival of new information causes currency traders to modify their behavior.

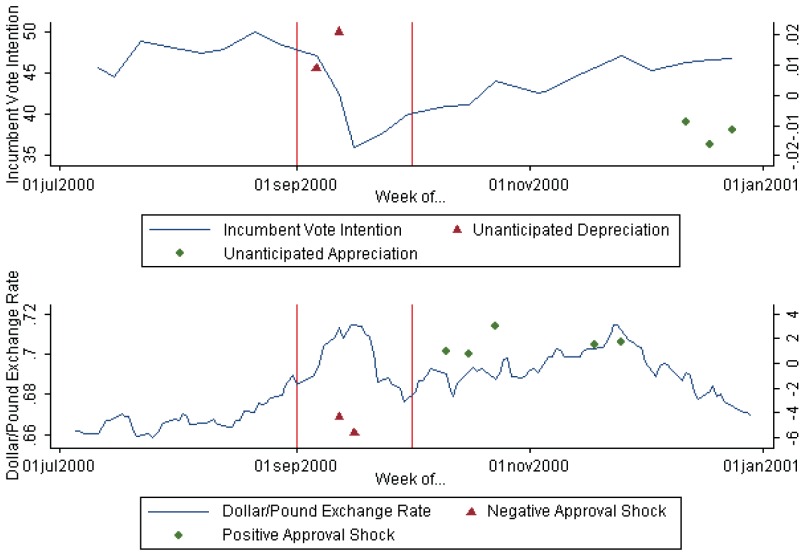

Figure 3. Public opinion and exchange rate behavior during the 2000 petrol crisis

A negative public opinion shock, when the government's support falls unexpectedly, results in a depreciation of the pound.

But many political processes are not exogenous to market behavior. Political outcomes like the public's support of the incumbent government depend, in part, on the performance of the economy. Analyzing the evolution of vote intention over time requires an explicit consideration of the endogeneity between markets and politics.

Taking our cue from the finance literature, we assumed the citizens used all available information when making their political evaluations. These agents adjust their political behavior only when confronted with unanticipated information about market behavior. Thus, market outcomes affect the government's public support only when they are unexpected. The results confirm the argument. Predictable everyday movements of the exchange rate have no substantive effect on the government's popularity. Unanticipated depreciations, however, hurt the incumbent's standing. By accounting for both sets of agents' expectations and the endogeneity of political and market outcomes, we establish that political processes and market outcomes interact in a systematic fashion.

It remains a challenge to unpack the mechanisms that link currency market behavior and public opinion: exactly why do unanticipated depreciations hurt the government's public standing? A depreciation, for instance, may result in a loss of government credibility. Or it may signal that market actors view the government's policy management as incompetent. Finally, depreciations have distributional consequences that may affect how different sectors and subgroups of the population evaluate the government. Exploring these different mechanisms represents fertile ground for research.

ACKNOWLEDGEMENTS

We thank Scott Althaus, Chris Anderson, Harold Clarke, Brian Gaines, John Freeman, Andrew Gould, Jim Granato, William Keech, Robert McNown, Burt Monroe, Paul Whiteley, Tom Willett and helpful audiences at Emory University, the University of Notre Dame, and the University of California at Davis for advice. We thank MORI and Martin Boon at ICM for providing data on vote intention.

REFERENCES

Alt, James 1979. *The Politics of Economic Decline*. New York: Cambridge University Press.
Andrews, David. 1994. "Capital Mobility and State Autonomy: Toward a Structural Theory of International Monetary Relations." *International Studies Quarterly* 38: 193–218.
Bachman, Daniel. 1992. "The Effect of Political Risk on the Forward Exchange Bias: The Case of Elections." *Journal of International Money and Finance* 11: 208–19.
Baillie, Richard T. and Patrick C. McMahon. 1989. *The Foreign Exchange Market: Theory and Econometric Evidence*. New York: Cambridge University Press.
Bera, Anil and M. K. Higgins. 1993. "A Survey of ARCH Models: Properties, Estimation, and Testing." *Journal of Economic Surveys* 7: 305–66.
Bernhard, William. 2001. "Exchange Rate Stability and Political Accountability in the European Monetary System." Typescript, University of Illinois at Urbana-Champaign.
Bernhard, William and David Leblang. 2002. "Political Processes and Foreign Exchange Markets: The Forward Exchange Rate Bias." *American Journal of Political Science* 46(2): 316–33.
Blomberg, S. Brock and Gregory Hess. 1996. "Politics and Foreign Exchange Rate Forecasts." Research Working Paper 96-02, Federal Reserve Bank of Kansas City.
Butler, David and Gareth Butler. 2000. *Twentieth-Century British Political Facts 1900–2000*, Eighth Edition. New York: St. Martin's Press.
Charemza, Wojchiech W. and Derek F. Deadman. 1992. *New Directions in Econometric Practice.* Aldershot, England: Edward Elgar.
Christodoulakis, Nicos and Sarantis Kalyvitis. 1997. "Efficiency Testing Revisited: A Foreign Exchange Market with Bayesian Learning." *Journal of International Money and Finance* 16: 367–85.
Clarke, Harold and Marianne Stewart. 1995. "Economic Evaluations, Prime Ministerial Approval, and Governing Party Support: Rival Models Reconsidered." *British Journal of Political Science* 25: 145–70.
Clarke, Harold D., Marianne C. Stewart, Paul F. Whiteley. 1998. "New Models for New Labour: The Political Economy of Labour Party Support, January 1992–April 1997." *American Political Science Review* 92(3): 559–75.
Dacorogna, Michael, Ramazan Gencay, Ulrich Muller, Richard Olsen, and Olivier Pictet. 2001. *An Introduction to High-Frequency Finance*. San Diego, CA: Academic Press.
Eichengreen, Barry, Andrew Rose and Charles Wyplosz. 1995. "Exchange Market Mayhem: The Antecedents and Aftermath of Speculative Attacks." *Economic Policy* 21: 249–312.
Franses, Philip Hans and Dick van Dijk. 2000. *Non-Linear Time Series Models in Empirical Finance*. New York: Cambridge University Press.
Freeman, John R., Jude C. Hays and Helmut Stix. 2000. "Democracy and Markets: The Case of Exchange Rates." *American Journal of Political Science* 44(3): 449–68.
Frieden, Jeffry. 1991. "Invested Interests: The Politics of National Economic Policies in a World of Global Finance." *International Organization* 45: 425–51.
Frieden, Jeffry. 1999. "Sectoral Interests and European Monetary Integration: An Empirical Assessment." Typescript, Harvard University.
Garrett, Geoffrey. 1992. "The Political Consequences of Thatcherism." *Political Behavior* 14: 361–82.
Garrett, Geoffrey. 1995. "Capital Mobility, Trade, and the Domestic Politics of Economic Policy." *International Organization* 49(4): 657–87.

Gerber, Alan and Donald Green. 1998. "Rational Learning and Partisan Attitudes." *American Journal of Political Science* 42: 794–818.
Goodman, John and Louis B. Pauly. 1993. "The Obsolescence of Capital Controls? Economic Management in an Age of Global Markets." *World Politics* 46: 50–82.
Green, Donald and Alan Gerber. 2000. Samplemiser 4.0.
Green, Donald, Alan Gerber, and Suzanna DeBoef. 1999. "Tracking Opinion Over Time: A Method for Reducing Sampling Error." *Public Opinion Quarterly* 63: 178–92.
Hansen, Bruce E. 2001. "The New Econometrics of Structural Change: Dating Changes in U.S. Labor Productivity." Typescript, University of Wisconsin.
Huber, John. 1996. *Rationalizing Parliament: Legislative Institutions and Party Politics in France*. New York: Cambridge University Press.
Jowell, Roger, Barry Hedges, Peter Lynn, Graham Farrant, and Anthony Heath. 1993. "The 1992 British Election: The Failure of the Polls." *Public Opinion Quarterly* 57(Summer): 238–63.
King, Anthony (ed.) with Robert J. Wybrow. 2001. *British Public Opinion: 1937–2000, The Gallup Polls*. London: Politico's Publishing.
Leblang, David and William Bernhard. 2000. "The Politics of Speculative Attacks in Industrial Democracies." *International Organization* 54(2): 291–324.
Lewis-Beck, Michael. 1988. *Economics and Elections: The Major Western Democracies*. Ann Arbor: University of Michigan Press.
Lijphart, Arend. 1999. *Patterns of Democracy: Government Forms and Performance in Thirty-Six Countries*. New Haven: Yale University Press.
Lobo, Bento and David Tufte. 1998. "Exchange Rate Volatility: Does Politics Matter?" *Journal of Macroeconomics* 20: 351–65.
Martin, Lanny. 2000. "Public Opinion Shocks and Cabinet Termination." Typescript, Florida State University.
Meese, Richard and Kenneth Rogoff. 1983. "Empirical Exchange Rate Models of the Seventies: Do They Fit Out-of-Sample? *Journal of International Economics* 3-24.
Monroe, Burt. 2001. "Bias and Responsiveness in Multiparty Representation." Typescript, Michigan State University.
Nadeau, Richard, Richard Niemi, and Timothy Amato. 2000. "Elite Economic Forecasts, Economic News, Mass Economic Expectations, and Voting Intentions in Great Britain." *European Journal of Political Research* 38: 135–70.
Nelson, Daniel B. 1991. "Conditional Heteroskedasticity in Asset Returns: A New Approach." *Econometrica* 59: 347–70.
Oxley, L. and M. McAleer. 1993. "Econometric Issues in Macroeconomic Models with Generated Regressors," *Journal of Economic Surveys*. 7: 1-40.
Perron, P. 1989. "The Great Crash, the Oil Price Shock, and the Unit Root Hypothesis." *Econometrica* 57: 1361–402.
Powell, G. Bingham. 2000. *Elections as Instruments of Democracy*. New Haven: Yale University Press.
Quinn, Dennis and Carla Inclan. 1997. "The Origins of Financial Openness: A Study of Current and Capital Account Liberalization." *American Journal of Political Science* 41(3): 771–813.
Sanders, David. 2000. "The Real Economy and the Perceived Economy in Popularity Functions: How Much do Voters Need to Know?" *Electoral Studies* 19: 275–94.
Sanders, David, David Marsh, and Hugh Ward. 1993. "The Electoral Impact of Press Coverage of the British Economy, 1979–87." *British Journal of Political Science* 23(2): 175–210.
Smith, Alistair. 2000. "Election Timing in Majoritarian Parliaments." Typescript, Yale University.
Strange, Susan. 1996. *Retreat of the State: The Diffusion of Power in the World Economy*. New York: Cambridge University Press.
Zivot, E. and D. W. K. Andrews. 1992. "Further Evidence on the Great Crash, the Oil Price Shock and the Unit-Root Hypothesis." *Journal of Business and Economic Studies* 10: 251–70.