

Crisis and Competition in Expert Organizational Decision Making: Credit-Rating Agencies and Their Response to Turbulence in Emerging Economies

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Firms often delegate elements of strategic decisions to outside experts who promise objective assessments, which are especially valuable in unstable environments. However experts themselves may be prone to skewed decision making as the stability of their own industry environment changes and as their positioning within the industry shifts. We examine this possibility in the context of expert credit-rating agencies (“agencies”) and their risk ratings of emerging-market sovereign borrowers (“ratings”) published from 1987 to 1998, a period that includes both industry stability (1987–1996) and industry turbulence set off by financial crises in several emerging-market countries (1997–1998). After controlling for macroeconomic and related objective risk factors linked to the sovereigns themselves, we find several points: (1) agency ratings during crisis-induced industry turbulence are negatively skewed, indicating undue pessimism among these experts, in line with decision-making perspectives predicting negative reaction by experts in an effort to retain legitimacy with salient stakeholders, in this case, investors and public regulators; (2) this negative shift is greater for incumbent firms and regionally focused firms, possibly because of the loss of previous informational advantages; and (3) this negative shift during crisis-induced turbulence is greater as industry rivalry among these experts increases in particular market segments, possibly indicating the development of competitive bandwagons among experts. Together, our results suggest that objective assessments by expert organizations are vulnerable to substantial distortion from the confluent effects of industry instability and expert positioning within the industry, particularly positioning affecting rivalry among experts. Ironically, experts may be most likely to mislead clients in unstable industry environments when experts command greater attention and should show greater fidelity to disinterested objectivity.

Key words: decision-making; risk; experts; industry positioning; emerging markets

1. Introduction

Strategic decision making in turbulent environments has attracted increasing interest in organization theory and related literatures. The bulk of this work has examined strategic decision-making factors and dynamics *within* firms. Some researchers (e.g., Wiersema and Bantel 1992) have highlighted the role of decision making by top management in turbulent environments, where complexity, uncertainty, and vulnerability to and rates of strategic change are high. Others have examined the content, urgency, and comprehensiveness of decision-making processes for inherently turbulent external industry environments (Eisenhardt 1989, Zaheer and Zaheer 1997, Hamel 2000). Decision-making processes designed for generally stable conditions give way occasionally to different processes, prompted by unplanned environmental discontinuities related to the arrival of “disruptive” technologies (Christensen 1997), hyper-competitive rivals (D’Aveni 1994), industrywide shocks (Meyer 1982), or broader national and even global “surprises” (Watkins and Bazerman 2003). As analyses by

Janis and Mann (1977), Quarantelli (1988), Ury and Smoke (1991), and Kindleberger (2001) suggest, such discontinuities can prompt “emergency” or “crisis” decision making that is shaped by higher perceived levels of uncertainty, urgency to act, narrowing options, and high-stakes implications for organizational survival.

These different research streams assume that decision-making individuals and processes are internal to the firm, but in practice they are often delegated to outside experts. Law, accounting, finance, and business consultancy firms and other professional organizations produce specialized information and services for clients seeking disinterested, objective advice in connection with major decisions, including mergers, acquisitions, cooperative ventures, new product and business expansions, and foreign ventures (Salacuse 2000). Perhaps as important, outside experts lend their reputations and provide legitimacy by “certifying” decision quality to various stakeholders of the client (James 1992).

With specialized knowledge and reputation, an expert organization may act as a fiduciary for a specific client,

providing specialized knowledge and reputation necessary to complete an individual transaction, such as a law firm advising a client on a corporate acquisition. Use of experts in this case and others presumably follows from their capabilities to adapt more effectively to complex, unstructured decision-making environments (Shanteau and Stewart 1992, Spence and Brucks 1997). As Biglaiser (1993) explains, experts also occasionally play a more generalized intermediary role in markets. Rather than serve a single client, they serve a community of stakeholders by creating and maintaining the integrity of transactional institutions. Examples of experts playing this broader “middle-man” role include specialist firms making markets in equities traded by individuals on major U.S. exchanges (Kavajecz and Odders-White 2001), primary dealer firms doing the same with U.S. government debt securities (Bihkchandani and Huang 1993), and the subjects of this study, credit-rating agencies assessing the creditworthiness of individuals and institutions borrowing in U.S. capital markets (Smith 1986). In these three cases and others, experts supply information and services indispensable to the orderly functioning of markets. In many respects, their behavior is similar to a public regulatory body; yet they are private, for-profit organizations competing with industry rivals to serve the markets they sometimes literally make.

Given the importance—in some cases, indispensability—of outside experts, it is surprising that research in organization theory and related fields has paid little attention to their decision-making tendencies in different environments. Sharma (1997, p. 759) previously noted that there has been little academic research examining “the motivations of and restraints on outside professionals as they provide nonresident knowledge-intensive services to client firms.” With few exceptions (Eisenhardt 1988, McNamara and Vaaler 2000), empirical research has typically assumed that expert assessments are unbiased and comprehensive in stable or turbulent decision-making environments.

We test this assumption by examining decisions by expert agencies rating the risk of emerging markets in a period of crisis-induced turbulence. International business researchers often use risk ratings of sovereign government creditworthiness published by major credit-rating agencies such as Moody’s Investor Service and Standard & Poor’s (S&P) as objective, comprehensive indicators of risk associated with country lending and investment (Ozler 1991, Cantor and Packer 1996, Larrain et al. 1997, Afonso 2003). Agencies tout these same qualities in customer marketing (S&P 1997, Moody’s Investor Service 1999). Higher (more positive) ratings indicate assessments of less risk associated with lending and investment, while lower (more negative) ratings indicate the opposite. Their expert assessments matter not only for academic research and company

marketing. Agency ratings are closely correlated with the price and availability of capital for emerging-market lending and investment (Cantor and Packer 1996). Rather than accept such expert assessments at face value, organizational research would benefit from deeper understanding of factors shaping expert decisions in different industry environments, particularly those with varying levels of stability (Vaaler and McNamara 2004a).

We further this research aim by examining in detail determinants of agency ratings from 1987 to 1998. The years 1987–1996 saw steady growth in the number of emerging-market sovereigns getting rated, the number of agencies competing for rating business in emerging-market countries, and the dollar volume of rated credit transactions completed. In 1987, Moody’s and S&P were the only two agencies rating 12 emerging-market sovereigns and their bond offerings placed in U.S. financial markets. By 1997, annual private net capital flows to emerging-market countries had reached \$281 billion, up from approximately \$20 billion in 1992 (World Bank 2002). The number of emerging-market ratings had increased to more than 50, and these emerging-market sovereigns often had more than one or two published ratings because several new agencies had actively entered the emerging-market sovereign rating industry with approval from the primary industry regulator, the U.S. Securities & Exchange Commission. Moody’s and S&P still rated the most emerging-market sovereigns, but other nonincumbent agencies, such as U.S.-based Duff Credit Rating (DCR), Canada-based Thomson Bank Watch, and U.K.-based Investment Bank Credit Agency (IBCA or Fitch-IBCA) were also publishing ratings, with some specializing in ratings for one or more geographic regions such as Latin America or Central and Eastern Europe. A new rating signaled an agency’s intent to compete for bond-rating business from those emerging-market sovereigns and subsovereign organizations, with compensation that could be as much as 2%–3% of a bond issue’s face amount.

The years 1997–1998 witnessed a sharp change from the previous decade of stability and growth. Researchers (Radelet and Sachs 1998; Reinhart 2001, 2002; Afonso 2003), industry practitioners (Huhne 1998), and policy analysts (Haque et al. 1997) generally date the beginning of turbulence in emerging-market countries to mid-1997, when financial crises hit Thailand, followed by other Asian countries later in the year. In mid-1998 a new rash of financial crises broke out in Eastern Europe, led by Russia, and then in Latin American, most notably in Brazil. International regulators described these crises as “unprecedented” in terms of their financial, economic, and even political implications, but nonetheless “foreseeable” (International Monetary Fund 1998). Depreciation of local currencies vis-à-vis currencies of key trading partners (Kaminsky et al. 1998, Goldstein et al.

2000, Kaminsky and Schmukler 2002), domestic credit contraction, increases in rates of domestic loan default, and bank closures and mergers (Demirguc-Kunt and Detragiache 1998) all foreshadowed crises and follow-on economic turbulence in emerging-market countries. The turbulence included negative trends and increased variance in economic growth, trade, and income and positive trends and increased variance in interest rates and inflation (Kindleberger 2001). Emerging-market sovereign ratings showing no substantial negative movement prior to mid-1997 dipped precipitously for many sovereigns after the crises hit and exhibited more frequent changes from 1997 to 1998 compared to the previous decade. Regulator and investor behaviors also changed. Investor interest in emerging-market investment waned from 1997 to 1998, with private capital flows to emerging markets decreasing from \$281 billion in 1997 to \$256 billion in 1998. Given this background, we think that agencies and their ratings from 1987–1998 present an ideal empirical context for investigating decision making by experts operating in industry environments of increased turbulence (Vaaler and McNamara 2004b).

The fundamental proposition of this study is that expert decisions are shaped by more than just the objective factors that criteria experts commonly claim and that researchers commonly assume they use. Other factors in the experts' industry environment matter significantly. We propose that these other factors relate to the stability of the broader industry environment in which experts operate, as well as to their respective positioning within the industry. Our proposition builds on previous research. Findings from McNamara and Vaaler (2000) suggest that experts with favorable industry positioning on three dimensions enjoy informational advantages in relation to rivals. These favorable dimensions are (1) expert positioning as an industry incumbent, rather than as a newcomer; (2) agency positioning as a specialist in a certain segment of the industry, rather than as a generalist with expertise across all industry segments (focus); and (3) the degree of rivalry experts face in any one industry segment. McNamara and Vaaler (2000) applied these dimensions to agency ratings during the period 1987–1996 and found that they provided significant additional explanation of emerging-market sovereign risk after controlling for other objective risk factors.

Our study takes a logical next step in this line of work by extending the time period of study to 1987–1998 and by relaxing the assumption of uniform industry stability. In doing so, we contribute new conceptual insight and empirical evidence on how expert industry positioning effects differ in industry environments of varying stability. Drawing on social psychology decision-making literatures (Janis and Mann 1977, Kindleberger 2001) and stakeholder management perspectives (Mitchell et al.

1997, Agle et al. 1999), we argue that sudden, unexpected, and substantially negative change in the risk profile of sovereigns from 1997 to 1998 imperils the broader legitimacy of agencies with industry stakeholders deemed salient, that is, capable of materially affecting the performance or even survival of agencies in particular instances (Mitchell et al. 1997, Agle et al. 1999). This in turn modifies the influence of industry positioning on agency risk assessments. Informational advantages related to favorable industry positioning in stable environments become disadvantages in unstable times. Incumbency, focus, and rivalry induce decision making that reflects greater uncertainty and pessimism. Agency ratings during the crisis-induced turbulence of 1997–1998 reflect significant deviation from assessments based on objective sovereign characteristics and more attention on reestablishing legitimacy with salient industry stakeholders shaken by the apparent failure of agencies to forewarn them of risks associated with lending to and investing in emerging-market countries.

We examine empirical support for this argument with data on 798 ratings published by five agencies for 53 emerging-market countries from 1987 to 1998, including 359 agency ratings published from 1997 to 1998. Consistent with our overall proposition, we find that agency ratings during the 1997–1998 period deviate considerably and negatively from objective decision-making criteria, with rivalry effects figuring most importantly in explanation of this deviation. The interaction of industry turbulence and positioning apparently distorts decision making by these experts at the very moment when, arguably, their views command greater attention and merit greater fidelity to disinterested objectivity.

To substantiate this point, the remainder of our study is divided into four sections. Section 2 defines key concepts and draws on theory from decision-making, stakeholder, and industry positioning literatures to develop four hypotheses regarding how competing experts deviate negatively from objective criteria in crisis-induced turbulence. Section 3 details the methods used to test these hypotheses in the context of agency ratings from 1987 to 1998. Section 4 reports the results from our tests. Section 5 presents a discussion of key results and their implications for academic research, management, and public policy examining the quality of expert assessments in turbulent environments.

2. Theory and Hypotheses

Fundamental Research Proposition and Concepts

Recall that the fundamental proposition of this study is that expert decisions may be skewed by crisis-induced industry turbulence and by the respective positioning of experts in this industry. By *expert* we mean Sharma's (1997) class of professional service firms providing to clients nonresident knowledge-intensive services in specialized, often regulated domains such as

medicine, law, accounting, finance, and management. Their decisions can materially affect the behavior and performance of individual client firms. Where experts play the middle-man role, their decisions can materially affect the efficiency of markets where multiple stakeholding organizations interact. By *crisis* we mean a generally short period of unexpected and notably unfavorable shift in the external environment organizations face (Janis and Mann 1977, Ury and Smoke 1991). By industry *turbulence* we mean a more protracted state of environmental volatility and generally unfavorable drift in key factors critical to the success and survival of firms in the industry (IOSCO 1999, Kindleberger 2001). Our use of *crisis* and *turbulence* together, therefore, describes both a initial unexpected and significantly unfavorable industry environmental shift and the follow-on period of greater volatility and unfavorable drift. The phrase *crisis-induced turbulence* summarizes the dynamic market conditions in the period 1997–1998 and contrasts with *stable* industry conditions in the period 1987–1996.

Testable Hypotheses

Individual Effects on Expert Decision Making. Both anecdotal evidence and research in management-related fields suggest that crisis-induced turbulence pressures experts to deviate considerably from standard decision-making models and introduces greater uncertainty surrounding their decisions. In the case of agencies operating in the crisis-induced turbulence of 1997–1998, these tendencies should result in greater pessimism about sovereign risk and, in general, lower ratings compared to ratings in the stable period of 1987–1996.

Various researchers studying the social psychology of decision making provide relevant guidance in the development of this prediction. When faced with crisis or surprise situations, decision makers tend to perceive increased urgency to act, narrowing options and the need for dramatic response (Janis and Mann 1977, Quarantelli 1988, Ury and Smoke 1991, Kindleberger 2001, Watkins and Bazerman 2003). This shift in decision behavior reduces the value of expertise in complex decisions (Neale and Northcraft 1986, Spence and Brucks 1997) and heightened concern regarding the status of their legitimacy, resulting in increased pessimism (Keats and Hitt 1988).

Organizational efforts to reestablish self-perceived levels of control and to reinforce their legitimacy increases the agencies' sensitivity to the claims of certain stakeholders. Mitchell et al. (1997) and Agle et al. (1999) provide guides for assessing their likely response based on the concept of stakeholder "salience." Industry stakeholders increase in salience to organizations depending on the legitimacy of their claims, that is, the legal, historical, and/or moral basis of their claims. In addition, stakeholder salience increases with stakeholder power over

organizations, whether that power is legitimately or illegitimately applied. Also, stakeholder salience increases as organizations perceive urgency regarding their claims. Against this theoretical background, greater general pessimism among expert organizations is likely to be accentuated (muted) in decisions affecting stakeholders with decreased (increased) salience.

As experts serving several stakeholders—sovereign borrowers, individual and institutional lenders and investors, and public regulators like the SEC and other peer agencies—agencies also had incentives to review and revise their stakeholder priorities in 1997–1998. Agencies came under heightened scrutiny by regulators and investors over the apparent imprecision of their risk assessments just prior to the outbreak of crises. Those used to the increasing creditworthiness of emerging-market sovereigns in the late 1980s and early 1990s were perceived by regulators and investors as less competent in assessing suddenly downward-trending credit profiles in countries experiencing crises. Such developments suggest that agencies operating in these turbulent years were reassessing the relative salience of industry stakeholders, with investors and regulators enjoying increased salience and sovereign borrowers decreased salience. This shift in priorities may reflect a desirability bias (Olsen 1997), with crisis-induced turbulence leading to more hard-nosed evaluations desired by social referents of increasing importance to agencies. Increased uncertainty and decreased sovereign salience and desirability bias would prompt agencies to deviate negatively from sovereign risk assessments based solely on objective sovereign characteristics.

HYPOTHESIS 1. *During crisis-induced turbulence, agency ratings are more negative than objective rating criteria warrant.*

Interactive Effects on Expert Decision Making. Aside from industrywide pessimism during crisis-induced turbulence, we predict substantial heterogeneity in the way individual agencies will apply their more negative outlook on sovereign risk. We predict that this heterogeneity will be linked to agency positioning in the industry. Consistent with McNamara and Vaaler (2000), we identify three dimensions of industry positioning heterogeneity among the agencies: incumbency, focus, and rivalry. We use these positioning dimensions to discuss how they lead to more optimistic risk assessments by certain organizations operating in stable environments, but not in crisis-induced turbulent ones.

Consider first how positioning as an industry incumbent versus new entrant agency shapes ratings during stable versus crisis-induced turbulent periods. In stable environments, incumbency confers several "first-mover" advantages (Lieberman and Montgomery 1988), including those related to learning, reputation, and preemption of ratings' business with preferred sovereigns. During

much of the period of steady growth in the emerging-market sovereign credit-rating business (1987–1996), incumbent agencies competed with few others and were able to establish and refine rating decision processes over time. They built up reputations for the quality of their work with issuers, investors, and public regulators. They were able to establish relationships with emerging-market sovereigns likely to issue debt more frequently, for larger amounts, and with fewer apparent problems of transparency in risk assessment. Scholars and policy makers such as Radelet and Sachs (1998) note these factors as well as feedback effects that engendered progressively more positive ratings over the late 1980s and 1990s. Incumbent agency analysts working in this environment of stability and growth developed optimistic expectations of sovereign creditworthiness. Together, these temporal factors would permit, if not encourage, incumbent agencies to publish higher ratings, that is, ratings with less downward pressure due to uncertainty in assessment, relative to new entrants without these advantages.

Consistent with these arguments, McNamara and Vaaler (2000) find that incumbent agency ratings during the stability of 1987–1996 are significantly higher than nonincumbent agency ratings by at least one full rating level on a 17-level scale. They surmise that nonincumbent agencies enter the industry without these first-mover advantages. They also enter with greater needs to establish their legitimacy with various industry stakeholders, particularly regulators. Both distinctions lead to lower ratings from nonincumbent agencies, *ceteris paribus*.

We hypothesize that a shift from stability to crisis-induced turbulence erodes these incumbent versus nonincumbent agency differences in ratings. As Hypothesis 1 predicts, the onset of crisis conditions imperils the usefulness and legitimacy of basic organizational procedures, informational inputs, and assumptions about the external environment. It portends a negative shift in ratings across all agencies relative to objective rating criteria. However incumbents will be disproportionately affected in crisis-induced turbulence given the favorable ratings they generated during stability. Thus, compared to nonincumbents, incumbent agencies will fall from a greater height of previous optimism about emerging-market sovereign risk as they respond to sharper threats to their legitimacy and as they make more dramatic shifts in stakeholder salience from sovereign borrowers to other industry stakeholders, such as regulators and investors.

HYPOTHESIS 2. *During crisis-induced turbulence, incumbent agency ratings will evidence more negative change than nonincumbent agency ratings.*

Pressure to deviate negatively from objective risk assessment may also be affected by the degree to

which an expert focuses on a specific industry segment. McNamara and Vaaler (2000) find a positive relationship between an agency rating during 1987–1996 and the degree to which the same agency specializes in rating sovereigns from a given geographic region. They construe this result as support for learning perspectives on decision making (Fiol and Lyles 1985, Lyles 1995). Agencies are likely to have deeper and broader informational resources on which to base ratings in regions where they specialize. As Oxelheim and Wihlborg (1987) note, many risk elements related to one country have spillover effects on neighboring states. Agencies specializing in specific geographic regions have more opportunity to leverage these informational synergies. In stable environments, their informational advantages lower uncertainty on ratings from the specialist region and, compared to rivals with less specialization there, permit higher ratings.

Again, positioning advantages in stability either disappear or become disadvantages in crisis-induced turbulence. Analyses presented by Ferri et al. (1999) and Karacadag and Samuels (1999) suggest that agency ratings for certain sovereigns from Asia were optimistic prior to 1997–1998. They conjectured that the depth of subsequent crisis in this region stemmed in part from immediate and excessive downward adjustment by certain agencies. We conjecture that the downgrades in Asia and other regions during the crisis-induced turbulence of 1997–1998 were more likely from agencies with a greater percentage of their business in such regions. Recall again that Hypothesis 1 predicts a negative shift in ratings for all agencies experiencing crisis-induced turbulence, since it imperils the usefulness and legitimacy of basic organizational procedures, informational inputs, and assumptions about the external environment. However agencies will be disproportionately affected during crisis-induced turbulence to the extent that they relied previously on procedures, inputs, and assumptions common to a set of regionally similar sovereigns in stable times. Compared to other agencies, regional specialists will lose more in terms of informational advantages. Again compared to other agencies, regional specialists will more dramatically shift stakeholder salience from sovereign borrowers of that region to investors and regulators (Mitchell et al. 1997).

HYPOTHESIS 3. *During crisis-induced turbulence, agency ratings will evidence more negative change in geographic regions where agencies focus their business.*

In addition to incumbency and regional specialization dimensions, the impact of competitive factors on agency ratings during a crisis may be assessed within specific market segments. In this case, the market segments are defined nationally by the identity of the sovereign and related subsovereign organizations seeking ratings. Agencies face varying degrees of rivalry in particular

national markets. The number of firms operating in a given national market segment is a fundamental structural characteristic influencing the bargaining power of firms (Porter 1980) as well as the ability of firms to collude (Fershtman and Muller 1986). This in turn influences the strategic conduct and performance of firms in the industry. In stable environments, a lone agency operating as a monopolist may be able to interpret information about the sovereigns and subsovereigns in a national market less favorably with little fear of losing business. As additional agencies enter, however, the former monopolist may be constrained from fully adjusting ratings downward in response to negative credit developments. Such adjustment might displease a sovereign with choices as to who will provide rating services in a future bond issuance. An alternative learning perspective suggests that publication of ratings by multiple agencies engenders the development of common professional referents (Fiol and Lyles 1985, Lyles 1995, Sharma 1997) legitimating decision-making criteria, routines, and final assessments for all agencies rating the sovereign. Uncertainty associated with any one rating decreases as the overall number of agencies publishing ratings increases. Consistent with both of these views, McNamara and Vaaler (2000) find that during 1987–1996 agencies published higher ratings for sovereigns in direct relation to the number of rivals publishing ratings for the same sovereign in that year.

Once again, industry positioning promoting more favorable risk assessment during stability either becomes irrelevant or promotes less-favorable ratings during crisis-induced turbulence. We have already described how the onset of crisis followed by turbulence undercuts standard decision-making procedures, criteria, and assumptions across the industry and prompts an industrywide pessimism. When such a shift commences, the level of rivalry among agencies in a given market may exacerbate the negative effect through competitive “bandwagon” pressures (Abrahamson and Rosenkopf 1993).

We see at least two bases for this competitive bandwagon effect. First, agencies will be increasingly pressured to react to rival agency assessments. Just as agencies learn from their rivals’ positive ratings during stability, they may seek to make sense of risk factors during turbulence by observing each other as they publish more negative assessments. Feedback effects from multiple agencies downgrading the same sovereign can accentuate industrywide pessimism. Yet a second source of competitive bandwagons is the threat of market preemption by rivals. Agencies could experience additional pressure to accentuate negative ratings trends to prevent any outlying rival from assuming the “leadership” role in interpreting risks during crisis-induced turbulence.

Such sources of competitive bandwagons suggest that negative shifts in ratings during crisis-induced turbulence will be greater as the number of agencies active

in a particular sovereign market increases and a “race to the bottom” ensues. Compared to sovereign markets with only one or two agencies, the more general negative shift of agencies will be accentuated in the presence of higher agency rivalry and the more numerous negative referents rivalry generates. Compared to agencies in sovereign markets with few rivals, high-rivalry markets will induce more dramatic shifts in stakeholder salience from sovereign borrowers to investors and regulators from which competing agencies are seeking new legitimacy.

HYPOTHESIS 4. During crisis-induced turbulence, agency ratings will evidence more negative change as the number of agencies rating an individual sovereign increases.

3. Methodology

Empirical Model and Variable Measures

To test these hypotheses about the individual and interactive effects of crisis-induced turbulence and industry positioning on agency ratings, we first define an empirical model approximating the information and decision-making environment of agency analysts, who initially publish and then normally review their ratings on an approximately annual basis. Information from the agencies themselves (Fitch IBCA 1998; Moody’s Investor Service 1999; S&P 1999, 2000) lists dozens of national macroeconomic, financial, political, legal-institutional, and social factors purportedly examined by agency analysts for initial rating and periodic rating review purposes. On the other hand, a stream of academic research on the determinants of ratings indicates that ratings for industrialized and emerging-market countries in a single year (Cantor and Packer 1996, Larraín et al. 1997, Afonso 2003) and for emerging-market countries over several years (McNamara and Vaaler 2000, Block and Vaaler 2004) are largely explained with as few as seven macroeconomic and related sovereign factors.

Dependent Variable: Ratings. To build our model of agency ratings, we also seek to reconcile the apparent mismatch between agency claims of complexity in determining ratings and academic research findings that suggest relative simplicity in explaining ratings. We first define the dependent variable, ratings, as the 17-level (AAA = 16, AA+ = 15, AA = 14, AA– = 13, A+ = 12, A = 11, A– = 10, BBB+ = 9, BBB = 8, BBB– = 7, BB+ = 6, BB = 5, BB– = 4, B+ = 3, B = 2, B– = 1, C = 0) ordinal rating published by agency r for country i on December 31st of year t . Specifically, we choose the rating for long-term foreign currency-denominated debt because it tends to have most importance for foreign-based lenders and investors, such as U.S.-based banks or bondholders. They prefer to lend and invest over longer time horizons in foreign (U.S. dollar), rather than

in domestic currency terms. We collected data on this dependent variable for all five major agencies that were publishing ratings and actively pursuing rating business in emerging-market countries from 1987 to 1998: Moody's, S&P, DCR, Thomson, and IBCA, which in December 1997 merged with Fitch Investor Services and did business as Fitch-IBCA (Vaaler and McNamara 2004a).

Independent Control Variables: Objective Sovereign Factors. Next, we seek to identify a comprehensive yet relatively parsimonious set of independent variables to explain variation in these annual rating observations based on key objective, sovereign characteristics that agency analysts typically look to when estimating long-term creditworthiness. Ratings are used as proxies for general risk associated with lending to and investing in particular countries, but the rating itself is primarily a measure of the capacity and willingness of sovereign governments to honor their debt obligations. We went back to agency publications explaining their methodologies for that specific assessment (Moody's 1999, S&P 1999) and found an especially helpful publication from S&P (1999). The S&P sovereign ratings methodological *primer* grouped dozens of rating factors into one of 10 broad rating categories indicating the overall capacity of sovereigns to honor their outstanding debts. These categories were heavily weighted toward sovereign macroeconomic factors noted by academic researchers for their power in explaining variation in ratings historically. Those broad categories comprised past and current (1) income and economic structures, (2) economic growth prospect, (3) monetary stability, (4) fiscal flexibility, (5) private sector external (foreign-held) debt burden, (6) public sector external (foreign-held) debt burden, (7) general government debt burden, (8) (ability to meet) offshore and contingent liabilities, (9) external liquidity, and (10) political risk. Because we sought to model not only the capacity but also the willingness of sovereigns to honor their debts, we also included a factor under an eleventh category called general willingness to pay. The list of specific variables, their definition and measurement, their relationship to broader rating categories, their use in previous research examining the determinants of ratings, and their predicted effects on ratings in this study are listed in appendix.

We identify 13 key sovereign variables linked to these 11 broad categories and measure the variables as two-year moving averages (year t and $t - 1$). This approach closely approximates the actual information and decision-making environment of agency analysts. The 13 sovereign factors we identify tend to be updated for emerging-market countries on an infrequent, typically annual basis. Due to the necessary time lags in reporting, analysts will not have final numbers on December 31st of year t , the date on which we record

agency ratings. Instead, analysts work with year t estimates and actual numbers for the previous year $t - 1$ when working on an initial rating or reviewing the status of an existing rating. Discussions with agency analysts and other industry participants confirm this view. Thus, two-year moving average values likely reflect the actual information used by agency analysts.

We also approximate the actual information and decision-making environment of analysts with the inclusion of a fourteenth and final right-hand-side control variable, a one-year lagged measure of the dependent variable. It captures any "feedback" effects that past (year $t - 1$) ratings might have on the current (year t) real creditworthiness of an emerging-market sovereign. Some observers (Ferri et al. 1999) argue that the severity of downgrades during the crisis-induced turbulence of 1997–1998 exacerbated negative economic effects in emerging-market countries, which in turn drove creditworthiness down further. If this is true, then the lagged rating term should capture this feedback effect. Inclusion of a lagged dependent variable should also control for other anchoring effects (Kahneman and Tversky 1979) past assessments may have on current views of long-term sovereign creditworthiness. The lagged dependent variable also functions as a broad control for past effects from other factors that were omitted from the model in the name of parsimony yet that are possibly still important to any explanation of current assessments of long-term sovereign creditworthiness. Together, these 14 control variables comprise a reasonably comprehensive, yet still parsimonious model of agency ratings.

Independent Variables of Central Interest: Crisis-Induced Turbulence and Industry-Positioning Factors. Controlling for agency-rating factors related to the sovereigns themselves, we next turn to the variables of central interest, that is, factors linked to crisis-induced turbulence and agency positioning in the industry. Here we first include a 0–1 indicator variable for ratings occurring during the years of crisis-induced turbulence, 1997–1998. Our choice of 1997 as the starting year for this period follows from previous academic, policy, and industry consensus that mid-1997 saw the first financial crisis in Thailand. Many of these same commentators place the end of the turbulence in late 1998, with the passing of financial crisis conditions in Brazil. As additional confirmation of this choice of years, we implement two empirical analyses of our data to ascertain that indicia of crisis and follow-on turbulence are significantly greater in 1997–1998 compared to other recent years.¹ Hypothesis 1 will be supported if this 0–1 indicator term is negative and significant because after controlling for other factors that shape risk assessments, it will indicate a general negative shift in ratings across agencies during the crisis-induced turbulence of 1997–1998.

Next we include six variables relating ratings to the respective industry positioning of the agencies publishing them. The first three terms capture the impact on ratings of agency industry-positioning factors during the period of stability, 1987–1996: (1) a 0–1 indicator for industry incumbency taking the value of 1 for ratings published by Moody's or S&P, the two agencies active in the emerging-market sovereign rating business at the beginning of our time period, 1987, and 0 otherwise; (2) a 0–1 continuous variable measuring agency regional focus as the number of sovereigns i from one of five geographic regions (North America-Caribbean, Latin America, Western Europe, Central-Eastern Europe, Africa-Middle East, and Asia) relative to the total number of sovereigns i rated by agency r in year t ; and (3) a 1–5 integer variable for rivalry measuring the number of agencies publishing ratings for sovereign i rated by agency k in year t . While we make no explicit prediction about their signs and significance, prior research by McNamara and Vaaler (2000) suggests that during 1987–1996 incumbency, regional focus, and rivalry will all be positively related to ratings.

By interacting these three terms with the 0–1 indicator for 1997–1998, we create three additional terms assessing the sign and significance of differences in these positioning factors during the crisis-induced turbulence of 1997–1998. Hypotheses 2–4 will be supported if we find that these interaction terms are negative and significant. They will indicate that, after controlling for other factors, incumbency, regional focus, and/or rivalry are associated with a negative shift in agency sovereign risk assessments during crisis-induced turbulence compared to a stable industry environment.

Model Estimation Approach

We use linear regression analysis to estimate these effects on agency ratings. Linear estimation approaches have a rich history of use in analysis of agency ratings (Horrihan 1966, Cantor and Packer 1996), in part because of their ease of implementation and interpretation. Indeed, to facilitate interpretation of effects, we also standardize all continuous variables with a mean of zero and a standard deviation of one, thus providing insight not only about the sign and significance of coefficients but also about their relative impact on the dependent variable. Linear approaches also facilitate treatment of panel data estimation issues such as heteroskedasticity in cross-sectional members and autocorrelation in errors longitudinally (Wooldridge 2002). Initial estimation using ordinary least squares indicated that autocorrelation in the error term was significant if the lagged dependent variable term is dropped from the right-hand side of the empirical model. We confirmed this indication with a Durbin-Watson (Durbin and Watson 1951) d statistic test. Just as year-to-year agency ratings may

exhibit a trend, so too may errors in their regression estimates, thus violating an ordinary least squares (OLS) regression assumption. Therefore, when estimating the model without the lagged dependent variable term, we resort to generalized least squares regression (GLS) estimation with an adjustment for first-order autocorrelation based on Cochrane-Orcutt's (Cochrane and Orcutt 1949) iterative procedure (SAS 2000). GLS estimation effectively detrends the error term. Inclusion of the lagged dependent variable has the same detrending effect; thus, OLS estimation is used in specifications with the lagged dependent variable. Given the ordinal nature of the dependent variable, we also reestimated the equation with and without the lagged dependent variable term using an n -level ordered logistic regression estimator (Zavoina and McElvey 1975, Ederington 1985). Results from use of this alternative estimator yield results consistent with those reported below.

Data Sources and Sampling

Online data from Bloomberg International (2002) provides information on our dependent variable, agency ratings. To identify which ratings come from emerging-market countries, we look to two sources: the World Bank's International Finance Corporation (IFC) *Emerging Markets Factbook* (IFC 1999) and S&P's *Emerging-Markets Indices*, acquired from the IFC in 2000 (S&P 2002). We first include in our sample 39 rated sovereigns used in S&P's *Emerging-Market Indices* and described as either "emerging market" (e.g., Brazil) or "frontier" (e.g., Oman). We add to the sample 14 other rated sovereigns described in back issues of the IFC *Emerging Markets Factbook* or S&P's *Emerging-Markets Indices* as "emerging market," "transition," or "frontier." Prior to 1995, the IFC's definition of an emerging-market country was based almost exclusively on whether per capita gross national product (GNP) was considered low or middle income. More recently, the IFC and S&P definitions have taken into account the value of the country's domestic share market holdings available for investment by foreign individuals. Low investable market capitalization-to-GDP ratios provide an alternative basis for being classified as emerging market, transition, or frontier, no matter per capita GNP levels. Given that our time period spans both definitional approaches, we include in our sample countries meeting either requirement.

The World Bank's World Development Indicator Database (World Bank 2002) provides data on 11 of the 13 key sovereign factors used in our regressions. Data on a twelfth key sovereign factor used in our regressions, past default history, come from agency publications, most notably S&P (1999, 2000). Data on the thirteenth factor used in our regressions, political and civil rights, come from Freedom House, a nonprofit, nonpartisan organization sponsoring research and programs on

political development and human rights since the 1940s. Freedom House has published annual assessments of political and civil rights in nearly 200 countries and related territories since 1972 (Freedom House 2003).

Our resulting sample comprises 794 sovereign ratings from 53 emerging-market countries rated by five agencies from 1987 to 1998. Descriptive statistics for this sample provided in Table 1 conform to intuitive notions of emerging-market countries. Relative to industrialized countries, they have lower per capita income (\$5,684), gross domestic product (GDP) growth (2.80%), and political-civil rights (3.33 on a scale of 1 (free) to 7 (not free)), higher annual inflation (55.94%), substantial external debt (40% of GDP), and annual fiscal deficits (1.59% of GDP). In a few cases, they also have recent experience with default on foreign-currency-denominated long-term obligations (7%), something rarely if ever seen in industrialized democracies. Means for variables capturing industry-positioning effects among the agencies over this period also appear reasonable. Incumbent agencies publish a majority but still not a dominant portion of ratings (59%). Regional focus among the agencies is well distributed over the period (20%), and the number of rivals vying with a given agency for business from specific sovereigns is substantial (2.43), reflecting probable competition among incumbents and nonincumbents. The percentage of crisis-period ratings is also substantial (45%), thus permitting more precise estimates of differences in these ratings compared to those from the previous stable period. Finally, we note the average value for our dependent variable, agency ratings (6.77). Agency ratings on bonds lower than 7 (BBB–) on a 17-point scale are considered to be *junk grade* and require much higher yields to be placed successfully with investors. Thus, even a small positive deviation from the mean agency rating can move an emerging-market sovereign from junk to investment grade, and thereby lower their cost of issuing debt.

4. Results

Preliminary Analysis

Results from Regression with Controls. Table 2 reports the regression results. Before assessing support for Hypotheses 1–4, results from the estimation of control model (Columns 1 and 4) provide insight on the consistency of our sample and methods with intuition, industry information, and prior academic research. In Column 1, we see that 11 of 13 control variables exhibit predicted signs and are significant at $p < 0.05$ or higher levels. Together, these terms provide significant explanation of ratings (Equation $F = 88.31$, $p < 0.01$) and account for almost 60% of ratings variation, with sovereign per capita GDP (1.67, $p < 0.01$) and the sovereign domestic credit sector size (0.75, $p < 0.01$) providing the most individual explanation. Column 4 includes the lagged

dependent variable, which as expected, provides the most individual explanatory power (0.71, $p < 0.01$) and raises overall explanation of the model to approximately 90% of observed ratings variation (Equation $F = 403.05$, $p < 0.01$). Even in the presence of the lagged dependent variable, 10 of the remaining 13 controls exhibit the expected sign and significance at $p < 0.05$ or higher levels. Signs and significance levels for sovereign control variables in Rows 2–7 are also consistent with signs and significance levels reported in Cantor and Packer (1996), Larraín et al. (1997), McNamara and Vaaler (2000), and Afonso (2003). In sum, these preliminary results indicate that we have defined a comprehensive base model of ratings using objective sovereign characteristics, with or without additional control for past agency assessments.

Central Analyses

Results from Regression with Crisis Indicator. Turning to Hypothesis 1 and its prediction of negatively deviating ratings linked to crisis-induced turbulence, we find strong support in results reported in Columns 2 and 5 of Table 2. The addition of the 1997–1998 (Crisis) indicator in Column 2 adds significantly to the control model (Incremental $F = 20.54$, $p < 0.01$), indicating significant differences in ratings between 1987–1996 and 1997–1998. These differences are also substantial, practically speaking. On average, we find that ratings in the 1997–1998 period are a little more than one rating level lower than key sovereign characteristics would suggest. This negative deviation in ratings has added importance when we recall that the mean rating of 6.77 lies approximately on the border between investment (BBB– = 7) and junk (BB+ = 6 and below) grade. Crisis-induced turbulence may prompt agencies to downgrade in the face of objective factors related to the sovereign suggesting otherwise. These results prove robust to the inclusion of the lagged dependent variable in Column 5.

Results from Regression with Crisis Industry-Positioning Interactions. The remaining three hypotheses are evaluated through inclusion of terms representing industry-positioning factors as well as terms capturing interactions between industry positioning and the 1997–1998 (Crisis) indicator. Results appear in Columns 3 and 6 of Table 2. First, we note that as a group, the addition of these six terms adds significant explanatory power to our regression analysis in Column 3 (Incremental $F = 7.89$, $p < 0.01$) and in Column 6 (Incremental $F = 3.20$, $p < 0.01$), which includes the lagged dependent variable. Second, we note that, in Column 3, coefficients on the incumbency and regional focus variables exhibit signs and significance consistent with previous research by McNamara and Vaaler (2000). Over the period of relative stability and industry growth, 1987–1996, incumbent agencies tend to give more creditworthy assessments of sovereigns (0.75, $p < 0.01$). Agencies rating sovereigns from geographic regions where they specialize tend to

Table 1 Descriptive Statistics and Correlations

Variable	Mean	Std. dev.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1. Sovereign rating	6.77	3.41																		
2. Sovereign rating _{t-1}	6.98	3.43	0.93																	
3. Per capita income	5,684.00	5,794.00	0.63	0.62																
4. GDP growth rate	2.80	3.52	0.38	0.33	-0.02															
5. Inflation rate	55.94	238.49	-0.24	-0.25	-0.06	-0.14														
6. Fiscal balance	-1.65	3.92	0.46	0.48	0.34	0.30	-0.18													
7. External debt	40.00	18.00	-0.29	-0.26	-0.16	-0.16	-0.08	0.07												
8. Recent default indicator	0.07	0.26	-0.35	-0.31	-0.09	-0.15	0.51	-0.10	-0.01											
9. Government debt	42.35	23.46	-0.02	-0.03	0.29	-0.19	-0.00	-0.01	0.28	0.03										
10. Domestic credit	64.06	38.13	0.47	0.52	0.40	-0.06	0.05	-0.01	0.00	-0.09	0.13									
11. Government expenditure	13.84	5.63	0.11	0.06	0.12	-0.06	-0.00	-0.28	-0.09	-0.14	0.26	0.12								
12. International reserves	4.45	2.24	0.04	-0.02	-0.01	0.11	0.11	0.10	0.04	0.22	-0.00	-0.02	-0.20							
13. Exchange rate	3,060.00	19,403.00	-0.16	-0.16	-0.08	0.04	0.02	-0.21	0.07	-0.03	-0.01	-0.12	-0.06	-0.04						
14. Private nonguaranteed debt	15.42	12.68	0.27	0.30	0.09	0.19	-0.08	0.17	-0.11	-0.08	-0.30	0.21	-0.03	0.13	0.05					
15. Political-civil rights indicator	3.33	1.88	0.01	0.06	0.06	-0.07	-0.10	0.16	0.25	-0.08	-0.02	0.05	-0.22	0.00	0.11	-0.04				
16. Crisis (1997–1998)	0.45	0.50	-0.12	-0.10	-0.04	-0.14	-0.12	-0.05	0.09	-0.03	-0.09	-0.06	0.13	-0.03	0.09	0.15	0.02			
17. Incumbent indicator	0.59	0.49	0.12	0.14	0.02	0.05	0.04	0.02	-0.03	-0.00	0.08	0.07	-0.04	0.00	-0.05	-0.09	-0.03	-0.20		
18. Regional focus	0.20	0.14	0.15	0.21	0.05	0.18	-0.07	0.09	0.02	-0.03	-0.10	0.04	-0.19	0.04	-0.06	0.07	0.11	-0.19	-0.18	
19. Rivalry	2.43	1.25	-0.07	-0.08	0.01	-0.09	-0.08	-0.03	-0.17	-0.00	-0.18	-0.06	-0.02	0.06	0.15	0.34	-0.12	0.49	-0.31	-0.07

Notes. $N = 794$; if $r \geq |0.09|$, then $p \leq 0.01$; if $r \geq |0.07|$, then $p \leq 0.05$; if $r \geq |0.06|$, then $p \leq 0.10$.

Table 2 Regression Model^a Results: Impact of Crisis and Competitive Positioning on Agency Ratings

Variable	Autocorrelated regression model (GLS)			Regression model with lagged DV (OLS)		
	(1) Controls only	(2) With crisis variable	(3) Complete model	(4) Controls only	(5) With crisis variable	(6) Complete model
Intercept	6.75** (0.13)	6.98** (0.14)	6.53** (0.20)	1.86** (0.18)	2.08** (0.19)	1.92** (0.21)
Sovereign rating _{t-1}				0.71** (0.03)	0.70** (0.03)	0.69** (0.03)
Per capita income	1.66** (0.11)	1.67** (0.11)	1.64** (0.11)	0.35** (0.07)	0.37** (0.07)	0.39** (0.07)
GDP growth rate	0.56** (0.06)	0.54** (0.06)	0.52** (0.06)	0.45** (0.05)	0.41** (0.06)	0.39** (0.06)
Inflation rate	-0.14* (0.07)	-0.16* (0.07)	-0.18** (0.06)	0.07 (0.05)	0.04 (0.06)	0.01 (0.06)
Fiscal balance	0.65** (0.10)	0.66** (0.10)	0.68** (0.09)	0.36** (0.06)	0.36** (0.06)	0.35** (0.06)
External debt	-0.40** (0.09)	-0.35** (0.08)	-0.44** (0.08)	-0.19** (0.06)	-0.18** (0.06)	-0.20** (0.06)
Recent default indicator	-0.54** (0.07)	-0.53** (0.07)	-0.51** (0.06)	-0.42** (0.06)	-0.41** (0.06)	-0.42** (0.06)
Government debt	-0.40** (0.10)	-0.43** (0.10)	-0.42** (0.10)	-0.04 (0.06)	-0.07 (0.06)	-0.07 (0.06)
Domestic credit	0.75** (0.10)	0.74** (0.09)	0.76** (0.09)	0.28** (0.06)	0.26** (0.06)	0.29** (0.06)
Government expenditure	0.44** (0.09)	0.47** (0.09)	0.45** (0.09)	0.23** (0.05)	0.28** (0.05)	0.24** (0.06)
International reserves	0.43** (0.08)	0.44** (0.08)	0.44** (0.08)	0.28** (0.05)	0.27** (0.05)	0.28** (0.05)
Exchange rate	-0.07 (0.07)	-0.05 (0.06)	-0.04 (0.06)	-0.02 (0.04)	-0.01 (0.04)	-0.01 (0.04)
Private nonguaranteed debt	0.06 (0.08)	0.02 (0.08)	0.12** (0.08)	-0.12* (0.05)	-0.09† (0.05)	-0.05 (0.05)
Political and civil rights	-0.12* (0.08)	-0.12* (0.08)	-0.14* (0.07)	-0.08 (0.05)	-0.08 (0.05)	-0.11* (0.05)
Crisis (1997–1998) indicator		-0.46** (0.10)	-0.05 (0.16)		-0.35** (0.10)	0.06 (0.17)
Incumbent indicator			0.75** (0.26)			0.32* (0.17)
Regional focus			0.24** (0.07)			0.10† (0.06)
Rivalry			0.00 (0.08)			-0.05 (0.08)
Crisis * Incumbent Indicator			-0.53** (0.20)			-0.57** (0.21)
Crisis * Regional Focus			-0.65* (0.29)			-0.66** (0.26)
Crisis * Rivalry			-0.48** (0.11)			-0.21* (0.11)
N	794	794	794	598	598	598
F	88.31**	85.58**	68.13**	403.05**	384.93	282.09
Incremental F		20.54**	7.89**		13.22**	3.20**
R ²	0.5957	0.6063	0.6384	0.9062	0.9083	0.9112
Adjusted R ²				0.9040	0.9059	0.9080
Incremental R ²		0.0106	0.0321		0.0021	0.0029

^aGiven agency *r* rating sovereign *i* in year *t*, the complete model is $Y(\text{Rating})_{rit} = \beta_0 + \lambda_1(\text{Rating})_{rit-1} + \sum_{j=1}^{13} \psi_j (\text{Key Sovereign Factors})_{jt} + \beta_1(\text{Crisis [1997–1998 period]})_t + \beta_2(\text{Incumbent})_t + \beta_3(\text{Regional Focus})_{rit} + \beta_4(\text{Rivalry})_{rit} + \beta_5(\text{Crisis} \times \text{Incumbent})_{rit} + \beta_6(\text{Crisis} \times \text{Regional Focus})_{rit} + \beta_7(\text{Crisis} \times \text{Rivalry})_{rit} + \mu_{rit}$.

* $p \leq 0.05$, ** $p \leq 0.01$, † $p \leq 0.10$, one-tailed tests.

give more creditworthy assessments (0.24, $p < 0.01$). Rivalry exhibits no significant trends. The importance of these positioning factors decreases slightly with the inclusion of the lagged dependent variable in Column 6. Incumbency remains positive and significant (0.32, $p < 0.05$). Regional focus also remains positive but weakens in statistical significance (0.10, $p < 0.10$).²

We then examine interaction terms representing differences in the impact of agency industry positioning during the crisis-induced turbulence of 1997–1998 compared to the stability of 1987–1996. Results are consistent with our hypotheses. As an initial point, we note that the 1997–1998 (Crisis) indicator is no longer noteworthy in the presence of these three interaction terms. Variance once explained by this indicator alone appears to have been reallocated to the industry positioning terms interacting with the indicator. We take this result as vindication of our focus on industry positioning by agencies as factors critical to their decision making in crisis-induced turbulent industry environments.

Hypotheses 2–4 predict that these three industry-positioning factors will exhibit significant negative

differences from their main (stable period) effects when interacting with the 1997–1998 indicator. Looking first at the incumbent agency interaction term (Crisis * Incumbent Indicator), we find strong support in Columns 3 (–0.53, $p < 0.05$) and 6 (–0.57, $p < 0.01$) that incumbent agency ratings deviate more negatively than nonincumbent agency ratings during 1997–1998. Recall that both previous research (McNamara and Vaaler 2000) and our own findings suggest that incumbent agency ratings in stable periods are positively skewed relative to nonincumbent agency ratings. This effect derived from various incumbent advantages, including those temporal advantages that confer on them greater legitimacy and less regulatory oversight compared to nonincumbents. If so, then suddenly increasing turbulence could negate these advantages by shifting legitimacy and regulatory oversight questions back to incumbents whose more optimistic ratings during stable years then drew more scrutiny and criticism from industry stakeholders of increasing relative salience in turbulent years. The net effect is that incumbency during

crisis-induced turbulence is no longer linked to significantly different ratings.

We draw a similar conclusion in examining results related to Hypothesis 3 and the impact of regional focus on ratings from 1997 to 1998. The interaction terms for regional focus differences during 1997–1998 in Columns 3 ($-0.65, p < 0.05$) and 6 ($-0.66, p < 0.05$) are significant and negative consistent with Hypothesis 3. Column 3's results suggest that more positive ratings published by agencies specializing in sovereigns from a particular region during stability decrease during the crisis-induced turbulence of 1997–1998. Closer analysis of these results indicates that net agency rating effects related to regional focus during 1997–1998 are given by linear combinations of terms reported in Column 3 (Regional Focus + Crisis * Regional Focus = $-0.41, p < 0.10$) and Column 6 (Regional Focus + Crisis * Regional Focus = $-0.55, p < 0.05$). These results are consistent with the argument that regional focus accentuates (compared to less specialized agencies) downward pressure on ratings from these regions in an effort to protect their legitimacy within the industry, resulting in more negative ratings for more regionally focused agencies in the crisis period.

Perhaps most interesting are differences in rivalry effects on ratings observed during 1997–1998. Consistent with Hypothesis 4, we find in Column 3 that the number of agencies publishing ratings for a given sovereign leads to significant and increasingly negative differences in ratings compared to stable periods ($-0.48, p < 0.01$). Column 6's inclusion of the lagged dependent variable does not change the sign on this effect, though significance drops ($-0.21, p < 0.10$). When added in linear combination to the base rivalry effects, however, the resulting coefficient again indicates strong support for Hypothesis 4. In Column 3, rivalry's overall impact on ratings during crisis-induced turbulence is negative and significant (Rivalry + Crisis * Rivalry = $-0.48, p < 0.01$). Inclusion of a lagged dependent variable in Column 6 does not change this result (Rivalry + Crisis * Rivalry = $-0.27, p < 0.05$), indicating that increased rivalry is correlated with lower ratings in the crisis period. As the number of agencies rating a sovereign increases from one to five, ratings deviate from what objective factors would indicate by less than a single rating level to more than two in 1997–1998. These findings are consistent with the competitive bandwagon perspective (Abrahamson and Rosenkopf 1993) motivating Hypothesis 4.

5. Discussion and Conclusion

Central Findings

The basic question we address in this study is whether expert decision making is vulnerable to distortion due to factors in the experts' industry environment. The basic answer now seems clear. Broader industry instability and

specific positioning in the industry by at least one group of expert organizations—agencies—lead to assessments deviating significantly and substantially from objective criteria. For agency ratings, industry rivalry in individual market segments during crisis-induced turbulence explains much of this deviation. Increasingly negative reaction lowers agency ratings to the detriment of emerging-market sovereigns seeking capital for investment and development.

Our findings are consistent with Hypothesis 1, which predicted that crisis-induced turbulence in 1997–1998 would induce these experts to abandon standard decision-making procedures, criteria, and assumptions and “go negative” in an effort to shift stakeholder priorities and restore threatened legitimacy. Our results also support Hypotheses 2, 3, and 4. The impact of incumbency, rivalry, and regional focus differs significantly in crisis-induced turbulence compared to stable industry environments. Previously significant incumbency effects on agency ratings disappear, suggesting that this positioning dimension loses importance when the industry itself is experiencing heightened volatility. By contrast, rivalry among agencies for sovereign business in stable environments exhibits no significant link with individual agency ratings. However in the crisis-induced turbulence of 1997–1998, these experts become increasingly pessimistic as rivalry increases and, perhaps, as competitive bandwagons start. Regional focus yields yet a third type of contrast, with significant positive effects during stability flipping to significant negative effects during crisis-induced turbulence.

These results do not negate the importance of understanding intrinsic, objective characteristics associated with expert decision making. A thorough understanding of objective risk characteristics linked to the sovereigns themselves is still central to any understanding of agency ratings—recall the significance of key macroeconomic and related sovereign characteristics in our control models, and recall the substantial overall explanation they provide before adding other terms. However accounting for these objective risk factors alone may ignore important additional information about the nature of risk assessment by experts operating in and out of stable environments. Agencies publishing ratings for emerging-market lending and investment are not merely detached experts providing objective analyses. Their analyses may also follow from the stability of their industry environment, from their respective positioning within that industry environment, and from the interaction of these two. Accordingly, research will benefit from accounting for these additional risk factors in explaining expert assessments in industry environments of varying stability.

Implications

The central implication we draw from this study is the need to understand expert decision making as a function of the expert's industry environment. Our findings

provide a strong indication that researchers in organization theory and related management fields can and should play a more prominent role in investigating expert organization decision-making processes and their links to various industry factors. Until recently, such agency investigations have been the domain of researchers in finance, economics, and public policy. Some of these researchers (Ferri et al. 1999, Reinhart 2002) evince increasing skepticism about the ability of agencies to anticipate and forewarn investors of dramatic change in the overall risk profile of emerging-market sovereign and subsovereign organizations. These and other perceived failings have prompted some to call for closer examination of the industrial organization of the rating business (Nazareth 2003). Researchers might benefit from closer scrutiny of findings here to inform their critique of agency miscues using perspectives from organization theory and related management fields.

Our findings about the twin impact of industry instability and positioning may very well have implications beyond agencies and ratings. Several other contexts find experts touting the comprehensiveness and objectivity of their advice to clients, while they compete with rival experts in industries with varying levels of stability over time. Professionals in law, accounting, and management consulting firms, investment banks, investment management firms, auction houses, and a host of specialty advisory companies also promise an outside and unbiased perspective to clients mulling over strategic decisions. Recent revelations of overly optimistic, even criminally misleading, expert opinions rendered by lawyers, accountants, and investment bankers in the case of large U.S. corporations like Enron or MCI-Worldcom put the promise of their objectivity into question. Similarly, quite negative stock assessments of a wide range of businesses in the United States since 2001 may in part be explained by unexpected business failures and reduced growth prospects, which together upended previous overconfidence, portfolio overcommitment and complacency among prominent investment bank stock analysts. The full extent of their negative reaction to industry turbulence since 2001 could also be traceable to keener rivalry among the analysts and competitive bandwagon pressures pushing stock assessments down even further than objective analysis of business fundamentals would merit (*The Economist* 2002).

In sum, we see many other related contexts where decision making by expert organizations is significantly and substantially distorted by industry turbulence and positioning. For researchers, this means fertile ground for further testing. For managers, these findings and their potential generalizability suggest the need for a constructive skepticism about the value of expert opinions rendered in periods of turbulence—ironically, the time when objectivity is needed most but also when factors related to expert organizational positioning are

likely to undermine objectivity. While this research is aimed primarily at a management audience, we also see public policy implications. In industries where experts are important, public regulators must somehow develop and vigorously enforce minimum standards of decision-making quality to mitigate potentially warping effects of rivalry and other industry dynamics in occasionally turbulent environments.

Limitations and Future Directions

Our study broadens the scope of foreign investment risk research but also has limitations. It is rather focused and follows only a few experts operating in one important though small segment of the broader field of expert organizations. The basis for this narrow focus is primarily regulatory. The five agencies we followed in this study make up a rather exclusive oligopoly thanks to restraints on entry by public regulatory authorities like the U.S. SEC (Vaaler and McNamara 2004a). The study is also limited in terms of its period of observation (1987–1998) and the period of crisis-induced turbulence (1997–1998).

One avenue for broadening this research would be to enlarge the pool to include agencies operating outside markets regulated by U.S. authorities. While less important in terms of U.S. dollar volumes rated and issued, these non-U.S. markets for debt instruments and agency ratings are still substantial. Enlarging the pool to include Japanese debt markets and agencies might be interesting. Research by Trevino and Thomas (2000) finds that Japanese-based agencies in the 1990s weigh sovereign risk factors for rating purposes differently than the agencies we studied. This suggests distinctions between the two sets of agencies linked to national regulatory and or cultural differences (Hofstede 1980), which, in crisis periods, could be substantial. Such follow-on study has potential relevance for U.S. executives and policy-makers because prominent Japanese agencies have recently applied for regulatory approval to rate in U.S. debt markets (Forbes.com 2002). Indeed, the SEC seems keen to reexamine the possibility of agency industry enlargement, given its decision in 2003 to permit a Canada-based agency, Dominion Ratings, to rate U.S. debt issuances (Nazareth 2003).

Another extension of this research might examine factors related to an agency's organizational environment—for example, agency decision-making routines (Nelson and Winter 1982, McNamara and Bromiley 1997) or top management demographic characteristics and processes (Hambrick and Mason 1984)—to see what additional explanation they may provide to analyses of strategic decision making in stable and unstable industry environments. Still another related extension could more closely examine the patterns of decision making under the twin stresses of industry turbulence and positioning. In the context of agencies, for example, we might examine

more closely the pattern of successive sovereign rating downgrades by agencies in different sovereign markets during the turbulence of 1997–1998. This could help us to understand how well, if at all, downgrade patterns conform to the predictions of competitive bandwagon models (Abrahamson and Rosenkopf 1993), as suggested by the findings in this study. Such follow-on work would provide additional insight into the complex dynamics of expert risk assessment across different organizations, in different environments, and with different theoretical perspectives.

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Appendix. Variable List

Variable names	Variable description and sources ^a	Correspondence to broad rating categories ^b	Expected rating impact
Rating	17-level ordinal rating on long-term foreign currency denominated debt published by agency <i>r</i> for country <i>i</i> on December 31 of year <i>t</i> (Bloomberg 2002)	N/A	Dependent variable
Per capita income ^c	Thousands of constant USD (1995) per capita income	Income and economic structure (IE&S)	Positive
GDP growth ^c	Average real annual percentage growth in GDP	Economic growth prospects	Positive
Inflation ^c	Average consumer price inflation percentage	Monetary stability	Negative
Fiscal balance ^c	Annual overall budget balance (current and capital revenue and official grants received less total expenditures and lending minus repayments); measured as a percentage of GDP	Fiscal flexibility	Positive
External debt ^c	Present value of debt (short- and long-term) owed to nonresidents and repayable in foreign currency, goods, or services; as a percentage of GDP	Public sector external debt burden	Negative
Recent default indicator ^c	0–1 indicator where 1 = default, whether the sovereign has defaulted on its long-term foreign currency denominated debt in the last five years (S&P 1999, 2000)	General willingness to pay	Negative
Government debt	Present value of stock of direct, government, fixed-term contractual obligations to others outstanding; as a percentage of GDP	General government debt burden (GGDB)	Negative
Domestic credit	Value of all credit provided by the banking sector to various sectors on a gross basis (with the exception of credit to the central government, which is net); as a percentage of GDP	Offshore and contingent liabilities	Positive
Government expenditure	All current expenditures on goods and services (including wages and salaries) by government; as a percentage of GDP	IE&S and GGDB	Negative
International reserves	Value of monetary gold, special drawing rights, IMF reserves, and holdings of foreign exchange under the control of monetary authorities; in number of months of country <i>i</i> imports these reserves would cover	External liquidity	Positive
Exchange rate	Exchange rate determined by country authorities or legally sanctioned exchange markets; annual averages determined by reference to monthly average values of local currency unit relative to U.S. dollar	Monetary Stability	Negative
Private nonguaranteed debt	Present value of external obligations of private debtors that are not guaranteed for repayment by a public entity; as a percentage of External Debt	Private sector external debt burden	Negative
Political-civil rights	Level of political rights (e.g., right of citizens to vote for national executive) (PR given as 1–7 integral measure), and civil rights (e.g., privacy rights) (CR given as 1–7 integral measure); ^d average annual score calculated as: $([PR + CR]/2)$, source: Freedom House (2003)	Political risk	Negative

Appendix. (cont'd.)

Variable names	Variable description and sources ^a	Correspondence to broad rating categories ^b	Expected rating impact
Rating _{<i>t</i>-1}	Dependent variable, Rating, lagged by one year	N/A	Positive
Crisis-period indicator	0–1 indicator where 1 = 1997–1998, whether rating published during the year of crisis-induced turbulence, 1997–1998	N/A	See H1
Incumbent indicator	0–1 indicator where 1 = incumbent agency, whether rating was published by Moody's or S&P agency	N/A	See H2
Regional focus	0–1 continuous variable of agency regional focus as the number of sovereigns <i>i</i> from one of five geographic regions relative to the total number of sovereigns <i>i</i> rated by agency <i>r</i> in year <i>t</i>	N/A	See H3
Rivalry	Number of agencies publishing a rating for sovereign <i>i</i> in year <i>t</i>	N/A	See H4

^aUnless otherwise indicated, the data source is the World Bank (2002). All measures are two-year moving averages calculated as $([year\ t + year\ t - 1])/2$.

^bThis is the correspondence of variable measures to 1 of 10 broad categories used by agencies to determine sovereign ratings (e.g., S&P 1999).

^cThis is the variable used to estimate agency ratings in previous academic research (Cantor and Packer 1996, Larraín et al. 1997, McNamara and Vaaler 2000, Afonso 2003).

^d1 ≅ Strong political and or civil rights (Free); 7 ≅ Opposite assessment (Not Free).

Endnotes

¹We applied two different analyses designed to time the onset and dissipation of crisis-induced turbulence in emerging-market countries. Our first analysis entailed application of a financial “crisis” definition developed by Frankel and Rose (1996). They defined one type of financial crisis in a country—a currency crisis—as 20% depreciation in the nominal exchange rate of a country’s currency against the U.S. dollar in a given year. Where there are consecutive years of such depreciation, they impose an additional condition. Each additional consecutive year of depreciation must be at least 10% greater than the previous year. Thus, for example, 20% depreciation in Year 1 must be followed by a depreciation of at least 22% in Year 2 for a given country to be considered in “crisis” for both Years 1 and 2. Using this definition of crisis, we test whether the frequency of crisis occurrence in our sample of countries in each year was significantly higher than the mean frequency for all years from 1995 to 2000. We collected data on the U.S. domestic currency average nominal exchange rate for each of the countries in our sample from 1995 to 2000. A χ^2 test using these data indicate that crises as defined by Frankel and Rose (1996) are significantly higher in 1997 and 1998 ($p < 0.05$) compared to the overall frequency of crises in 1995–2000.

A second empirical analysis also confirms our choice of 1997–1998 as the period of crisis-induced turbulence. This analysis follows previous academic research on environmental turbulence and decision making, noting increased rates of change confronting individuals and the consequential need to update decisions more often (Janis and Mann 1977, Ury and Smoke 1991, Kindleberger 2001). We designed a test to ascertain whether the crisis-induced turbulence years of 1997–1998 saw higher rates of change in ratings compared to counts for all years from 1995 to 2000. For this test, we measured counts in the number of agency rating changes annually for a given sovereign. We recorded the total count of annual agency rating changes—upgrades and downgrades—for each sovereign from 1995 to 2000. We regressed this annual rating change count for each sovereign on several factors: (1) the number the agencies rating the sovereign, (2) the number of agencies rating that

sovereign for the first time, (3) the average sovereign rating of all agencies rating that sovereign, (4) an indicator for 1997–1998, and (5) indicators for different geographic regions. As the dependent variable is an annual count measure, we used a Poisson regression estimator. The coefficient estimate on the 1997–1998 indicator was positive and significant (0.6934; $p < 0.01$), indicating that the count of upgrades and downgrades during these two years was significantly higher than during other years in 1995–2000, *ceteris paribus*. These two analyses confirm our identification of 1997–1998 as years of crisis-induced turbulence. Additional results from these tests are available from the authors on request.

²These results are robust to respecification of the model with separate agency dummies rather than the simpler incumbent versus nonincumbent agency distinction we use. Interestingly, coefficient estimates for Moody’s and S&P do not differ significantly, but are different as a pair from the three other agencies we designated as nonincumbents.

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