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The Relative Importance of Political and Economic Variables in Creditworthiness Ratings

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Abstract

This study examines the relative importance of political and economic variables in the determination of a country's standing in credit ratings provided by commercial rating agencies. It finds that creditworthiness appears to be determined primarily by economic variables. While including political events can improve the explanatory power of the regressions, the exclusion of political variables does not bias the parameter estimates for the effects of economic variables.

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CONTENTS

Tables:

SUMMARY

This study examines the relative importance of political and economic variables in determining a country's credit rating. The rating agencies (we analyze Euromoney and Institutional Investor and The Economist Intelligence Unit) argue that credit ratings are based on expert analysis of political and economic developments in each country. While previous work has identified the economic factors underlying ratings, there is little analysis of the relative importance of economic and political variables on the rating process.

Our significant finding is that creditworthiness appears to be determined primarily by economic events. Including political variables can indeed improve the explanatory power of the regressions. However, even when statistically significant, the effect of political variables is essentially "orthogonal" to the economic variables implying that excluding political variables from the regressions does not seriously bias the parameter estimates for the economic variables.

I. INTRODUCTION

This paper examines the relative importance of political and economic variables in determining a country's credit rating. In an earlier analysis, the authors (Haque, et al (1996)) examined the economic determinants of the country creditworthiness ratings produced by the Euromoney (EM) and Institutional Investor (II) magazines and the Economist Intelligence Unit (EIU). Although all country ratings showed a significant degree of persistence overtime, changes in economic fundamentals were key factors influencing changes in country ratings. However, the rating agencies have indicated that political factors also play a key role in determining a country's rating. Indeed, a sudden, unanticipated political event (such as a military coup) can potentially lead to a sharp revision in a country's rating. If political variables are important in the credit rating process, then excluding these variables from a regression designed to explain the determinants of creditworthiness can induce an omitted variables bias in the parameter estimates for the economic variables. One objective of this paper is to examine the empirical significance of such omitted variables bias.

The relative importance of political factors in the credit rating process varies considerably (Table 1). For example, the Euromoney magazine states that political risk factors are given a weight of 15 percent in the overall evaluation of a country's credit ratings. In contrast, the Economic Intelligence Unit (EIU) assigns a 40 percent weight to political and policy risk factors it considers. In evaluating political factors, the EIU admits that these are the least quantifiable of all the factors. However, despite these measured difficulties, it argues that

> "the aim is systematically to assess the capacity of the government in power to implement the measures necessary to stabilize the economy and meet its external commitments. The factors considered cover, for example, the operation of the political system, alternative regime policies, the degree of enfranchisement, the attitude toward foreign creditors, the regional context."

Our analysis of relative importance of political and economic factors in the determination of country credit ratings is divided into three sectors. Section II describes the databases and econometric model used in our analysis. Section III discusses our empirical results. Our analysis sheds light on a number of empirical issues. First, although political variables affect the credit ratings of all three agencies, there are important differences in the set of political variables that influence each of the ratings. Second, while including political variables improves the regressions explanatory powers, the parameter estimates suggest that political variables are essentially "orthogonal" to the economic variables and their exclusion does not significantly bias the estimated values of the parameters for the economic variables. Finally, economic variables explain most of the behavior of credit ratings over time.

Table 1. Rating Agencies: Criteria for Assessing Country Risk

Rating Agency	Criteria for Ratings
Institutional Investor	Information provided by 75-100 leading international banks who grade each country on a scale of 0-100, with 100 representing least chance of default Individual responses are weighted using a formula that gives more importance to responses from banks with greater worldwide exposure. Criteria used by the individual banks are not specified.
Euromoney	Assessment based on three main indicators: Analytical indicators (40 percent) Political risk (15 percent) Economic risk (10 percent) Economic indicators (15 percent) (debt service/export, external debt/GNP, balance of Payments/GNP) Credit indicators (20 percent) Payment record (15 percent) Rescheduling (5 percent) Market indicators (40 percent) Access to bond markets (15 percent) Selldown on short-term paper (10 percent) Access to discount available on forfeiting (15 percent)
Economist Intelligence Unit	Medium-term lending risk (45 percent): Total external debt/GDP, total debt serving ratio, interest payment ratio, current account/GDP, savings/investment ratio, arrears on international bank loans, recourse to IMF credit, and the degree of reliance on a single export. Political and policy risk (40 percent) Short-term trade risk (15 percent)

II. Variables and Empirical Model

A. Variables

The economic variables that we have selected are designed to measure domestic and external economic performance of the country and the impact of exogenous shocks on the rating agencies' assessments of a country's creditworthiness (Table 2).[1] These variables are consistent both with the factors that the compilers of the ratings have indicated are used in assessing a country's performance and with what the theoretical literature has stressed as important in determining the capacity and willingness to service external debt.

Table 2. Definitions of Explanatory Variables

Measures of external shocks	
TOT	Terms of trade in the last year prior to the year of the rating
T-bill	3 month US Treasury bill rate
Measures of external sector performance	
Export Growth (Xgr)	The growth of exports in the year prior to the year of the rating
Current Account/GDP (CA)	The current account balance as a proportion of GDP for the year prior to the year of the rating
Reserves/Imports (Res)	International Reserves as a ratio of imports for the year prior to the year of the rating
External Debt/GDP (Debt)	External debt to GDP ratio in year prior to rating
REER	Real exchange rate in the year prior to the rating
Measures of domestic economic performance	
Growth	The growth rate in GDP for the year prior to the year of the rating
Inflation (Inf)	Inflation rate in prior year in countries

[1] A more detailed discussion of the rationale for these variables can be found in Haque et al. (1996).

The economic variable falls into three general categories: (1) measures of domestic economic performance, (2) measures of a country's external position and its ability to service its external obligations, and (3) the influence of external developments. Domestic economic performance is measured in terms of a country's rate of growth and its rate of inflation. The scale of a country's external payments obligations is measured by the ratio of its external debt-to-GDP. A country's capacity to service its external obligations is assumed to be reflected in the rate of growth of its experts, its current account position, and the ratio of nongold international reserves to imports. The influence of international developments is proxied by the use of the 3-month US Treasury bill rate.[2]

One of the difficulties involved in incorporating political variables into an econometric analysis is how to measure various types of political events, systems or concepts. While some political events are of a discrete nature (e.g., a military coup), other concepts are more difficult to quantify. To overcome these problems, we have supplemented our economic database with some political variables that we have drawn from the "Cross-National Time-Series Data Archive of the State University of New York (Binghamton),"[3] The variables that we drew from the data were as follows:

> *Coups* (Coup) The number of extra-constitutional or forced changes in the top government elite and/or its effective control of the nation's power structure in a given year. [4]
>
> *Assassination* (Assasi) Any politically motivated murder or attempted murder of a high government official or politician.
>
> *General Strikes* (Strike) Any strike of 1,000 or more industrial or service workers that involves more than one employer and that is aimed at national government policies or authority.
>
> *Guerrilla Warfare* (Gwar) Any armed activity, sabotage, or bombings carried on by independent bands of citizens or irregular forces and aimed at the overthrow of the present regime.

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[2] This is consistent with work by Calvo, et al. (1993), Dooley and Adele. (1995), and Frenkel (1995) indicating that changes in international interest rates have been a key factor influencing capital flows to developing countries in the 1990s.

[3] For details, see Banks (1979).

[4] The term "coup" includes but is not exhausted by the term "successful revolution." Unsuccessful coups are not counted.

Major Government Crises (Gcris) Any rapidly developing situation that threatens to bring the downfall of the present regime—excluding situations of revolt aimed at such overthrow.

Purges (Purge) Any systematic elimination by jailing or execution of political opposition within the ranks of the regime or the opposition.

Riots Any violent demonstration or clash of more than 100 citizens involving the use of physical force.

Revolutions (Revo) Any illegal or forced change in the top governmental elite, any attempt at such a change, or any successful or unsuccessful armed rebellion whose aim is independence from the central government.

Anti-governmental Demonstrations (Demos) Any peaceful public gathering of at least 100 people for the primary purpose of displaying or voicing their opposition to government policies or authority, excluding demonstrations of a distinctly anti-foreign nature.

B. Econometric Specification

One objective of our econometric analysis will be to see if the three ratings agencies' decisions have been affected by similar political events. Our econometric specification is similar to that employed in Haque et. al. (1996). As noted earlier, the economic variables incorporated in our model are consistent both with the key variables examined by the rating agencies and with economic analyses of the willingness and capacity to repay external debts (Table 2). Our earlier analysis indicated that these economic variables alone accounted for a large amount of the variation in the credit ratings provided by the commercial agencies (97 percent for the *Institutional Investor*, 78 percent for *Euromoney*, and 86 percent for the *Economist Intelligence Unit*). To examine the influence of political events, we utilized a stepwise procedure which allowed political and economic variables to enter the regression equation in the order in which they offered maximum explanatory power. We used two different criteria for selecting the order in which variables entered the regression at each step: include the variable that allowed the R^2 to be maximized, or include the variable for which the coefficient had the maximum t-ratio.

III. Empirical Results

In our stepwise regressions, economic variables consistently entered the stepwise regressions first (Table 3). In most cases, the first five variables are economic variables; while, in only one case does a political variable enter the regression at the fourth step. Even when they are picked up at that stage, the variables at the following stage are largely economic. Most of the explanatory power of the regression is taken up at the early stages by the included economic variables before the political variables are accepted.

Table 3. Results of Stepwise Regressions

Variable included at step 1/	Institutional Investors		Euromoney		Economist Intelligence Unit	
	R- square	t-ratio	R-Square	t-ratio	R-Square	t-ratio
2	Growth	Growth	T-bill	Growth	Xgr	Xgr
3	T-bill	CA	Rex	Res	Inf	Prem
4	Res	Res	Growth	CA	Res	Rex
5	CA	Xgr	Res	Rex	CA	Res
6	Gcris	Rex	Inf	Xgr	T-bill	CA
7	Demos	Prem	Revo	Purges	Assasi	Growth
8	Xgr	Riots	Strike	Demos	Strike	Purges
9	Inf	Debt	CA	Riots	Gcris	Assasi
10	Coup	Gwar	Assasi	Gcris	Demos	TOT
11	Revo	Type	Prem	Coups	Riots	Demos
12	Purges	TOT	Purges	Debt	Growth	Revo
13	Riots	Coup	TOT	Type	Prem	Strike
14	Strike	Revo	Gcris	TOT	Gwar	Gwar
15	TOT	Gcris	Demos	Prem	TOT	Debt
16	Type	Strike	Xgr	Strike	Purges	Inf
17	Prem	Demo	Gwar	Gwar	Revo	Riots
18	Debt	Purges	Riots	Assasi	Rex	T-bill
19	Gwar	Inf	Debt	Revo	Debt	Gcris
20	Rex	T-bill	Type	Inf		

1/ As expected, the first variable to be picked up in all regressions was the lagged dependent variable.

It is also interesting to note that the regressions imply that the rating agencies attach differing weights to economic variables. [5] For example, the EIU uniformly seems to give a greater weight to variables reflecting a country's external trade or financial position than the other two agencies.

[5] This confirms the finding of Haque et al (1996).

Export growth is the first variable that EIU picks up followed by inflation or the black market premium and then the reserves of the real exchange rate. The other two agencies favor growth and the Treasury bill rate, which are followed by reserve, the real exchange rate and the current account.

The results for the regressions that combine the political and economic variables are presented in Table 4. Consistent with our earlier results (Haque, et al (1996)), the economic variables are all fairly important determinants for the ratings in all cases, although the relative importance of individual variables varies across the ratings agencies. In particular, the EIU ratings regressions assign less significance to economic variables than in the regressions for the other two ratings.

In terms of the political variables, the rating agencies appear to follow different variables. The Institutional Investors seems to be factoring in (with a correct sign and statistically significant) purges, government crises and coups. Euromoney, on the other hand, regards revolutions and strikes as significant factors, while the Economist Intelligence Unit seems to react only to government crises.[6] The political variables all measure fairly discreet events and the size of their coefficient in each case seems to indicate that their impact on the rating is fairly sizable.

The addition of political variables to the economic variables, however, does not add greatly to the statistical explanatory power of the regression. A few discreet events such as coups, crises and revolutions and strikes contribute some information but the ratings are determined principally by economic variables. This can easily be seen by comparing the R^2 to that of the regression containing only the economic variables presented in Haque et. al. (1996). Since the two regressions are not directly comparable, Table 4 also presents the pure contribution of the political variables by presenting the difference between the R^2 for regression with both economic and political variables with that for the regression with economic variables only.

The effects of the political variables are also essentially "orthogonal" to the economic variables implying that excluding political variables from the regressions does not seriously bias the parameter estimates for the economic variables. For all three ratings, F tests indicated that the parameter estimates were not significantly different when political variables were or were not included in the regressions.[7]

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[6] Once again all the coefficients of the political variables are of the right sign and significant.

[7] The null hypothesis that the parameter estimates for economic variables were identical with and without political variables gave rise to F test statistic of:

Euromoney	$F_{10, 561} = 0.5037$
Institutional Investor	$F_{10, 494} = 0.432$
Economist Intelligence Unit	$F_{10, 562} = 0.1296$

Table 4. Political and Economic Determinants of Creditworthiness Ratings

	Dependant Variable - Creditworthiness Rating Provided by:		
	Institutional Investors	Euromoney	Economist Intelligence Unit
Variable	Estimate	Estimate	Estimate
Constant	66.573	149.117	-6.277
	(3.669)	(3.524)	(-0.088)
Lagged Dependant Variable	0.948	0.788	0.816
	(98.192)	(31.681)	(13.621)
T-Bill Rate	-1.819	-7.430	-1.382
	(-6.796)	(-7.505)	(-0.853)
LN (Inflation) 1/	-12.572	-20.157	2.015
	(-3.190)	(-2.301)	(0.135)
GDP Growth	1.093	1.378	-0.011
	(7.980)	(3.589)	(-0.016)
Reserves/Imports	0.048	0.139	0.244
	(1.753)	(1.992)	(1.646)
External Debt/GDP	-0.101	-0.141	-0.078
	(-3.331)	(-1.713)	(-0.571)
Current Account/GDP	0.268	0.869	1.390
	(2.889)	(2.305)	(2.109)
Export Growth	0.108	-0.109	0.161
	(3.207)	(-0.904)	(1.025)
Coups	-9.744		
	(-1.942)		
Purges	-3.813		
	(-3.540)		
Government Crisis	-5.065		-10.345
	(-1.950)		(-2.131)
Revolution		-13.416	
		(-3.554)	
Strikes		-4.980	
		(-2.685)	
R-squared:	0.973	0.769	0.813
Nobs:	566.000	644.000	179.000
Δ R 2/	.005	.04	.004

1/ LN equal the natural logarithms

2/ R^2 (for regression with both economic and political variables) - R^2 (for regression with economic variables only)

t-ratio in bracket

CONCLUSION

Our significant finding is that creditworthiness appears to be determined primarily though the observation and analysis of economic events. Political events and variables do not add any additional information once economic factors have been accounted for. There could be two explanations for this. First, the raters are primarily concerned with the "ability to service debt" and hence are concerned with political events only when they affect this variable. However, coups, crises, law and order problems may not affect this ability and hence raters do not react significantly to these. Second, while country economic performance is affected by political events, it offers a more continuous barometer of the evolving economic situation. It is not surprising then, to find that the raters attach more weight to the economic variables. The few discreet events such as coups, crises and revolutions and strikes may contribute some information to the extent that they have not already been reflected in economic variables.

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